HEALTH SCIENCE

REVIEW GUIDE

Bahamas Junior Certificate

Compiled by Dr. Jacinta Higgs

STUDENT NAME:_____

TEACHER NAME:_____

SCHOOL NAME: _____

Printed and Designed by Akhepran Publishing Press

324-9212
akhepran@gmail.com

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INTRODUCTION TO HEALTH SCIENCE

The meaning of Health

Health is defined as a state of physical, mental and emotional well-being. Health Science is a branch of Science. It includes the study of the structure and function of the human body. It also studies ways how to take care of the body and keep it working properly. Healthy persons are physically, mentally and emotionally well.

JOBS RELATED TO SCIENCE

There are many jobs and careers that are related to Health Science.
Some of these jobs are:

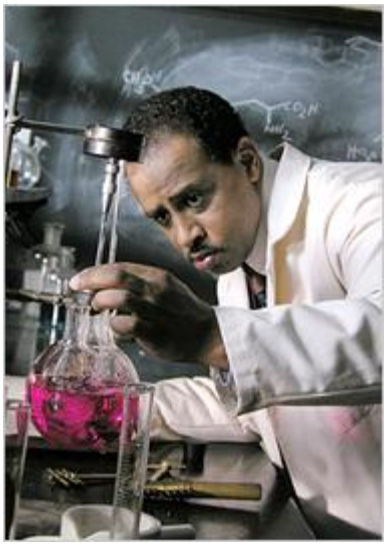
1. Dentist - cares for and treats our teeth
2. Nurse - cares for the sick and assists the doctor.
3. Surgeon- performs operations on sick and injured persons
4. Pediatrician - cares for and examines children
5. Gynecologist - cares for and examines women.
6. Psychiatrist – cares for mentally ill persons.
7. Dietician – prepares, and suggests food for people
8. Doctor – cares for and treats sick people
9. Public Health Inspector- examines and cleans our environment.

Dentist

Biologist

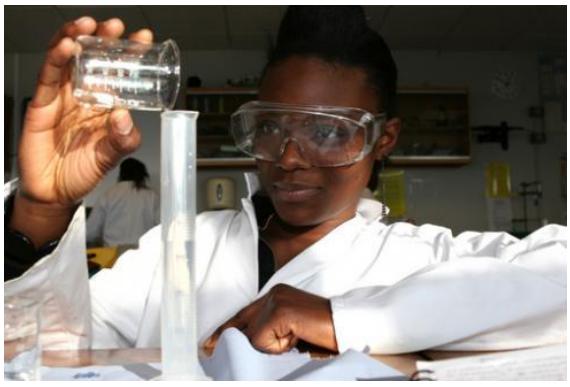
Nurse

Surgeons



chemist

Environmentalist



Lab Technician

Characteristics of healthy persons

The health of a person is considered important for happiness, peace of mind, personal maturation, and success in life. There are seven (7) common habits or characteristics of a healthy person.

1. A healthy person is invested in meaningful activities. These activities extend to work, family, leisure and all aspects of living. The more an individual is fully involved with various activities, clubs, organizations, people, or ideas, the more psychologically healthy he or she will be.

2. A healthy person can display love and respect for a parent, child, spouse, or close friend. A well-developed sense of self identity helps a person to show love and respect with the loved one and concern for other people welfare. The love of healthy persons is unconditional.

Compassion is the second kind of warmth, love and care a healthy person can demonstrate to others. Compassion relates to an understanding of the basic human condition and a sense of kinship with all people. Empathy for others results from an “imaginative extension” of one’s own feelings to humanity. In turn, the healthy person is tolerant and non-judgmental of people’s frailties, understanding they share the same weaknesses.

3. A healthy person shows self-acceptance, frustration tolerance and emotional control. **Self-acceptance** is important and involves accepting all aspects of one’s being, including weaknesses and failings, without being too hard on one self. Mature persons live with their shortcomings with little conflict within themselves. They try to do their best and improve when possible.

Frustration-tolerance relates to tolerating stress and managing wants and desires. Healthy people devise and use less frustrating ways of reaching the same or substitute goals. Frustration does not cripple or harm a healthy person.

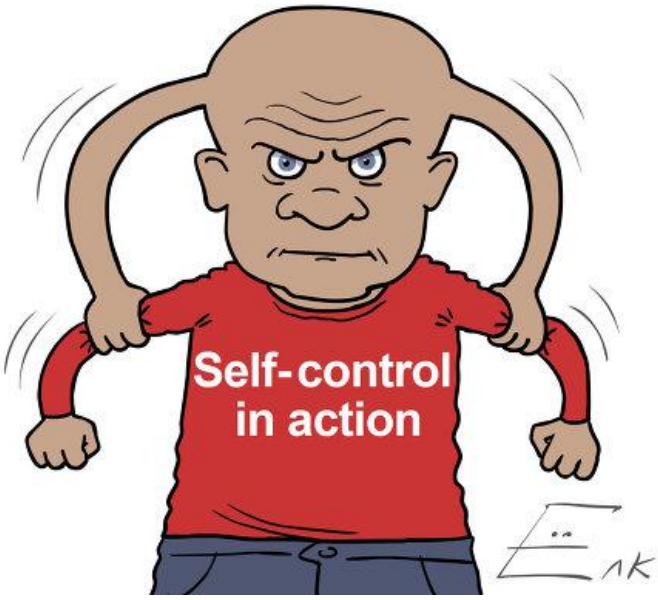
4. A healthy person thinks of and views their world objectively and can accept reality for what it is. Mature healthy people do not distort or twist reality to make it compatible or fit with their wants and fears.

5. A healthy person uses their skills, gifts and talents wisely toward their development and to help other people. Work and responsibility provide meaning and a sense of continuity and value to life for a healthy person.

6. The healthy individual who possesses a high level of self-knowledge - meaning self-insight - achieves a higher level of success. Knowledge of self requires insight into the relation between what one thinks one is and what one actually is. This person is considered intelligent.

7. A healthy person is forward-looking and motivated by long-range goals of accomplishment. This characteristic helps the person to develop and show self-motivation, values and a conscience.

8. A healthy person has emotional control and can discipline him or herself to stay calm, not fight, and show peace in a hostile or violent situation. Self-control helps the person not to disrupt social functioning or relationships. The control is not repression (hold back and suffer inside), but a redirecting of the emotions into more constructive channels like smiling, being silent, counting to twenty, praying, speaking with respect to the other person or simply walking away.



Personal Hygiene:

Personal hygiene refers to the careful cleaning of and caring for your body. The main reasons to practice good personal hygiene are for disease prevention, health promotion and good self-esteem development. Maintaining good personal hygiene includes daily bathing, washing your hands, brushing your teeth and wearing clean clothing. It also includes making safe and healthy decisions when interacting with others. Implementing good personal hygiene practices has both health and social benefits. Proper personal hygiene means taking care of every aspect of your body, from keeping it clean to looking your best. Basic hygiene should be taught to children at an early age to help establish good habits. Parents can reinforce good hygienic behavior by creating routines and being good role models. Your personal, social and professional worlds are all affected by hygiene habits.

Disease Prevention

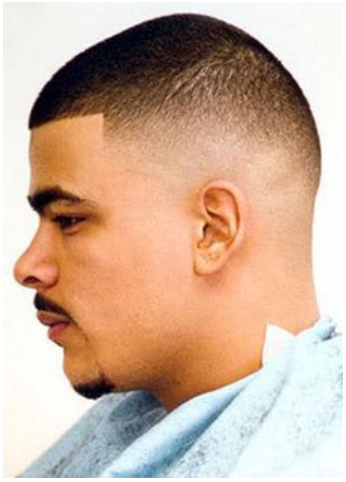
Wash your hands often to prevent the spread of disease. Each time you use the restroom, wash your hands before leaving the area to remove germs. Wash your hands before you handle food, eat or take out contact lenses. Keeping your body clean is vital in combating and preventing illness -- both for yourself and for those around you. Washing your hands can prevent the spread of germs from one person to another or from one part of your body to another.

Lower Health Care Costs

Since it curbs the spread of disease, good hygiene results in lower health care costs. Brushing your teeth and keeping clean could eliminate unnecessary visits to your dentist and doctor, saving you money.

Grooming

Good grooming practices are vital to personal hygiene. It's easy for socks and underclothes to collect dead skin cells and sweat because they rub up against your skin. Change your underwear and put on a fresh pair of socks every day. Putting on clean clothes can make you look and feel good about yourself.



Nice Smile

Most people want to keep their teeth and have attractive smiles. This requires frequent brushing and good dental habits. If you fail to brush your teeth, they are more likely to become discolored, get cavities and possibly fall out. According to the American Academy of Periodontology, regular brushing and flossing can significantly decrease the risk of gum disease, which can cause bad breath or even worse—tooth loss.

Self-Esteem

When you're clean, you'll feel much better about yourself than when you're dirty. People will react more positively to you, which will also help raise your self-esteem.

Sex Appeal

You are more likely to appeal to a potential partner if you practice good hygiene. Dirty hair, discolored teeth and bad breath can keep you from having romance in your life.

Social Acceptance

Good hygiene is critical for social acceptance, because most people don't want to be around others who are dirty or smelly. Children who practice good hygiene eliminate one major reason for other kids to make fun of or bully them. It's sad to see someone on the playground getting taunted for smelling bad or having dirty hair.

Social Benefits

In many cultures, poor personal hygiene is considered offensive or a sign of illness. Caring for your body regularly can reduce body odor and improve your personal appearance, subsequently improving others' perceptions of you. This is particularly important in situations in which proper etiquette is expected or required, such as at work or school. Good personal hygiene is also helpful in improving your own self-image.

Professional Acceptance

Most employers prefer employees who are clean and well-groomed. Good hygiene can make the difference in being hired and getting promotions.

Being a Role Model

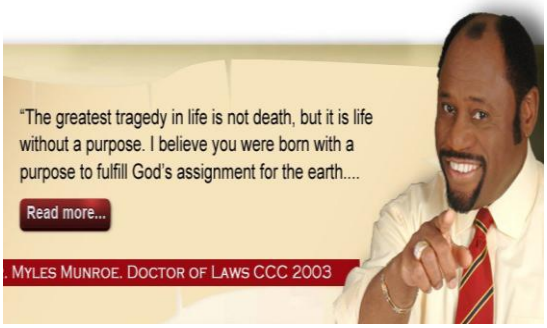
Role models come into young people’s lives in a variety of ways. They are educators, civic leaders, mothers, fathers, clergy, peers, and ordinary people encountered in everyday life. A study by Dr. Marilyn Mitchell conducted in 2009 showed that being a role model is not limited to those with fancy titles or personal wealth. In fact, students were quick to state that “a true role model is not the person with the best job title, the most responsibility, or the greatest fame to his or her name.” Anyone can inspire a child to achieve their potential in life.

Top Five Qualities of Role Models

The top five qualities of role models described by students in the study are listed below. These qualities were woven through hundreds of stories and life experiences that helped children form a vision for their own futures. In a poll of 50 adult Facebook these same qualities were mentioned as adults reflected on their own role models. The biggest difference was that adults did not rank “commitment to community” as high as their younger counterparts. They also mentioned qualities like compassion, fearlessness, and listening skills. By far, the greatest attribute of a role model is an ability to inspire others.

1. Passion and Ability to Inspire

Role models show passion for their work and have the capacity to infect others with their passion. Speaking of several of his teachers, one student said, “They’re so dedicated to teaching students and helping students and empowering students. That is such a meaningful gesture. They are always trying to give back to the next generation. That really inspires me.”



2. Clear Set of Values

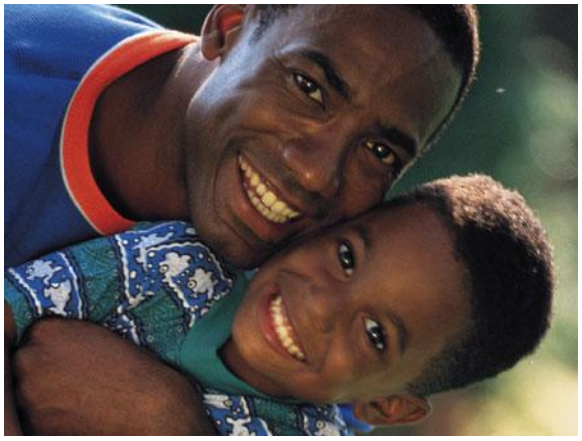
Role models live their values in the world. Children admire people who act in ways that support their beliefs. It helps them understand how their own values are part of who they are and how they might seek fulfilling roles as adults. For example, students spoke of many people who supported causes from education to poverty to the environment. Role models helped these students understand the underlying values that motivated people to become advocates for social change and innovation.

3. Commitment to Community

Role models are other-focused as opposed to self-focused. They are usually active in their communities, freely giving of their time and talents to benefit people. Students admired people who served on local boards, reached out to neighbors in need, voted, and were active members of community organizations.

4. Selflessness and Acceptance of Others

Related to the idea that role models show a commitment to their communities, students also admired people for their selflessness and acceptance of others who were different from them. One student spoke of her father, saying "He never saw social barriers. He saw people's needs and acted on them, no matter what their background or circumstances. He was never afraid to get his hands dirty. His lifestyle was a type of service. My father taught me to serve."



5. Ability to Overcome Obstacles

As Booker T. Washington once said, “Success is to be measured not so much by the position that one has reached in life as by the obstacles which one has overcome.” Young people echoed this sentiment, showing how they developed the skills and abilities of initiative when they learned to overcome obstacles. Not surprisingly, they admire people who show them that success is possible.

Role models overcome challenges. One student shared a story of a young man she met in Cambodian while on a service-learning project with her school. “He is an incredibly hardworking individual who has faced unimaginable obstacles in his life, yet continues to persevere to support his family and encourage his community. He survived the Cambodian genocide. He earned his education in a system where those who succeed are the ones who bribe officials. He has dedicated his life to give back to his community. Wow! What an individual; and the best civic role model!”

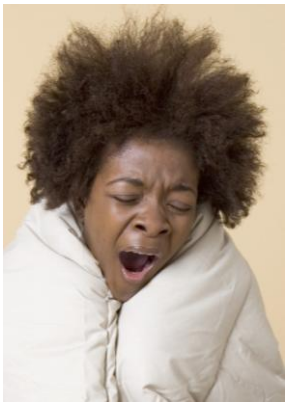
Research studies have long shown a correlation between role models and higher levels of civic engagement in young people. Positive role models are also linked to self-efficacy, the ability to believe in ourselves. In fact, the young people in my study admitted that had they not learned to believe in themselves, they would not have been capable of believing they could make a difference in the world!

Children develop as the result of many experiences and relationships. Role models play an important role in inspiring kids to learn, overcome obstacles, and understand that positive values can be lived each day. Whether you are a parent, grandparent, aunt, uncle, teacher, civic leader, clergy member, sports coach, after-school program leader, or a person who just happens into a child's life, you have the ability to inspire! Parents should set an example for their children by practicing good hygiene. Children are more likely to do what you do than what you say.

Importance of rest & sleep

Poor sleep hygiene is a widespread problem in The Bahamas. Establishing a set bedtime and awakening time may help improve sleep hygiene. Resisting the urge to take naps or keeping them brief and avoiding alcohol and caffeine for a minimum of four hours before going to be bed may promote higher quality sleep.





Young people and children require a lot more sleep than adults because their brain is not completely developed yet. Adults need 6 to 8 hours every night. Going without sleep for any period of time can and will result in hysteria, hallucinations, and eventually death. Without REM sleep, the body will refuse to function correctly. REM is an acronym for Rapid Eye Movement. It is a point in your sleep cycle when your body becomes paralyzed.

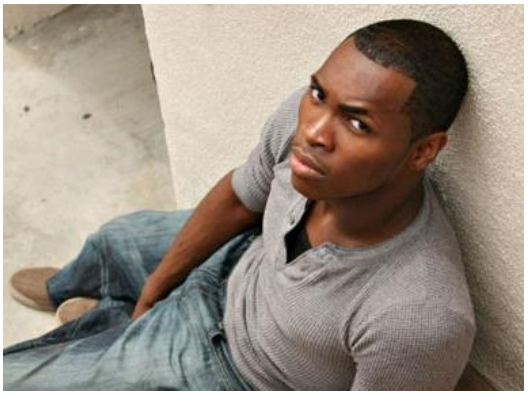
The less sleep you have, the less cognitive ability you will have for even basic functions. Even your involuntary organs will refuse to work after a while. If one can only afford the least amount of sleep, always go for 6 hours. You can function relatively normally for a few days, but after that, prepare to start acting like a meth addict.

Conflict resolution

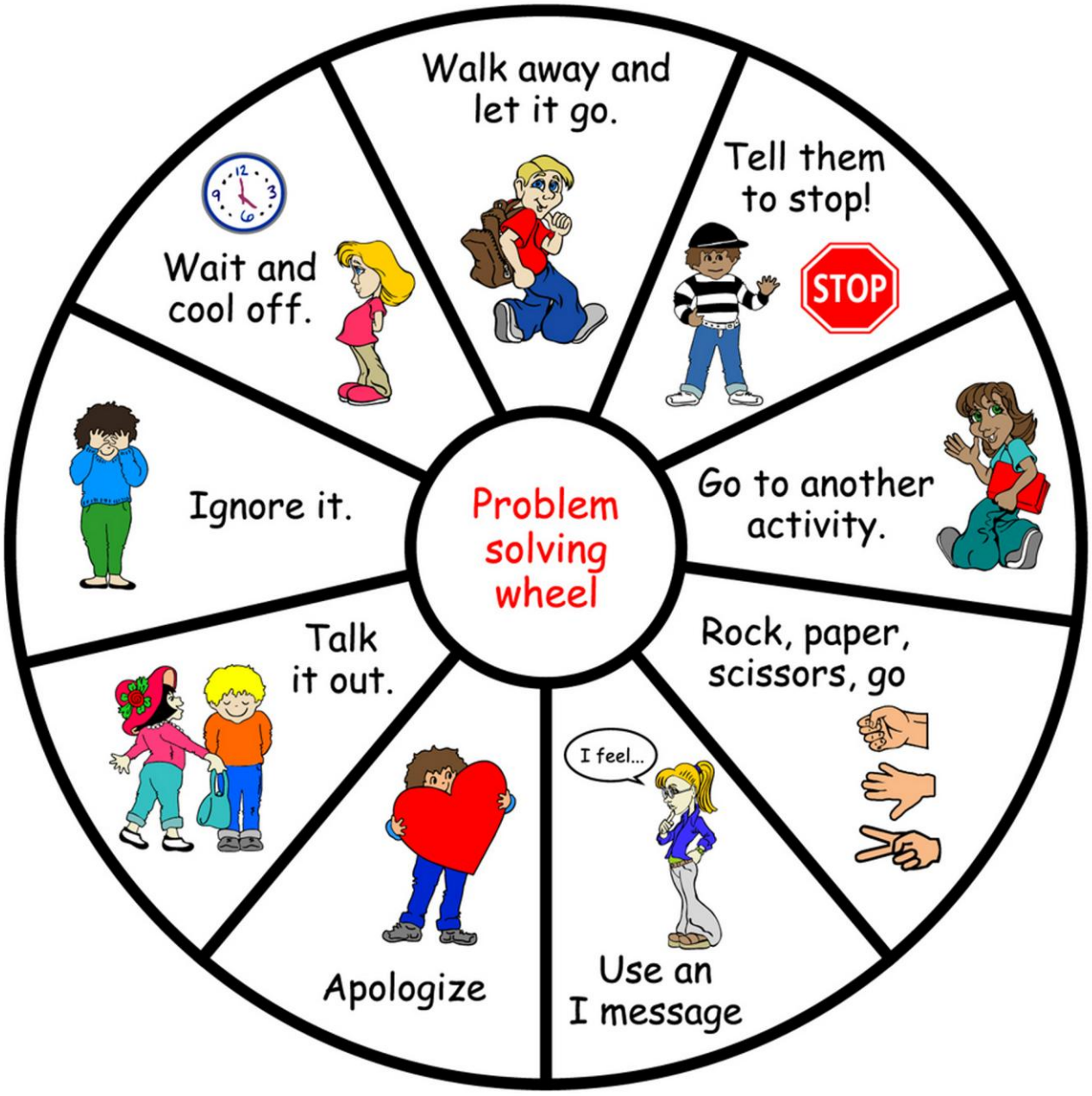
Is a strategy that is used to identify, recognize and solve (heal) the causes or reasons for a problem, argument, disagreement or broken relationship. There are many ways to help and deal with differences of opinions. Conflict resolution is having a great deal of respect for self & others. Sometimes we all get pretty angry. We may feel that something is unfair, something has been taken or broken that we value, someone is being mean, we're not getting a fair share, etc. So what do you do? Well, you could throw a huge tantrum, get really upset, be mean to everybody etc.

Would any of these things solve the problem? I don't think so!

Well, what could you do?



What can I do?


Problem solving wheel
Walk away and let it go.
Tell them to stop!
STOP
Go to another activity.
Rock, paper, scissors, go
Use an I message
I feel...
Apologize
Talk it out.
Ignore it.
Wait and cool off.

Conflict Resolution

Try to sort things out so that everyone gets a fair go and something of what they want. There are 4 things that you need to do.

1 Understand what the main cause of the problem may be.
2 Avoid making things worse
3 Work together and listen to everyone involved
4 Find the solution

1. Understand

Everyone involved needs to understand what the conflict (argument) is about.

To do this, everyone needs to:

a. say what they feel about it (without interruptions).
b. listen to what other people have to say about their feelings (without interrupting them).
c. try to put themselves in the other person's shoes and try to understand their point of view.

2. Avoid making things worse and do not put-down anyone.

No mean, nasty remarks that will hurt people's feelings - no personal remarks about a person's looks, gender (whether they are a boy or girl), their 'secrets' or things that have happened in the past
no screaming and shouting
no fighting, hitting, kicking, pushing or any kind of hurting the other person's body.

3. Work together

Make "I" statements, like:
"I feel hurt when..."
"I need to feel or be..."
"I hear what you are saying, but I feel..."
Say what you feel without blaming the other person, e.g. "I feel sad when you shout" is better to say than "Your shouting makes me feel sad."

Take turns at speaking. You might even want to decide on a time limit for each person to speak before you get started. That way everybody gets the same chance to say what he or she wants.

Talk quietly. It's hard to keep your voice down when you feel upset, but a quiet firm voice is far better than someone shouting. A loud nasty voice makes everyone upset and unwilling to listen.
Write down what you each see as the problem and then read what the other person has written.

Do some **active listening** (show the person that you are listening) by: looking at them, to show that you are giving your full attention. Don't overdo it though. Staring hard at someone makes that person feel uncomfortable. making 'listening noises' (but not interrupting). You know the sort of thing - "Uh huh", saying "yes" or "no" in the right places.
repeating what you heard. When they've finished, say what you think you've heard from them, eg. "So, your problem is that I haven't tidied my part of our room?"

4. Find the solution
Once you have listened to each other and found what the problem is, then you need to look for a solution. Brainstorm together to think of ways in which you could resolve the conflict. Think of as many solutions as you can, even if they seem silly at first. Another person may be helpful to write down your ideas or suggest ways of making your ideas work so that you can resolve the conflict.

Possible outcomes
Yes/yes when both of you are pleased with what you worked out.
Yes/no when one side is happy because they got what they wanted and the other is sad because they didn't get what they wanted.

No/No when neither side is happy because nobody got what they wanted (you know the sort of thing, when mum or dad step in and say that no-one gets anything, because you can't work out your problem!)

Which do you think is the best outcome?

Yes/Yes of **WIN = WIN** is the best because everyone gets something. But, you will need to be very good at these conflict-solving skills so that each gets something that he/she wanted.

When you have come to a solution that both of you can agree with, then you have to be responsible for carrying it out.

If things don't work out then you need to go through the whole process again to see how it could be improved.

Conflict resolution is not easy. It takes everyone involved to work together willingly and to accept and carry out what has been decided.

Some schools have peer mediators. These are children who go through a special training so that they can help other children to work through the problems they are having with each other.

Parents, teachers and counsellors can all help you to learn the skills for resolving conflict and becoming a more confident, responsible and independent person.
“Problems don't go away if you ignore them - in fact usually they get worse. It's a good idea to face problems and get them sorted out as soon as you can”. Dr. Kim

How would you resolve the following conflicts?

1 You and your friend are watching TV. You want to watch one program and your friend wants to watch another. What could you do?

2 Your friend gave you some pencils belonging to her brother and he wants them back. What could you do?

3 You have lost your friend's library book. What could you do?

4 Your sister is always going into your room and borrowing your stuff without asking. What could you do?

5 Your baby brother/sister chews your homework! What do you do?

Remember to

- ✓ Think about the problem.
- ✓ Say what you feel.
- ✓ Listen to the other person.
- ✓ Brainstorm solutions.
- ✓ Decide what each one will do.
- ✓ Stick to what you have decided.
- ✓ Talk again if the solution is not working.

Coaching Children in Handling Everyday Conflicts

Adapted from Solving Thorny Behavior Problems
by Caltha Crowe

Responsive Classroom Newsletter:
February 2009

"Teacher, he won't play with me."
"Teacher, she cut in line."
"Teacher, he took my book."

Such classroom conflicts are familiar in elementary school life. For years, resolving such conflicts for children filled my days. I lost valuable teaching

time, and the children learned nothing about resolving their own conflicts—or preventing conflicts from happening in the first place.

Finally, I began teaching student-to-student conflict resolution protocols. Once children learn these protocols, pairs or small groups can independently explain their upsets to each other, come up with reasonable resolutions, and follow through with changes in their behavior. But before children can learn to use any protocol independently, they need a firm grasp of some basic social skills:

1. Cooling off when upset
2. Speaking directly to each other
3. Speaking assertively, honestly, and kindly
4. Listening carefully to others and accurately paraphrasing their words
5. Proposing solutions and agreeing on a solution to try

You can teach these skills intentionally, whether or not you plan to move on to independent student-to-student conflict resolution. I begin during the first weeks of school. The teaching does take time, but so does resolving the children's conflicts for them. And teaching basic skills yields powerful benefits: a more peaceable classroom and a firm foundation on which the children can build further conflict-resolution learning in later grades.

My techniques for teaching the five skills always included whole-class discussions. Some of the richest of these were explorations of literature in which characters experience conflict. I also used teachable moments—moments when a conflict had just erupted. Because this last technique may be less familiar to you, it's the one I'd like to tell you more about.

Using the teachable moment

Beginning with the first days of the school year, students have predictable conflicts about sharing materials, choosing work partners, or deciding whom to play with. These are times when you can teach the basic skills by guiding the children in navigating a difficult interpersonal moment. You'll send a strong message about how disagreements will be handled in your class. You'll also give children opportunities to experience themselves as problem-solvers in situations that really matter to them.

A classic teachable moment arose on a beautiful fall day one year when I was teaching second grade. It was recess, and the playground was full of second graders running, swinging, climbing, and tossing balls. Emily came running over to me, saying, "Teacher, Joanne wouldn't let me play."

Emily and I found Joanne, and the three of us sat down together on a bench to talk, Emily and Joanne side by side. In the seven-step conversation that followed, I introduced the basic skills and gave both girls opportunities to practice as we worked together on solving their problem. (Comments to you are in italics.)

1. The children cool off.
Skill: Cooling off when upset

"OK," I said. "Before we begin to resolve this conflict, I want you both to take a couple of deep breaths to cool off. I'll take some too, so that I'm calm and ready to help you."

Research shows that stress-induced changes in our bodies impede logical thinking and increase aggression. Taking steps to calm ourselves allows us to do the clear thinking and careful listening needed for peacefully resolving interpersonal problems.

2. The first child (aggrieved party) states the issue.
Skills: Speaking assertively, honestly, and kindly; Speaking directly to each other

Once the children had taken some breaths and relaxed a little, I said, "Emily, tell Joanne what you told me. Make sure you look at her." Instead, Emily looked at me and started to blurt, "She wouldn't let me play!"

Immediately, I let the children know this was not going to be business as usual: I wasn't going to resolve their conflict for them. Instead, they were going to talk to each other.

"Emily, look at Joanne and tell her why you're upset," I said. Emily looked at her classmate but didn't speak. She needed a sentence starter. "You can start with 'Joanne, when . . .'" I said. To the other child, I said, "Joanne, it's your job to listen carefully to Emily."

"Joanne, you wouldn't let me play, and I wanted to," said Emily.

Children experienced with student-to-student conflict resolution use "I-statements" to say why they're upset: "I felt bad when you said I couldn't play with you." By focusing on her own feelings, the upset child gives her partner space to listen calmly and openly, without feeling attacked or

defensive. But when you're guiding children who are just learning the basic skills, "you-statements" are acceptable.

3. The second child listens and paraphrases what he or she heard.
Skills: Listening and paraphrasing; Speaking directly to each other

Joanne was defensive, ready to explain how she was in the right. "It wasn't . . ."

Right away I stopped her. "Joanne, first let Emily know that you understood her by telling her what you heard. You might begin by saying, 'I heard you say that . . .'"

This is the magical step. Often we're so focused on our own needs or hurts that we don't truly listen to the other person. When required to paraphrase what their partner said, children listen, and that listening helps move them toward understanding their partner's point of view. It also helps the partner feel heard. Younger students might find simply echoing their partner's words easier than paraphrasing.

"But I was just . . . ," Joanne persisted. I stopped her again.

"You don't have to agree with Emily. Right now you just need to let her know you listened by telling what you heard."

Joanne hesitated, so I said, "Emily, tell Joanne again what you said." Emily repeated her statement, which Joanne heard this time.

Often children can't state their understanding because rather than listening carefully, they were busy preparing their defense. Sometimes they need to have their partner repeat what he or she said.

"I heard you say that you wanted to play, and I didn't let you," Joanne said.

4. The second child states his or her point of view.
Skills: Speaking assertively, honestly, and kindly; Speaking directly to each other

"Joanne, now it's your turn to tell Emily your point of view about what happened," I said. "Emily, you're going to listen carefully."

This experience shows children that in such conversations, they'll have an opportunity to speak. This helps them wait their turn and focus on listening.

"I'd already planned to play with Valeria," Joanne said eagerly. "We didn't see each other all summer, and I wanted to be alone with her."

5. The first child listens and paraphrases what he or she heard.
Skills: Listening and paraphrasing; Speaking directly to each other

"Emily, it's your job now to tell Joanne what you heard her say. Later you'll get a chance to say whether you agree with her."

"But it's not fair . . ." Emily interjected.

Clearly, Emily also needed help suspending the urge to argue her case and instead paraphrasing so her partner feels heard.

"Remember, Emily, right now you're letting Joanne know that you understood her, just what you understood her to say," I coached.

"You and Valeria wanted to play alone together," Emily stated simply.

"Emily, now check with Joanne to make sure that you heard her accurately." Emily looked at Joanne, and Joanne nodded.

6. The process continues until both children feel they have been fully heard.
Skills: Speaking assertively, honestly, and kindly; Speaking directly to each other; Listening and paraphrasing

"Joanne, do you have anything more to add?" I asked. Joanne shook her head.

"Emily, how about you?" Emily also shook her head "no."

It's important to model patience and thoroughness in stating all the reasons for a conflict. Unspoken grievances will fester and result in more conflict, sooner or later.

7. The children reach a solution.
Skill: Proposing solutions and agreeing on a solution to try

"Emily, do you have any ideas about what you and Joanne might do to solve this problem?" I asked.

"We could play together tomorrow," Emily suggested.

"Joanne, do you have any ideas?"

"Emily's idea is okay with me," Joanne said.

It's important for children to learn to listen respectfully to each other's ideas for solutions. If either child had reacted disdainfully to her partner's idea, I would have immediately redirected her to state her objection in a positive, helpful way.

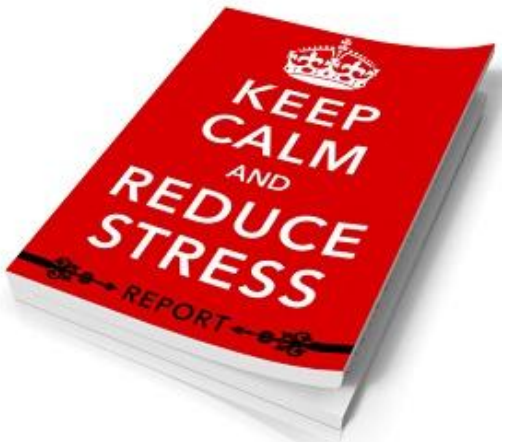
The two girls ran off to enjoy the rest of their recess. The next day I watched to make sure they followed through on their agreement. They did, playing happily with each other.

Agreeing on a plan is one thing; actually following through is another. When children are just learning to resolve interpersonal problems, they especially need your supportive check-in to make sure the agreed-upon solution is working for both of them. Within a few days after coaching, you can simply ask each of them, "How's that plan going?" Sometimes, as in this example, all you need to do is notice if their behavior toward one another has changed.

Teachable moments turn into lifelong skills

When we patiently guide children in using basic problem-solving skills when conflict erupts, we get them back on track so they can continue their academic and social learning. But we also accomplish much more than that. We give children a chance to experience themselves as problem-solvers, able to take responsibility for dealing directly with one another when they're upset. We nurture in them kindness, consideration of others, respectful assertion of their needs, and cooperation. These are habits and skills that will serve them well for a lifetime.

Stress Management



STRESS

The Nation's #1 Killer

Medically Proven Stress Contributes to:

* Heart Disease
* Strokes
* High Blood Pressure
* Colitis
* Irritability
* Rheumatism
* Depression
* Migraines
* Diabetes
* Hardening- of the Arteries
* Insomnia
* Fatigue
* Sex Problems
* Skin Diseases
* Allergies
* Overeating
* Asthma
* Kidney Disorders
* Ulcers
* Breathing Problems
* Increased Smoking

Stress is what you feel when you have to handle more than you are used to. When you are stressed, your body responds as though you are in danger. It makes hormones that speed up your heart, make you breathe faster, and give you a burst of energy. This is called the fight-or-flight stress response.

Some stress is normal and even useful. Stress can help if you need to work hard or react quickly. For example, it can help you win a race or finish an important job on time.

But if stress happens too often or lasts too long, it can have bad effects. It can be linked to headaches, an upset stomach, back pain, and trouble sleeping. It can weaken your immune system, making it harder to fight off disease. If you already have a health problem, stress may make it worse. It can make you moody, tense, or depressed. Your relationships may suffer, and you may not do well at work or school.

What can you do about stress?

The good news is that you can learn ways to manage stress. To get stress under control:

1. Find out what is causing stress in your life.
2. Look for ways to reduce the amount of stress in your life.
3. Learn healthy ways to relieve stress and reduce its harmful effects.

How do you measure your stress level?

Sometimes it is clear where stress is coming from. Adults have stress during a major life change such as the death of a loved one, getting married, or having a baby. But other times it may not be so clear why someone may feel stressed.

Stress Management Skills and Techniques

It's important to figure out what causes stress for you. Everyone feels and responds to stress differently. Tracking your stress may help.

Get a notebook, and write down when something makes you feel stressed. Then write how you reacted and what you did to deal with the stress. Tracking your stress can help you find out what is causing your stress and how much stress you feel. Then you can take steps to reduce the stress or handle it better.

Importance of physical exercise

Physical exercise is an excellent way to reduce the stress levels in a person life. The rigor or energy exerted during a good work out releases endorphins (chemical that produce happiness), the muscles become relax, the person becomes hungry and may eat a tasty meal, drink lots of water and then will want to chill and rest.

Good nutrition is an important part of leading a healthy lifestyle. Combined with physical activity, your diet can help you to reach and maintain a healthy weight, reduce your risk of chronic diseases (like heart disease and cancer), and promote your overall health.

POOR HYGIENE PROBLEMS

Body Odor

One of the first and most prominent consequences of bad hygiene is body odor. Body occurs due to the interaction of bacteria and sweat produced by the apocrine glands. As bacteria thrive in unwashed sweat, over time their byproducts produce the smell commonly associated with body odor. Body odor may also come from poor bathroom habits, resulting in feces or urine odor.

Bad Breath

Bad breath proves another easily recognizable consequence of poor hygiene. It commonly develops from not regularly brushing and flossing your teeth. Bad breath results because of two main reasons. First, bacteria thrive on particles of food that can stick to your teeth. As the bacteria digest this food, their byproduct results in odor. Food can also get stuck in your teeth and rot over time, producing a foul odor, according to the American Dental Association.

Dental Disease

Not only can poor dental hygiene lead to bad breath, it can also lead to dental disease. As you allow food particles and bacteria to build up on the teeth, a coating called plaque begins to form. The bacteria in this plaque release acids, which break down the enamel on your teeth. As this process continues over time, a hard substance called calculus can form on the teeth, irritating the surrounding gums. This irritation can progress into gingivitis, leading to inflammation of the gums, which can later lead to gum disease. Gum disease causes infection, and eventually may destroy your teeth.

General Disease

Hygiene practices, such as washing your hands, prove the most effective ways to prevent contracting disease and spreading disease, according to the Centers for Disease Control and Prevention (CDC). Your hands are in constant contact with both the environment and your face, providing easy transportation from the surface of an infected object or person to your nose or mouth. Washing your hands with clean running water and soap helps reduce the amount of bacteria on your skin, lessening your chance of contracting diseases such as the common cold, influenza (flu), salmonellosis, hepatitis A, typhoid, streptococcus and staph infections.

Gender Specific

Men and women have unique hygiene needs that if ignored may lead to health problems. For example, men who have an uncircumcised penis need to regularly retract the foreskin and clean beneath to prevent inflammation, phimosis (where the penis cannot fully retract from the foreskin), or penile adhesions.

Women must take care to keep the genitalia clean, and always wipe from front to back after using the restroom to prevent introducing infections from the rectum to the urethra.

Washing Hands Properly

Washing Skin Properly

The skin is the body's protective covering. However, it is not an insensitive wall. It is alive, and its cells are constantly multiplying to replace cells shed from the top of the horny external layer.

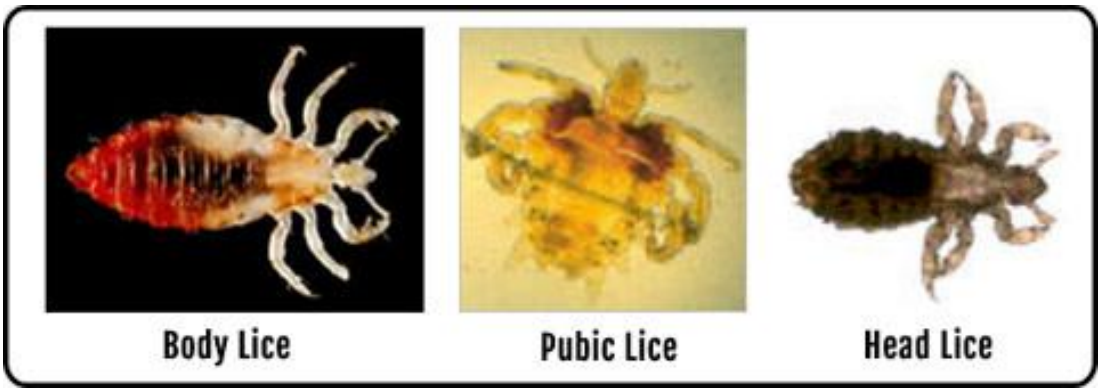
Many bacteria and fungi (germs) normally live on the skin - some of them helpful and most of them harmless. When the skin is healthy, there is a balance between the skin cells and bacteria and fungi.

A number of causes, such as exposure to chemicals or germs not normally found on the skin, can upset this balance. If the body's defenses are down, this can lead to diseases. Hair can also be defined as a form of skin and cause us a lot of problems. The most common skin and hair problems: acne, herpes, impetigo, prickly heat, scabies, tinea, losing hair, having excessive hairs, brittle hairs, ingrown hairs ...

Body Lice Symptoms and Treatment

Body bugs can be very dangerous, especially if they carry Lyme Disease!

Treat body lice. Body lice live in the seams of clothing and feed on human blood. They are larger than head lice and easy to spot on the body. They are commonly found in areas where people live in very close quarters or don't have access to bathing and washing facilities. Body lice are easy to get rid of once access to these facilities is gained.

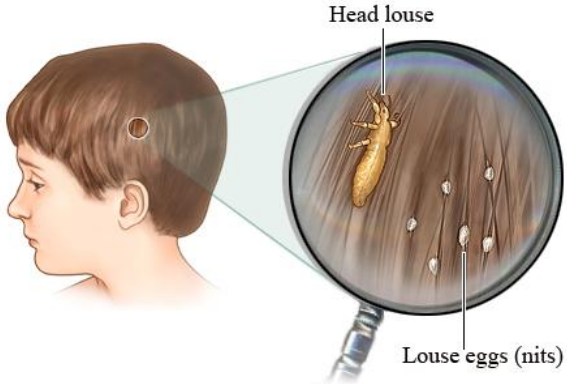


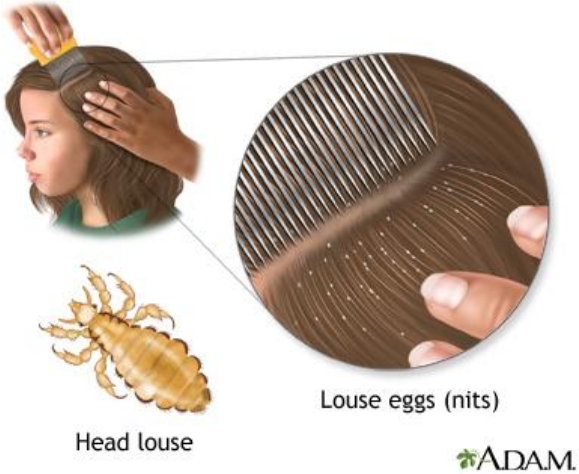
To treat body lice, do the following:

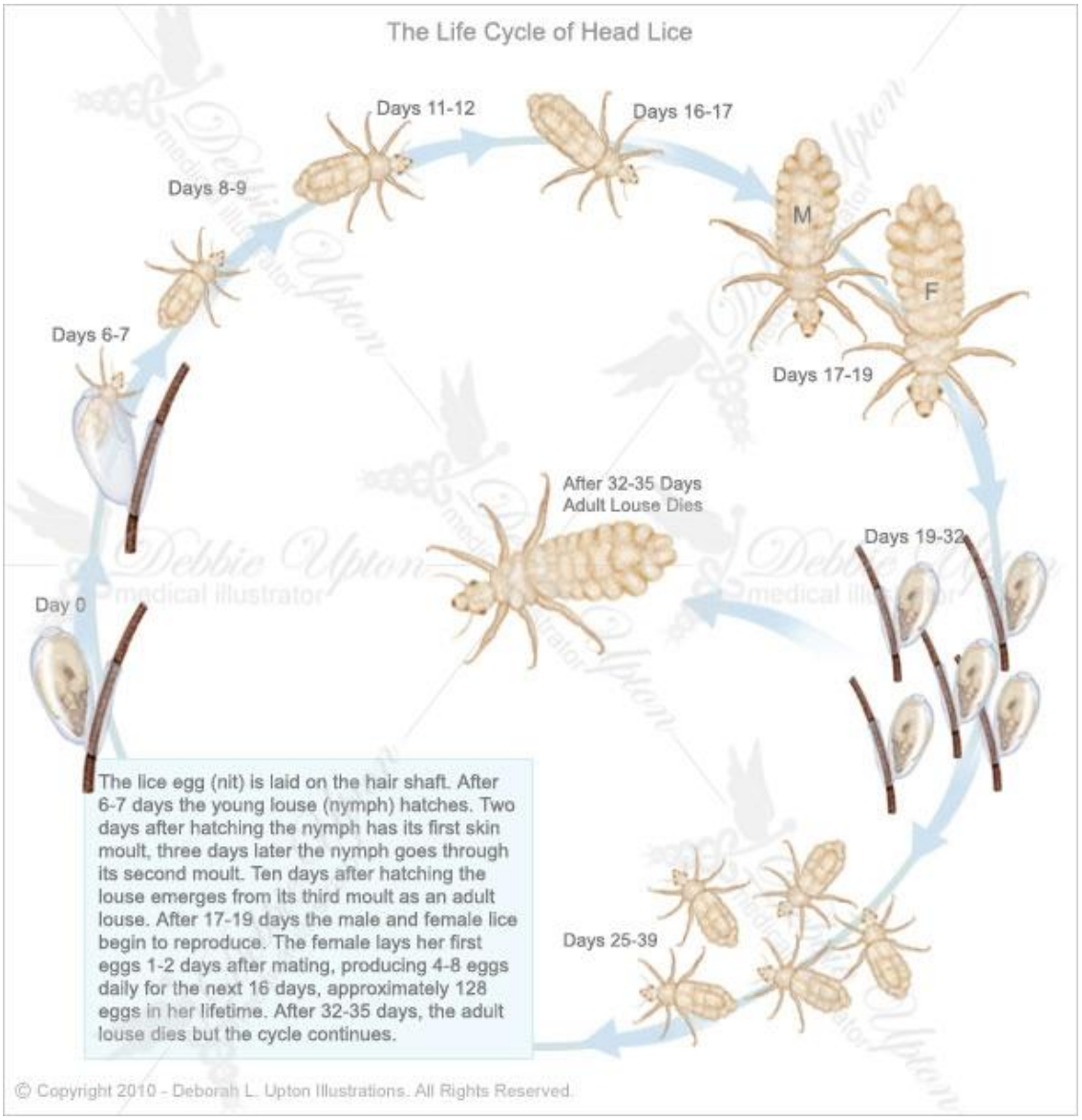
1. Throw out the infested clothing. Lice can live up to a month in clothes. Instead of trying to save them, throw them out.
2. Take regular showers or baths and use soap.

3. Regularly wash clothing, bedding, and other linens. Wash the person's clothes and bedding. After this initial treatment, wash all clothes, sheets, pillowcases, stuffed animals, and any other fabrics the person has come into contact with in very hot water, then run them through a hot dryer. While lice don't live very long once they jump off a person's head, it's still important to wash everything so you can be extra sure someone else in the family won't get lice.
4. For items that can't be soaked in hot water, like hairbrushes and hair accessories, place them in plastic bags for at least two weeks. The lice will die without air and food.
5. Your doctor may prescribe a cream containing permethrin, malathione, or benzyl alcohol to help with the itching.

Washing Hair Properly (cleaning, lice)







Head lice are a common, controversial and frustrating problem for parents. But the controversy isn't only about how they got infected with head lice, but also revolves around how they are going to get rid of the head lice. Some people believe that head lice have developed resistance to regular lice treatments, so that they no longer work. Other experts believe that lice resistance is not a big problem, and head lice treatment failures are because parents don't remove the nits or that the child was misdiagnosed in the first place.

Once a child gets head lice, the mature or adult head lice can lay up to 10 eggs or nits each day. These nits, or lice eggs, hatch in about 7 to 12 days. Baby lice or nymphs are about the size of a pinhead when they hatch, and

quickly mature into adult lice in about a 9 to 12 days. In just a few days, adult lice are ready mate, starting this lice life cycle all over again during their 3 to 4 week lifespan.

Steps to treat head lice

Step 1
Wet hair completely with warm water (hot water can dry hair). Make sure you lift your hair at the roots, especially in the back, so the water can soak your scalp, where oil and dirt collect.

Step 2
Rub a dime- to quarter-size dab of shampoo in your palms; add a splash of water, and lather it slightly.

Step 3
Apply the shampoo. Starting at the crown of your head, move down to your neck and then along your hairline. Pay attention to the underside of your hair in the back, against your scalp.

Step 4
Scrub your scalp gently in small circles with the pads of your fingers to loosen skin flakes, styling-product residue, and natural oils. Rinse with lukewarm water for at least one minute.

So your child has head lice.

Maybe you got a note from school or daycare that lice were circulating amongst the kids, that they noticed lice or nits on your child, or you may have noticed the lice on your child's head yourself.

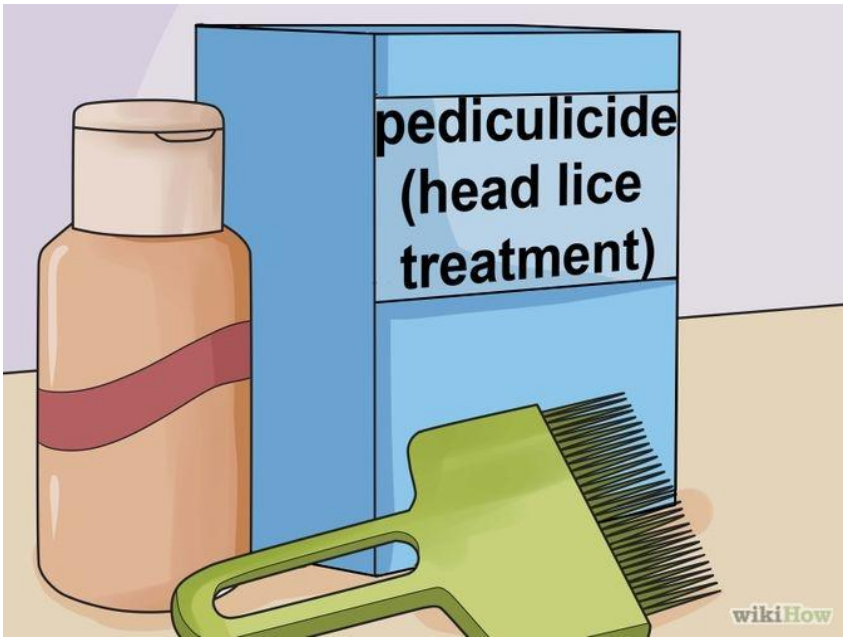
Unfortunately, the first reaction for many parents in dealing with lice, a common problem of childhood, is to panic. Panicking is not going to kill the lice though and will likely lead to over-treatment and anxiety in your child who is worrying that he has "bugs" in his hair.

Instead of worrying when you think your child has lice, you should:

1. Confirm that your child has lice. Reviewing some lice pictures can help you understand what you are looking for, including live lice and nits (lice eggs) in your child's hair.

2. Treat your child's head lice with an anti-lice shampoo, such as Nix or Rid, if you identify live head lice or nits within 1 cm of your child's scalp. Keep in mind that nits which are further than 1 cm from your child's scalp have likely already hatched or do not have live lice in them, so that may not indicate a live infestation.

3. Continue to remove nits from your child's head, even if you have to check his head each night for a week or more until you get them all.



4. Nits hatch in 7 to 10 days and develop into an adult in another 7 to 10 days which can then lay more eggs. Since anti-lice

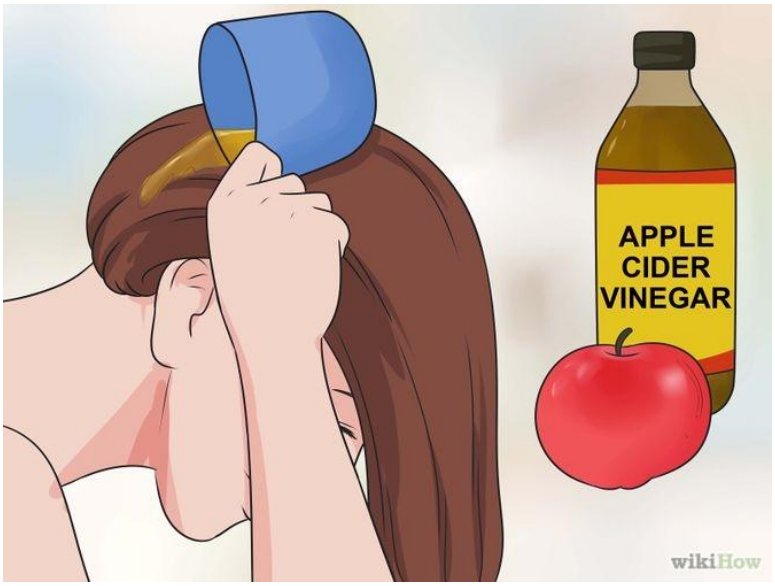
shampoos don't usually kill nits, you usually have to retreat the child with lice in 7 to 10 days to kill any newly hatched head lice and break this lice life cycle. Many experts now recommend doing your second head lice treatment on day 9 though. Nit combs are handy tools that are specially designed to pull out nits (eggs) and dead lice as they are combed through the hair.

5. Clean your child's clothes and bedding if he has lice. This includes washing his clothing and bedding in hot water and vacuuming to remove lice and nits from furniture, carpets, stuffed animals, and his car seat, etc. According to the American Academy of Pediatrics, you really only have to clean "items that have been in contact with the head of the person with infestation in the 24 to 48 hours before treatment," and not everything in your house though. And you can put anything that you can't wash in a large plastic bag for a few weeks -- where they will eventually starve and die -- if you are really concerned that it is infested, although this is rarely necessary.

6. Teach your kids how to avoid getting head lice again, including not sharing hats or brushes or having direct contact with someone with lice.

7. See your pediatrician if you can't get rid of your child's lice, instead of treating your child over and over on your own or shaving your child's head. Your pediatrician can confirm that your child still does have live lice, teach you how to identify and remove nits, and may prescribe a prescription strength anti-lice shampoo, such as Ovide (0.5% malathion) or Lindane.

Try an apple cider vinegar treatment. This is another cheap, effective way to loosen the nits. Mix 1/2 cup water and 1/2 cup apple cider vinegar, and pour it over the person's hair and scalp. Use the nit comb on the hair; you should find them easier to remove.



Use and oil treatment to help the process move more quickly. Whether you used a pediculicide or not, there are natural substances that repel and kill lice. If you're sensitive to chemicals, it's definitely worth trying this oil treatment to help naturally combat the lice.

Use an essential oil spray. Certain essential oils repel lice and cause the nits to loosen more easily. Fill a spray bottle with 5 drops of essential oil per 1 ounce of water.

Try one or more of the following:

- Tea tree oil
- Lavender
- Oregano
- Peppermint
- Thyme
- Eucalyptus

Lice - What You Need To Know

In addition to learning more about lice, understand that you are not alone. Head lice infestations are common, affecting up to 12 million kids each year.

You should also know that:

1. Head lice aren't dangerous and are not a sign that your kids have poor hygiene or that they are going to catch a disease.

2. Kids can return to school after they have been treated with an anti-lice shampoo, even if they still have nits. Although they have long been against no-nits policies at schools, the American Academy of Pediatrics now states that 'no healthy child should be excluded from or allowed to miss school time because of head lice.'

3. Call your pediatrician if you are seeing live head lice sooner than the 7 to 10 days that you are supposed to do your second lice treatment, as that may indicate that your first treatment didn't work and repeating the treatment too quickly may increase your child's risk of side effects from the lice treatment, especially scalp irritation.

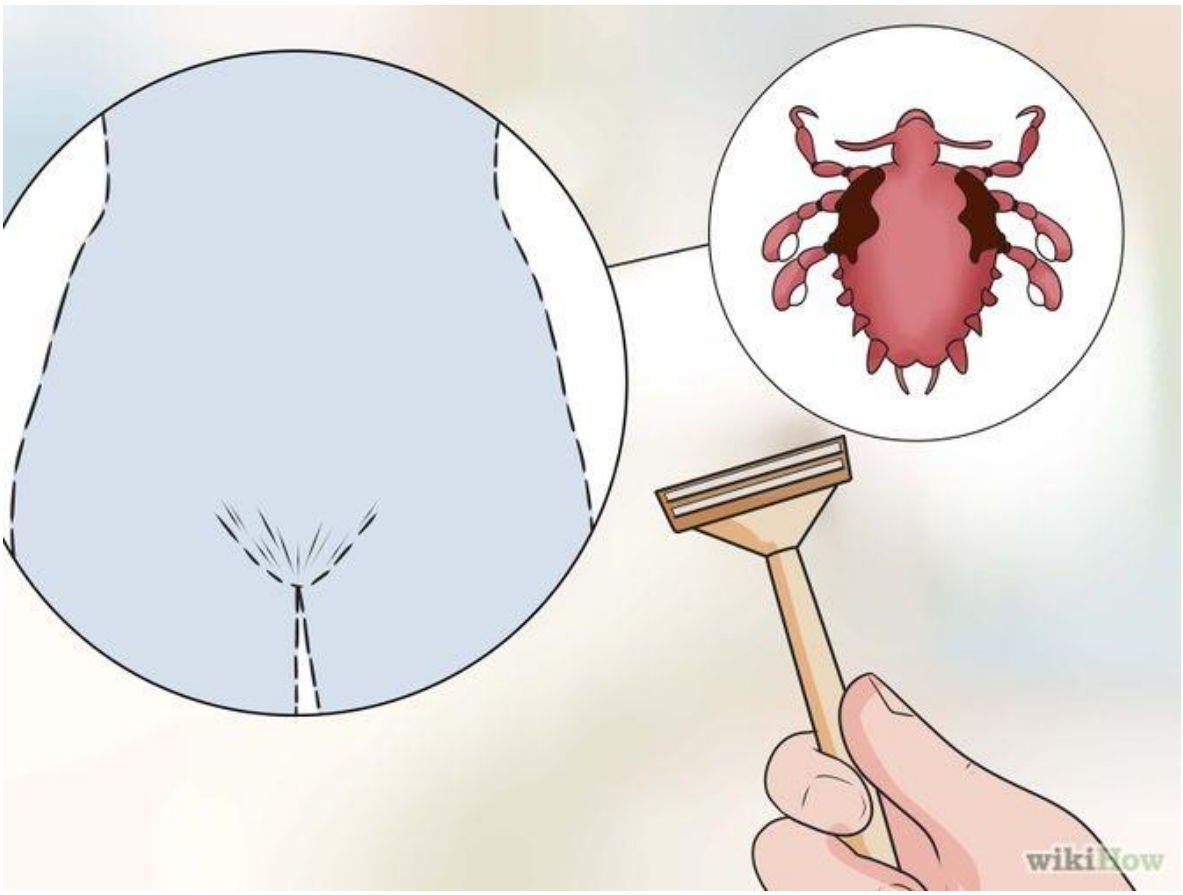
4. Check other family members for lice, but only treat those that show signs of an active lice infestation, with live lice or nits within 1 cm of their scalp.

5. Ulesfia (Benzyl Alcohol Lotion 5%) was recently approved to treat children over six months of age with lice. Unlike other head lice shampoos which are mostly pesticides, Ulesfia is a water-soluble gel that works to suffocate head lice.

Head lice infestations are a common problem for school-age kids, who spread them to one another in the classroom. Lice are annoying and unpleasant, but

with diligence you can be rid of them for good after a week or two. Body lice and canine lice are similarly possible to tackle if you know what tools to use.
See Step 1 and beyond for surefire instructions on banishing lice from your home starting today.

Washing genitals (puberty)



Treat pubic lice. Pubic lice, also known as crabs, is most commonly spread through sexual contact. Pubic lice can also live in areas of the body with coarse hair, like the eyebrows, ears and armpits. The lice and their nits are easily visible. There are a few ways you can get rid of public lice:

a) Get an over-the-counter lotion containing 1% permethrin or a mousse containing pyrethrins and piperonyl butoxide. These chemicals effectively kill the lice. Use according to the instructions on the package.
b) Remove the lice with a nit comb.
c) Wash your clothes and underwear in very hot water.
d) Soak combs and other items in hot water for 5 minutes.
e) Shave the pubic region. Getting rid of the hair the lice cling to is effective, especially in combination with the chemical treatment.

f) Monitor the area for signs of new lice. It may be necessary to undergo a second treatment.
g) Only use lindane shampoo as a last resort. It's effective but studies have shown it has a negative effect on the brain.

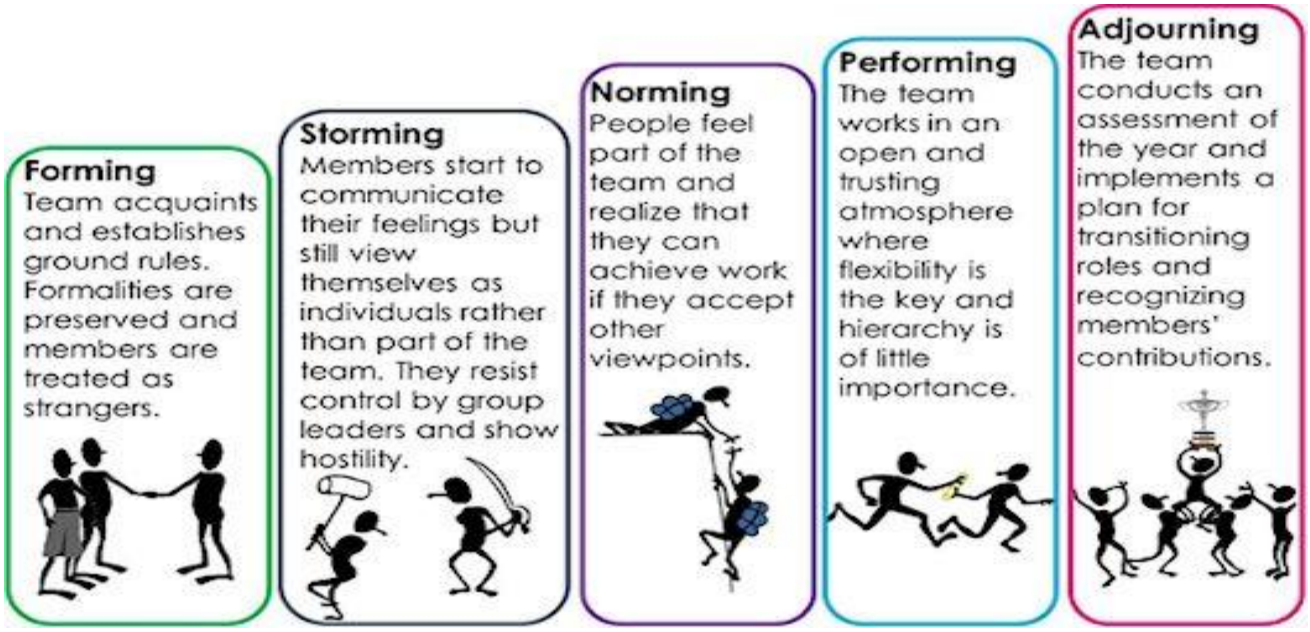
Treat canine lice.

Canine lice cannot be transmitted to humans (nor human lice to canines), but they can make your dog very uncomfortable. There are two types of canine lice: trichodectes canis, known as a chewing louse, and linognathus setosus, known as a sucking louse.

a) Take your dog to the veterinarian. It's important to make sure that what your dog has is actually lice.
b) Use a powder, spray or other treatment at the advice of your veterinarian.
c) Wash the dog's bedding and everything he has touched in very hot water.
d) Soak grooming tools in very hot water for 5 minutes.

HEALTHY RELATIONSHIPS
Group Dynamics

Group dynamics refers to the study of human behaviors in a group. Development of personal identity while being a part of groups



Planning balanced diets

Recreation and Hobbies Help Stress Management



HEALTHY FOOD HANDLING

Safe steps in food handling, cooking, and storage are essential to prevent foodborne illness.

You can't see, smell, or taste harmful bacteria that may cause illness. In every step of food preparation, follow the four Fight BACTERIA guidelines to keep food safe:

1. Clean - Wash hands and surfaces often.
2. Separate - Don't cross-contaminate.
3. Cook - Cook to proper temperatures.
4. Chill - Refrigerate promptly.

Basics for Handling Food Safely

1. Clean - Wash hands and surfaces often.

Healthy practices in food handling include frequently cleaning surfaces, before & after placing food on countertop and or on cutting boards. The stove and refrigerator should always be kept clean as well. It also include cleaning all utensils such as knives, forks, cooking spoons, mixing spoons etc. Using gloves when handling food is important as it reduces the opportunity for germs and or dead skin cells to be transported from the hands onto the raw or uncooked food items.

 All cooks and chefs working in the kitchen must wear hair wraps to prevent loose hair strands from falling into the food whilst it is being prepared. National Bahamian Food Handling standards also forbid cooks from wearing false finger nails whilst preparing food as the nails may drop off in the food.

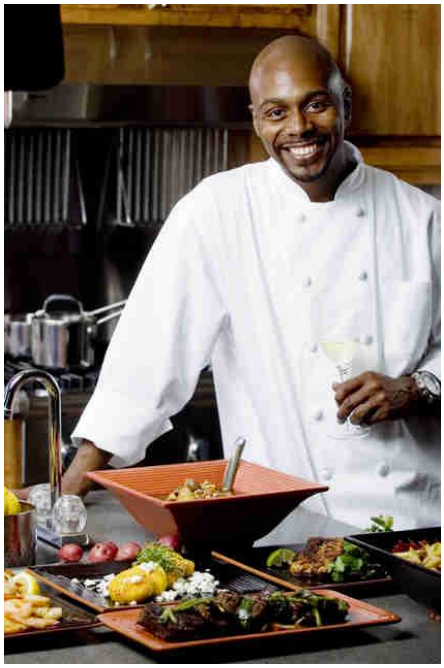
Shopping

1. Purchase refrigerated or frozen items after selecting your non-perishables.
2. Never choose meat or poultry in packaging that is torn or leaking.
3. Do not buy food past "Sell-By," "Use-By," or other expiration dates.

Storage

1. Always refrigerate perishable food within 2 hours (1 hour when the temperature is above 90 Â°F).
2. Check the temperature of your refrigerator and freezer with an appliance thermometer.
3. The refrigerator should be at 40 Â°F or below and the freezer at 0 Â°F or below.
4. Cook or freeze fresh poultry, fish, ground meats, and variety meats within 2 days; other beef, veal, lamb, or pork, within 3 to 5 days.
5. Perishable food such as meat and poultry should be wrapped securely to maintain quality and to prevent meat juices from getting onto other food.
6. To maintain quality when freezing meat and poultry in its original package, wrap the package again with foil or plastic wrap that is recommended for the freezer.
7. In general, high-acid canned food such as tomatoes, grapefruit, and pineapple can be stored on the shelf for 12 to 18 months. Low-acid canned food such as meat, poultry, fish, and most vegetables will keep 2 to 5 years â€" if the can remains in good condition and has been stored in a cool, clean, and dry place. Discard cans that are dented, leaking, bulging, or rusted.

Preparation



Preparation of food (comparison of methods of preparation in terms of loss of nutrients, increase in calories, additives, increase in cholesterol, changing the “nature” of the food)

1. Always wash hands with warm water and soap for 20 seconds before and after handling food.
2. Don't cross-contaminate. Keep raw meat, poultry, fish, and their juices away from other food. After cutting raw meats, wash cutting board, utensils, and countertops with hot, soapy water.
3. Cutting boards, utensils, and countertops can be sanitized by using a solution of 1 tablespoon of unscented, liquid chlorine bleach in 1 gallon of water.
4. Marinate meat and poultry in a covered dish in the refrigerator.

Thawing

1. Refrigerator: The refrigerator allows slow, safe thawing. Make sure thawing meat and poultry juices do not drip onto other food.
2. Cold Water: For faster thawing, place food in a leak-proof plastic bag. Submerge in cold tap water. Change the water every 30 minutes. Cook immediately after thawing.
3. Microwave: Cook meat and poultry immediately after microwave thawing.

Cooking

1. Beef, veal, and lamb steaks, roasts, and chops may be cooked to 145 Â°F.
2. All cuts of pork, 160 Â°F.
3. Ground beef, veal and lamb to 160 Â°F.
4. All poultry should reach a safe minimum internal temperature of 165 Â°F.

Serving

1. Hot food should be held at 140 Â°F or warmer.
2. Cold food should be held at 40 Â°F or colder.
3. When serving food at a buffet, keep food hot with chafing dishes, slow cookers, and warming trays. Keep food cold by nesting dishes in bowls of ice or use small serving trays and replace them often.
4. Perishable food should not be left out more than 2 hours at room temperature (1 hour when the temperature is above 90 Â°F).

Leftovers

1. Discard any food left out at room temperature for more than 2 hours (1 hour if the temperature was above 90 Â°F).
2. Place food into shallow containers and immediately put in the refrigerator or freezer for rapid cooling.
3. Use cooked leftovers within 4 days.

Refreezing

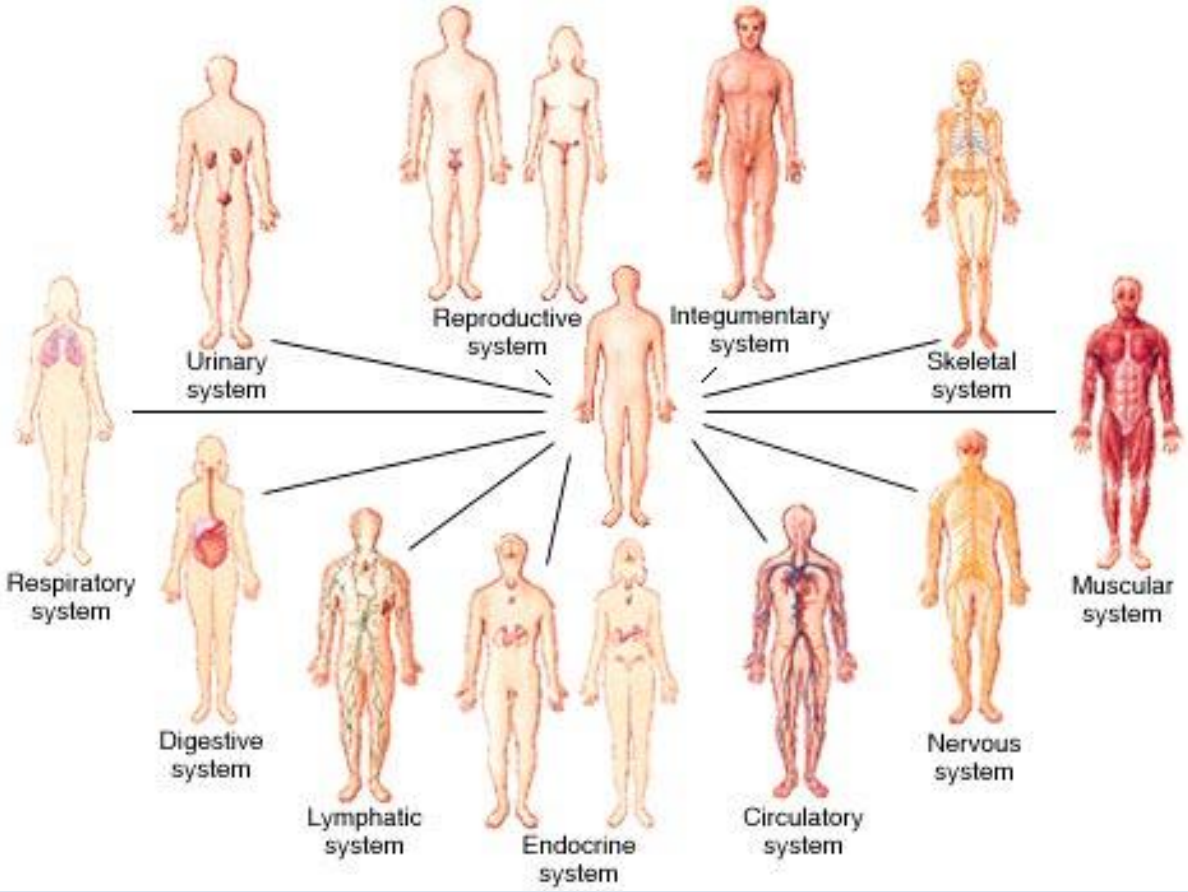
Meat and poultry defrosted in the refrigerator may be refrozen before or after cooking. If thawed by other methods, cook before refreezing.

Food Preservation (methods – their longevity, nutritional value, technology)

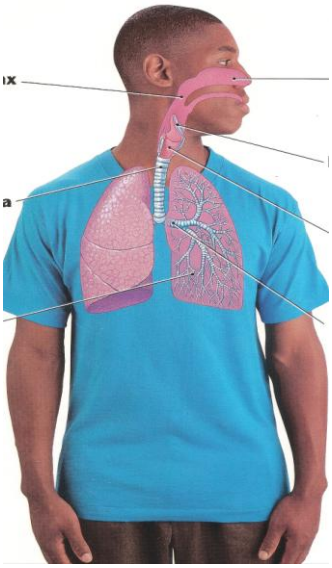
Types of Food Preservation

	How Each Method Works To Prevent the Growth of Microbes In Food	Foods Preserved With This Method	Advantages	Disadvantages
Refrigeration	Cold temperatures slow down the rate of bacterial multiplication, so food lasts much longer before bacteria are able to "spoil" it.	almost all foods	no effect on food's taste or texture	Food will still spoil after a while since microbial growth is only "slowed."
Freezing	Freezing temperature stops the growth of microbes completely, but does not kill them	almost all foods	no effect on taste or texture of most foods	Fruits become mushy
Salting	Covering food with salt forces water to leave all cells, including the cells of microbes and meat, due to osmosis. The microbes die. There is also not enough water in the food now for the microbes to live.	meat, fish	Meats preserved this way, especially in cold weather, can last for years.	High salt content - not healthy
Pickling	Vinegar (acetic acid) creates an acid environment in which bacteria cannot survive. Most pickling methods use salt, as well.	cucumbers, mushrooms, beets, squid	Pickled food can be stored for years.	High salt content - not healthy
Canning	Food is boiled which kills the microbes and then sealed. Cans are also pressurized to destroy any endospores.	sauces, jams, soups	Canned food can be stored for years.	Boiling food changes its taste and texture, as well as its nutritional content.

THE SYSTEMS OF THE HUMAN BODY



THE HUMAN BODY



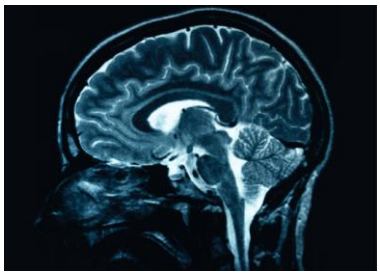
INTERNAL BODY CAVITITES

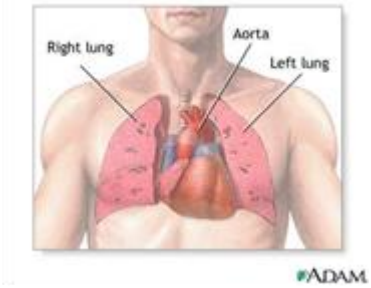
The human body has three important cavities or spaces inside of it.
They are called:

1. The Cranial Cavity
2. The Thoracic Cavity (chest)
3. The Abdominal Cavity

The three body cavities have many important body organs.

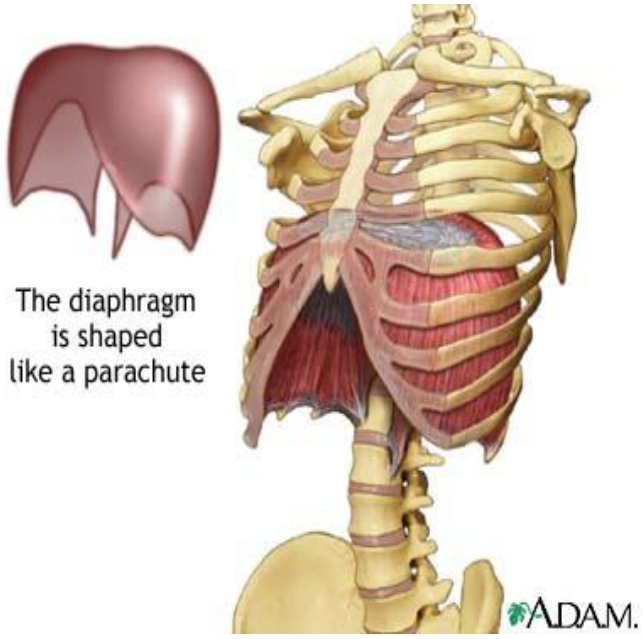
1. Cranial Cavity houses the brain
2. Thoracic Cavity houses the heart, lungs, trachea, esophagus
3. Abdominal Cavity houses the liver, stomach, spleen, pancreas, kidneys, small and large intestines, reproductive organs.





The Diaphragm

The thoracic diaphragm, is a sheet of internal muscle that extends across the bottom of the rib cage. The diaphragm separates the thoracic cavity (heart, lungs & ribs) from the abdominal cavity. The diaphragm functions in breathing. During inhalation, the diaphragm contracts, thus enlarging the thoracic cavity. Enlarging the cavity creates suction that draws air into the lungs. When the diaphragm relaxes, air is exhaled by lung.



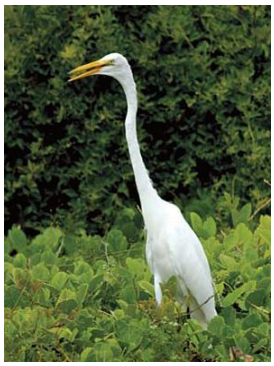
The diaphragm is also involved in non-respiratory functions, helping to expel vomit, feces, and urine from the body by increasing intra-abdominal pressure, and preventing acid reflux by exerting pressure on the esophagus as it passes through the esophageal hiatus.

CHARACTERISTICS OF LIVING THINGS

Living things are divided into two (2) main groups;

1. Plants

2. Animals



All living things are able to do seven (7) basic things. All living things exhibit the following seven characteristics: Move, Reproduce, Grow, Respiration, Excrete, Nutrition, Irritability.
The Acronym which helps to describe these traits is **Mr Greni**

1. **Move** plants move as they grow, but animals can move from place to place (locomotion).

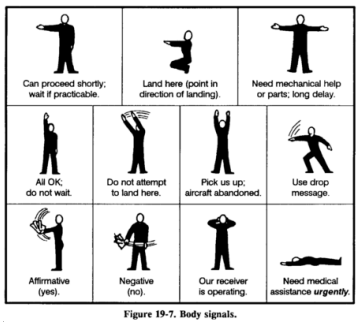


Figure 19-7. Body signals.

2. **Reproduce**: plants and animals make offspring like themselves.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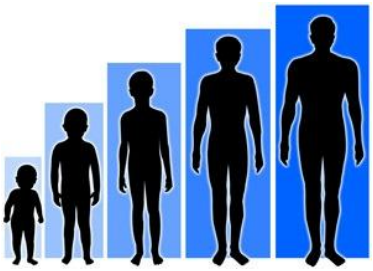
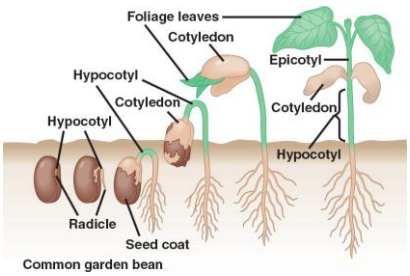
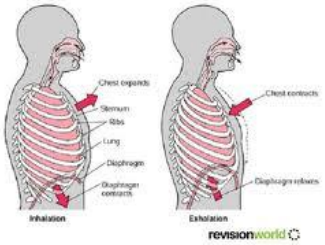
3. **Grow**: both plants and animals get bigger in size, and older in age.





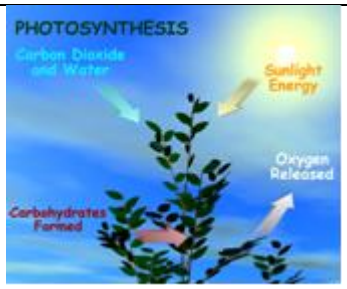
Common garden bean

4. **Respire**: both plants and animals require gas exchange.



5. **Excrete**: removal of metabolic waste. Plants and animals are able to get rid off waste

6. **Nutrition / Feed**: Both plants and animals plants and animals need food as a source of energy, and nutrients which are needed to grow, cell maintenance.



7. **Irritability**: plants and animals Respond to stimuli and react to changes in their environment.

DIFFERENCES BETWEEN PLANTS AND ANIMALS

	ANIMALS	PLANTS
1	Animals do not make their own food. They go in search of food.	Plants make their own food.
2	Animals can move from place to place.	Plants cannot move from place to place
3	Animals react to pain, cold, odors, heat and sound.	Plants do not react to pain or sound.
4	Animals growth is finite	Plants growth is infinite and continues to grow as long as they have available resources.
5	Animals react to pain, change in the environment, temperature, chemical stimuli, and all forms of energy i.e. Sound, light	Plants respond to sunlight, gravity, and water

THE CELL

The human body is made up of millions of tiny cells. A cell is a basic unit of life. It is a living thing which can breathe, feed, grow, reproduce etc.

Although cells are very tiny, they are very complex structures as they are made of many of many different cell organelles working together to keep living things alive and well. The four main cell organelles or structures that will be highlighted in this section are: Cell membrane, cytoplasm, nucleus and the vacuole.

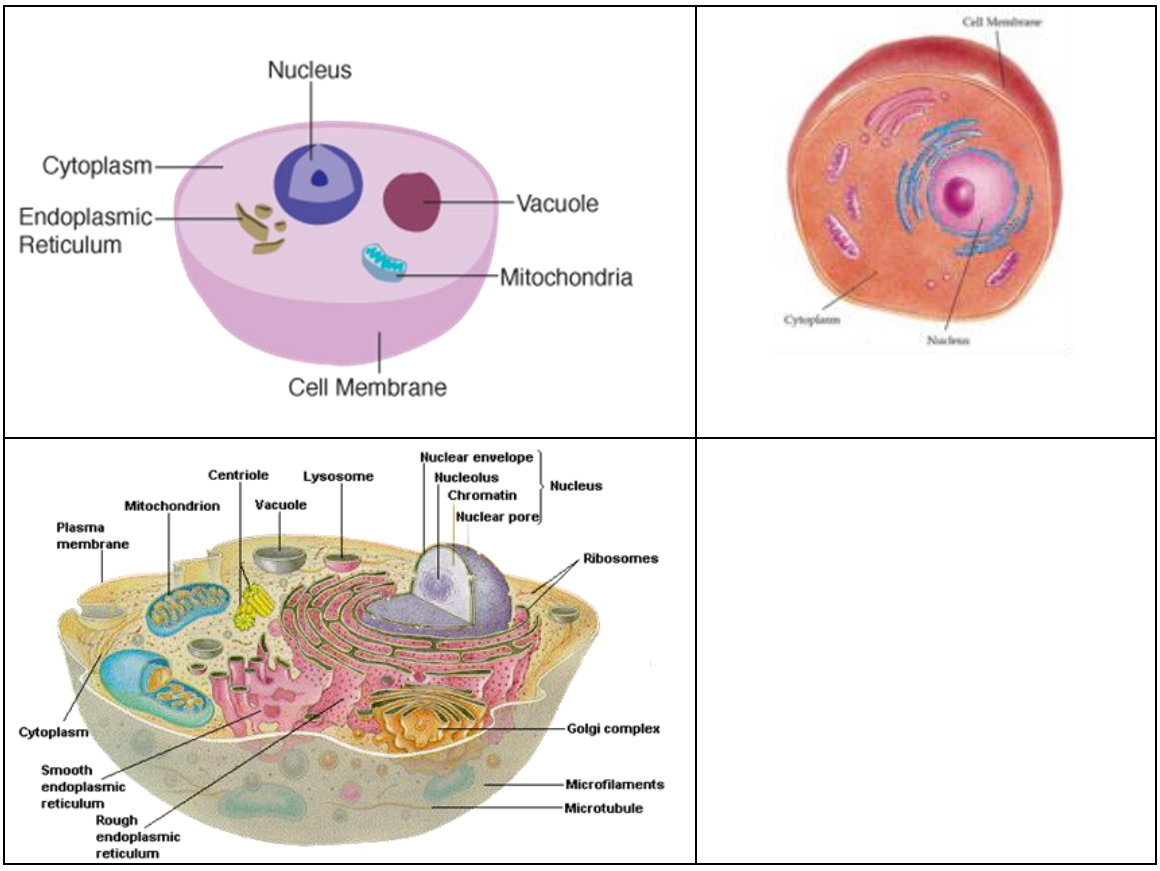
http://learn.genetics.utah.edu/content/begin/cells/insideacell/

PARTS OF THE CELL

1. **Nucleus** - controls all activities of the cell.
2. **Cell membrane** – this is the thin semi permeable (porous) membrane that surrounds the animal cell. This membrane allows substances to enter and leave the cell.
3. **Vacuole** – sac-like structure that stores nutrients for the cell.
4. **Cytoplasm** – jelly material which fills the cell.
5. **Protoplasm** – the living part of the cell. Protoplasm is made up of the nucleus and cytoplasm.

CELL ORGANELLES

Diagrams of a typical animal cell



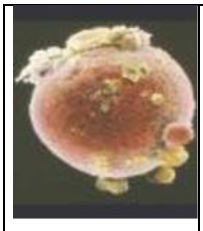
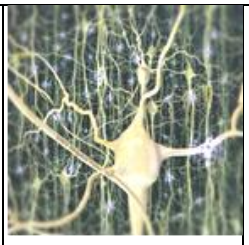
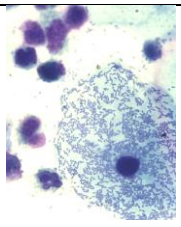
HUMAN BODY CELLS

Cells vary a great deal in their size and shape depending on their function. **CELL SPECIALIZATION**

Cell Specialization is the manner in which cells adapt their shape, size and chemical structure in order to carry out their specific functions. Examples of specialized cells are gametes (sex cells) nerve cells, blood cells, bone cells and skin cells.

The human body has six (6) main different types of cells.

1. Red Blood Cells 2. White Blood Cells 3. Bone Cells
4. Nerve Cells 5. Muscle Cells 6. Skin Cells

					
Ovum or Egg cell	Sperm Cell	Nerve Cell	Red Blood Cell	Bone Cell	Skin Cell

TISSUE

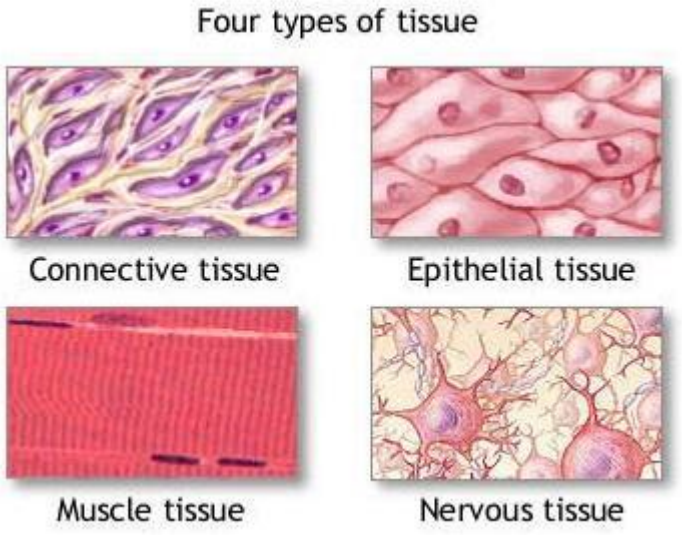
A tissue is a group of cells to perform a specific function. The cells in a tissue are usually held together by a cementing material. For example, muscular tissue in human body is made up of muscle cells which by contraction bring about the movement. Similarly in plants, the conducting tissue conducts water upward from the soil to the aerial parts. Sometime several tissues together contributing to some specific function inside the body, constitute an organ.

Example tongue which is having epithelial cells, nerve cells, muscle cells etc. In the same way many organs perform a specific life process constitute an organ system example **digestive system**.

Types of Animal Tissues

Animal tissue is divided into four parts.

1. Epithelial tissue
2. Connective tissue
3. Muscular tissue and
4. Nervous tissue



1. Epithelial tissue is present on the outermost layer of skin and the lining surface of the mouth, nose, lungs and stomach etc. The functions of epithelial tissue are protection, absorption, secretion, sensory perception. Further epithelial tissue consists of squamous epithelium, cuboid epithelium, columnar epithelium, ciliated epithelium, and glandular epithelium.

2. Connective tissue is for connecting various tissues and organs, or for protecting organs, and supporting them in order to keep them in proper place. Some examples are fibers, cartilage and bones. Connective tissue consists of fibrous connective tissue, cartilage, bone and fluid connective tissue like blood, lymph.

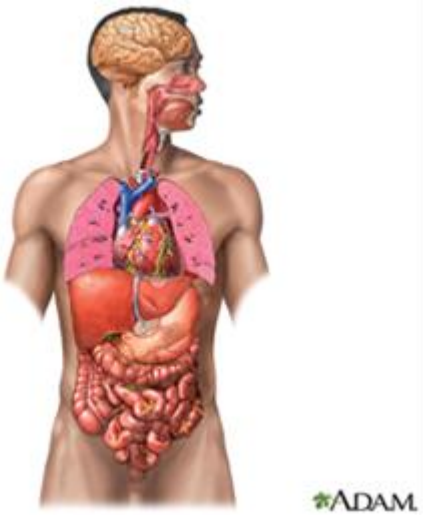
3. Muscular tissue forms the muscles of the body. The muscles contract and relax. Thus they help the body movement. Muscular tissue consists of striated (voluntary), unstraited (involuntary), and cardiac muscles

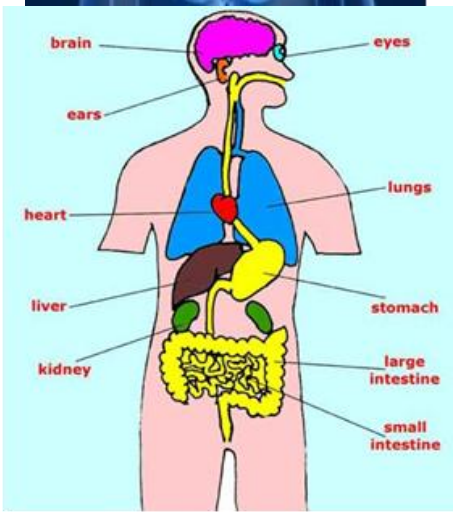
4. Nerve tissues constitute the nervous system. Nerve tissues provide a means of rapid internal communication by transmitting electrical impulses. This tissue is made up of elongated cells called neurons.

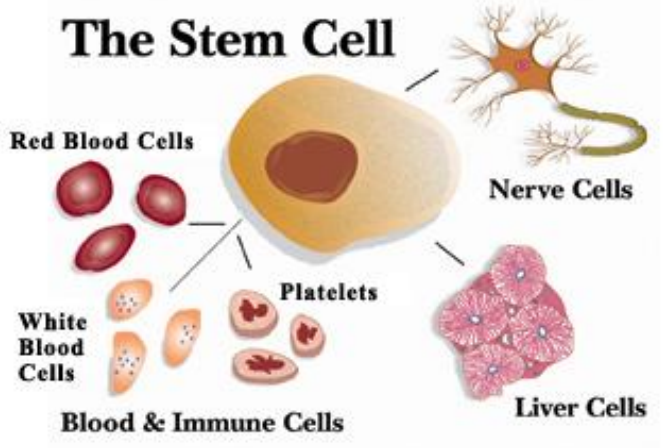
ORGANS

An organ is a structure that performs a specific function for the body. Organs are a group of tissues joined together is called an organ e.g. hand, leg, heart, stomach, kidney, ear, eye.

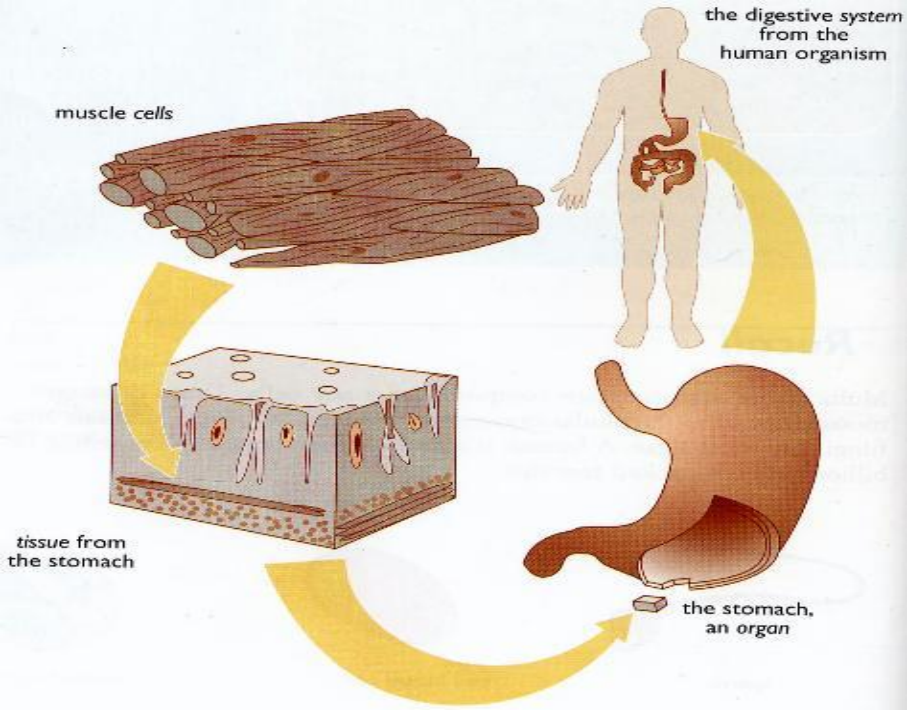
Organs are composed of at least two tissue types (all four tissue types is more common). At the organ level, extremely complex functions become possible







CELLS……TISSUE……ORGANS…….SYSTEMS



Interrelationships between cells to tissues and tissues to organs, using the human stomach as an example. from: Mudie, K. & Brotherton, J. (2000). Heinemann Biology, Heinemann.

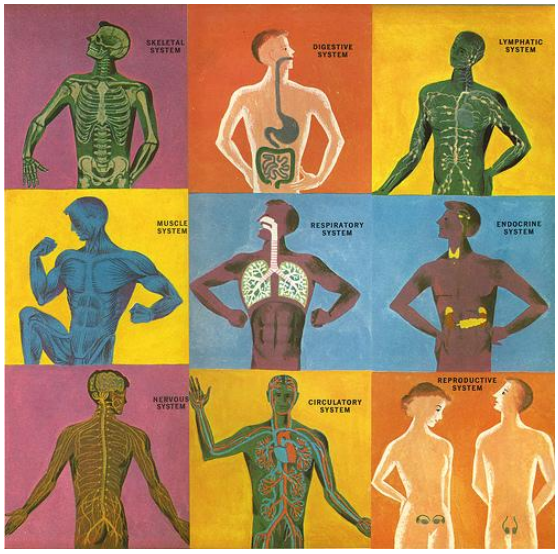
Marieb, E. N. (1998). Human Anatomy & Physiology. Benjamin/Cummings Publishing.

BODY SYSTEMS

Systems of the Human Body

There are ten (10) major systems of the human body.
Organs are a group of tissues joined together is called an organ e.g. hand, leg, heart, stomach, kidney, ear, eye. Organs worked together in organized body systems. Several organs working together to perform similar functions are call a system.

Human beings, other animals and plants are made up of trillions of cells. These cells form tissues, organs and systems. The baby has more than ten major systems working together to keep him alive and healthy.



System	Function	Characteristic of Living Things	Organs	Tissue
SKELETON SYSTEM	Supports and protects the body. Help the body to move and make red blood cells.	Move	206 bones	
MUSCULAR SYSTEM	Helps the body to move	Move	muscles	connective
DIGESTIVE SYSTEM	Helps to break down the food	Nutrition	stomach	
CIRCULATORY SYSTEM	Transports food and oxygen around the body and help to remove waste materials	Excretion Respire	Heart vessels	
RESPIRATORY SYSTEM	Carries oxygen into the body tissue and removes Carbon Dioxide	Respire	lungs	
EXCRETORY SYSTEM	Remove harmful materials and wastes from the body.	Excrete	Colon Large intestine	
REPRODUCTIVE SYSTEM	Helps the body to make young ones.	Reproduce	Ovaries Uthera womb	
ENDOCRINE SYSTEM	Control all activities of the body	Irritability	pituary	
NERVOUS SYSTEM	Controls all activities of the body	Irritability	neurons	
LYMPHATIC SYSTEM	Helps the blood fights germs and infections	Excrete	Lymph nodes	

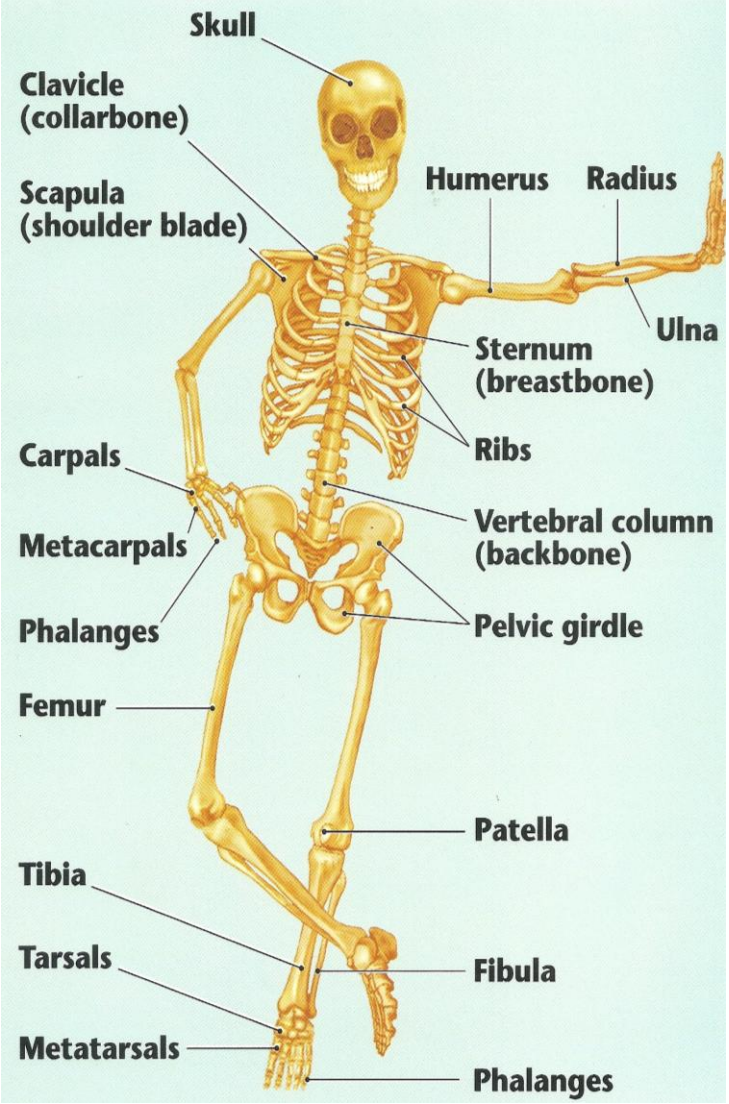
THE SKELETAL SYSTEM

An adult skeleton has 206 separate bones. The largest bone in the body is the femur (thigh bone). The mineral composition of bone comprises of calcium and phosphorous.

FUNCTIONS OF THE SKELETON

The skeleton has five important functions:

1. Supports the human body
2. Gives shape to the body
3. Helps the body to move
4. Protects the internal organs
5. Produces red blood cells



TISSUES OF THE SKELETON

There are three (3) main tissues of the skeleton. They are the cartilage, ligaments and tendons.

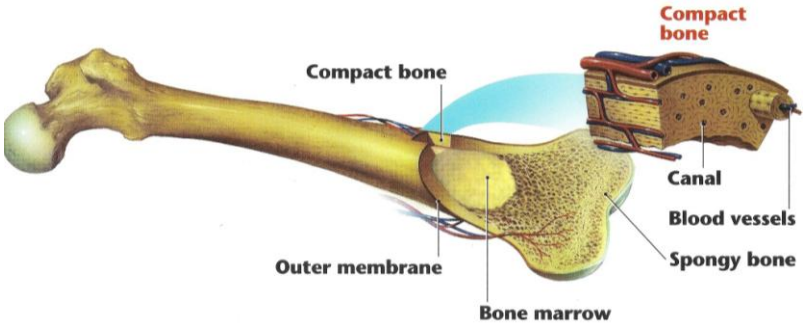
1. CARTILAGE – is a rubbery material found between the ends of two bones, where they are joined together. Cartilage prevents the bones from rubbing together.

2. LIGAMENTS- are stretchy elastic fibers that join muscles to bones.

3. TENDONS- are tough non-elastic fibers that join muscles to bones.

4. BONE TISSUE – the hard outside part of the bone is made up mainly of two minerals called calcium and phosphorus. These minerals are found in foods such as milk, bread, eggs, cheese and vegetables.

On the inside of many bones is a soft, spongy material called marrow. This is where red blood cells are made.



SKELETON JOINTS

Joints are found whenever two different bones connect together.
There are five main types of joints. Joints are kept moist by Synovial Fluid.

1. Immovable Joints – these are found in the skull

2. Hinge Joints- found in the elbows, knees, and knuckles of fingers.

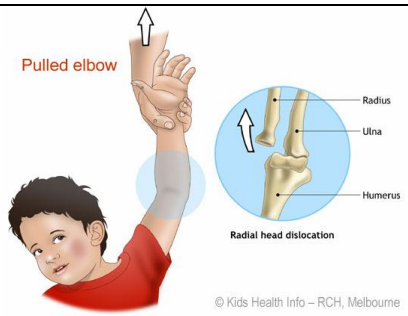
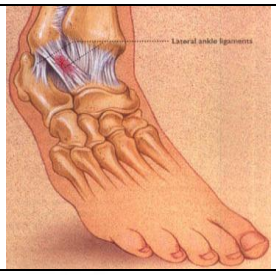
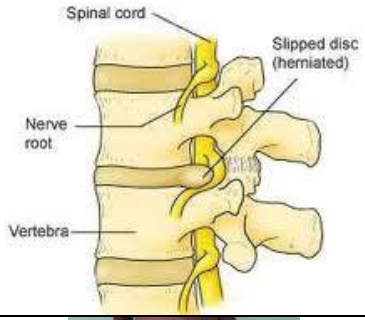
3. Gliding Joints – found between bones of the vertebral column.

4. Ball and Socket Joints – found at the shoulders and hips.

5. Pivot Joints – found in the neck.

INJURIES TO THE SKELETON

There are many common injuries that happen to the skeleton.

INJURY	DESCRIPTION OF INJURY	PHOTO
FRACTURE	A break in the bone. There are two kinds of fractures. a. Simple Fracture – a crack in the bone. b. Compound Fracture- the bone is broken in two places.	
DISLOCATION	When the two bones at a joint are pulled apart. The bones maybe pushed back in position.	
SPRAIN	When the ligaments that hold the bones together gets stretched or torn	
SLIPPED DISC	When the cartilage between the vertebra is displaced.	
RICKETS	When the bones become soft and weak. This is caused by lack of vitamin D (milk).	
ARTHRITIS	A disease that affects the joints. Sometimes the joint becomes stiff or swollen.	

Food for your bones

Our bones are very important to us. They allow us to stand, sit, run, roll, walk and almost every motion we use in our daily lives. Our bones are very strong, and they can withstand many strains of daily activity like running, jumping, lifting weights, standing for long periods of time, and much more. However, if you don't take care of your bones, they may get injured and won't be able to withstand some of those activities.

Food & Nutrients	Functions	Food Samples
Calcium	Calcium is one of the basic building blocks of strong bones. The most common source of calcium is milk. A single 8-ounce cup of milk, whether skim, low-fat, or whole, it equals up to 300 milligrams of calcium.	
Yogurt	If you don't like milk or can't tolerate it, yogurt is another great source of calcium. A cup of yogurt has as much calcium as a glass of milk. If you are lactose intolerant, try a reduced lactose yogurt or a lactose free yogurt. When lactose is removed from yogurt, the content of calcium is not affected..	
Sardines	Sardine is another great source of calcium for your bones. Eating three ounces of canned sardines will give you more calcium than a cup of milk.	
Vegetables	Vegetables provide tons of nutrients to your bones. One cup of turnip greens will give you 200 milligrams of calcium and a half cup of chinese cabbage provides calcium equal to an eight ounce glass of milk.	

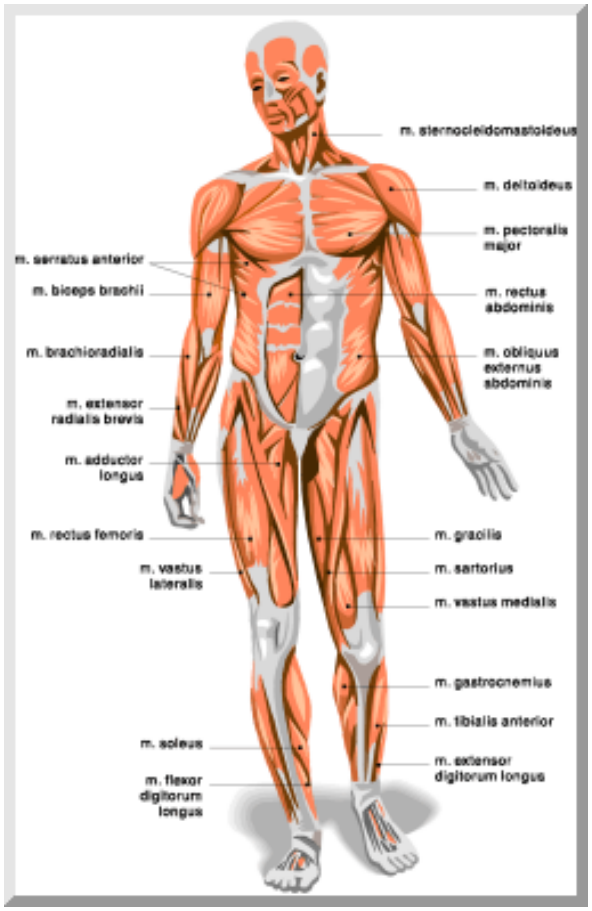
fortified foods	Fortified foods are foods that have been enhanced with essential vitamins and minerals in addition to the levels that were originally found before the food was refined. When foods are fortified, they will have more vitamins and minerals after they are refined than they did before they are refined. Common fortified foods are: milk (fortified with vitamin D) and salt (fortified with iodine).	 
Soy foods	Soy foods contain a plant-based chemical called isoflavones. New research suggest isoflavones gives bones strong bone density, and since soy foods, such as tofu has plenty of this plant-based chemical, it's believed to ward off bone disease in women.	
Fish	Fish such as salmon and other fatty fish contain various bone-boosting nutrients. These fish contain calcium as well as vitamin D. Fish oil has been known to reduce bone loss in elderly women and may even prevent osteoporosis. If you plan to add more fish to your diet, make sure the fish has a low amount of mercury.Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Research shows that most people's fish consumption does not cause a health concern. However, it has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children	

	may harm the developing nervous system, making the child less able to think and learn.	
Nuts and seeds	Nuts and seeds can help your bones stay healthy. Peanuts and almonds contain potassium, which protects against loss of calcium. Nuts also contain protein and other nutrients that helps build strong bones.	
		
Phosphorus	Phosphorus is a component of every cell in our bodies and supports building bone and other tissue during growth. About 85% of the phosphorus in our bodies is found in our bones. In fact, phosphate, a form of phosphorus, makes up more than half of our bone mineral mass. RDA is 700 mg for men and women over age 30. Daily intakes over 4,000 mg for adults up to age 70 and over 3,000 mg after age 70 are not recommended. Milk, yogurt, ice cream, cheese, peas, meat, eggs, some cereals, breads, cola soft drinks and many processed foods.	

THE MUSCULAR SYSTEM

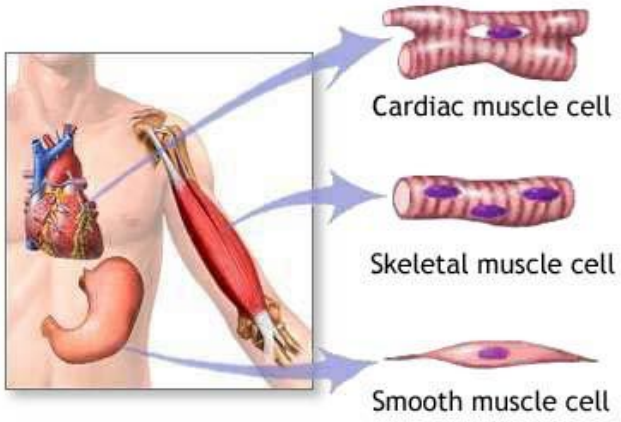
There are more than 600 muscles in the human body. The muscles in our bodies help us to move from place to place. The muscles also do the following things:

1. Help our heart to beat
2. Help our blood to circulate
3. Help our food to digest



TYPES OF MUSCLES

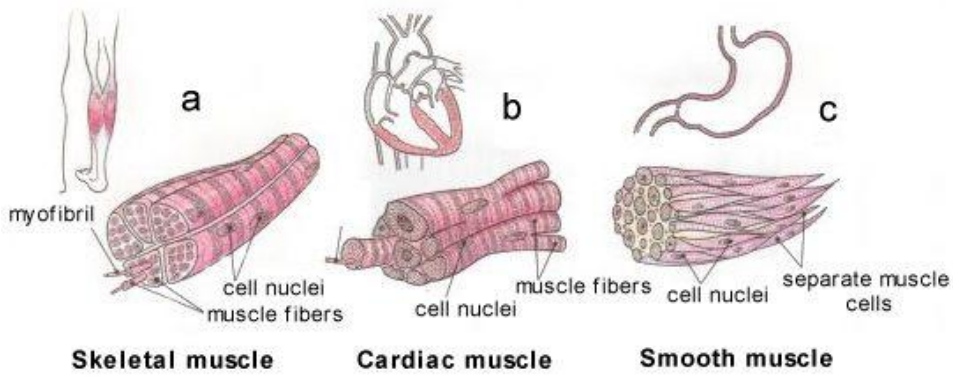
There are three (3) types of muscles in the human body.



1. SMOOTH MUSCLES – are found in the digestive organs, blood vessels and other internal organs.

2. SKELETAL OR STRAITED MUSCLES- these muscles are connected to bones. They help the bones to move. Skeletal muscles are found in the anus, legs, chest, neck, abdomen and face.

3. CARDIAC MUSCLES – these muscles are very thick and found only in the heart. The cardiac muscle helps the heart to beat.

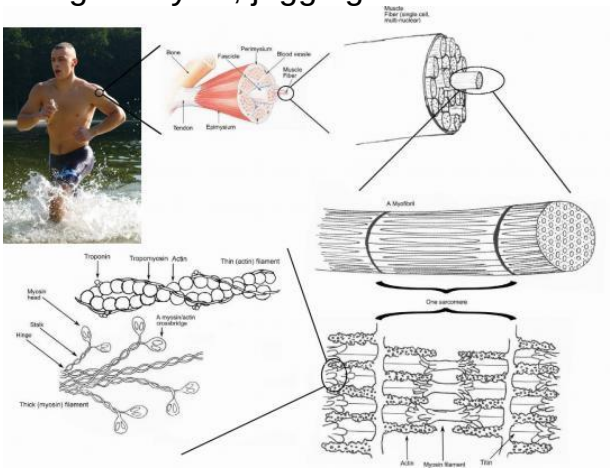


MUSCLES HELP BONES TO MOVE

Muscles work in pairs. When one muscle contracts (gets smaller), the other muscle relaxes (gets bigger). Some muscles move without receiving instructions from the brain, and other muscles move when the brain instructs them to move.

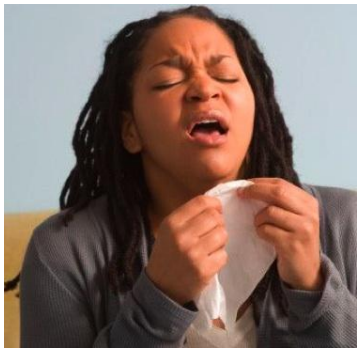
VOLUNTARY MUSCLES

Voluntary muscles can only move when our body is ready to move. We can control these muscles. Some voluntary movements are: Speaking, writing, walking, swimming, riding a bicycle, jogging etc.



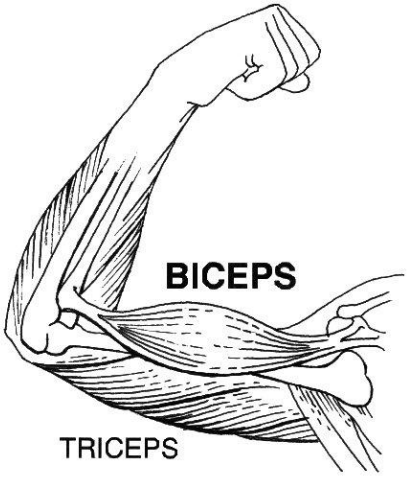
INVOLUNTARY MUSCLES

Involuntary muscles work automatically. We cannot control these muscular actions. Some involuntary movements are: Sneezing, coughing, blinking, hiccup, heart beating, breathing, circulation of blood. Etc.



MUSCLES WORK TOGETHER

Muscles are joined to bones by tendons. When two muscles work together, they help the body to move.



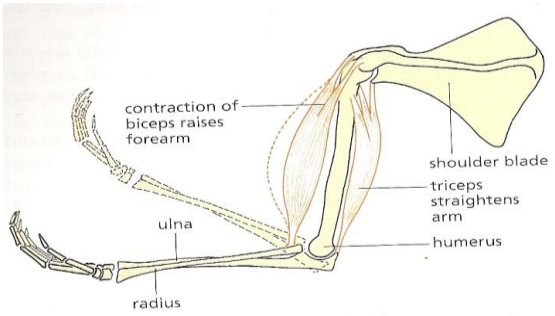


Figure 17.5 Antagonistic muscles of the forearm

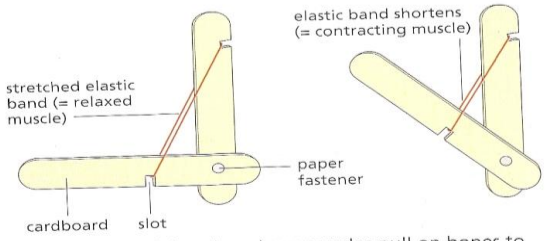


Figure 17.6 Model to show how muscles pull on bones to produce movement

When one muscle contracts (gets smaller) the other muscle relaxes (gets larger).

HEALTHY MUSCLES

We can keep our muscles strong and healthy by exercising them, resting them and by eating the right foods.

INJURIES AND DISEASES OF MUSCLES

Injury or Disease	Description	Photo or Diagram
STRAIN	A muscle is stretched or torn.	
CRAMPS	Muscles are moved or contracted too quickly. Cramps happen in the legs and feet mainly.	

SPASMS	Muscles keep contracting and can not be stopped. Spasms can happen in the eyes and cheeks	
POLIOMYELITIS	The nerve cells are destroyed and the muscles become small and weak. A person with polio may become paralyzed or they may die.	
MUSCLAR DYSTROPHY	An inherited disease where the muscles continues to be destroyed.	
CEREBRAL PALSY	The brain becomes damaged and the muscles in the body can not be moved.	

THE DIGESTIVE SYSTEM

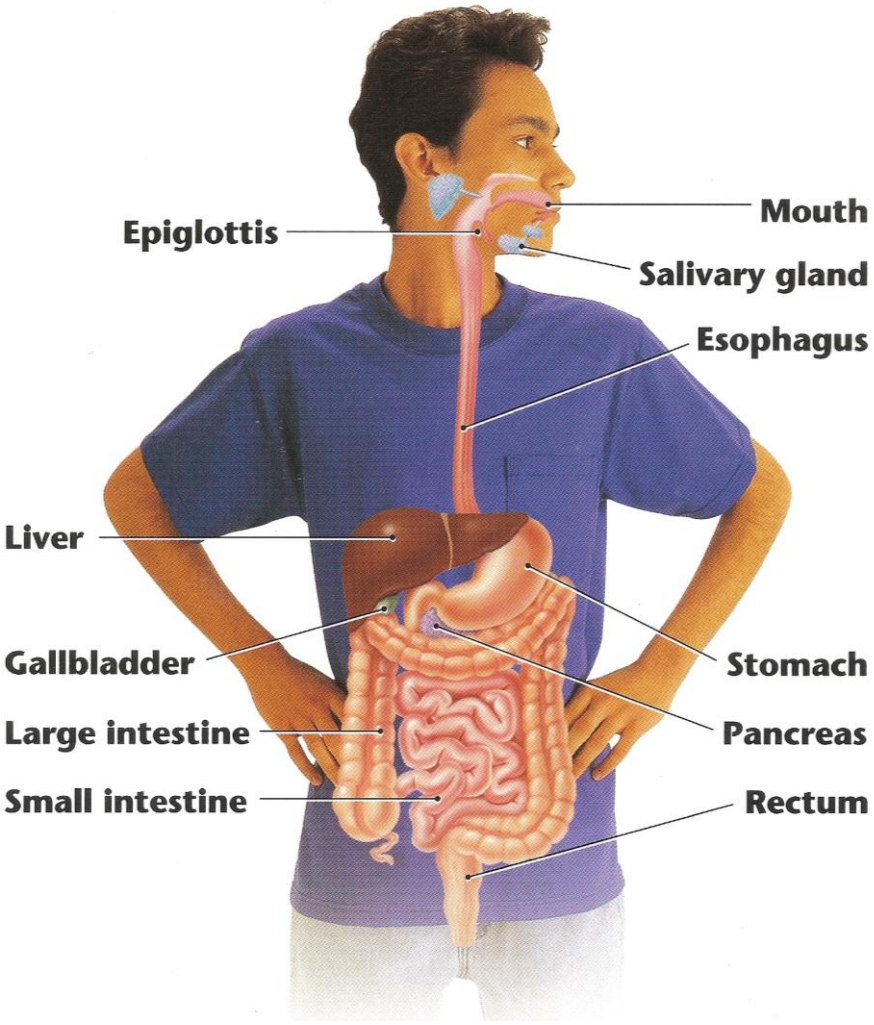
DIGESTION- is the chemical breakdown of food into simpler substances. It is very important for food to be digested, because our bodies need digested food for energy and to help us grow properly.

INGESTION -

EGESTION -

THE DIGESTIVE ORGANS

The digestive system is sometimes called the alimentary canal. There are many organs that are used to break down the food we eat.



Digestion of food begins in the mouth and ends in the small intestine.

1. MOUTH – When the food is put into the mouth, the teeth crush and chew the food into smaller pieces. Saliva from the salivary glands also mixes with the food and moistens it.

2. ESOPHAGUS – The soft food called BOLUS then passes through the esophagus.

   As the food passes, the esophagus squeezes together forcing the food into the stomach. This is called PERISTALSIS

3. STOMACH – The stomach is made up of vary strong smooth muscles, that help to break down the food further. The gastric juice and acid help to break down the foods into liquids. Carbohydrates and proteins are digested in the stomach. The digested food may stay in the stomach for about four (4) hours, and it then pass into the small intestine.

4. SMALL INTESTINE – In the small intestine, fatty foods are digested by pancreatic and intestinal juices and bile. The part of the food that can not be digested like animal fat, is pushed along to the large intestine, by means of peristalsis.

5. LARGE INTESTINE –All the fatty foods that can not be digested is stored in the rectum of the large intestine. Most of the water that we drink also passes out of the large intestine into our body. Later, feces pass out of the body through the anus.

DIGESTIVE JUICES

Digestive juices help to break down food particles.

1. SALIVA – made in the stomach
2. GASTRIC JUICE – made in the stomach
3. BILE- made in the liver and stored in the gall bladder
4. PANCREATIC JUICE – made in the pancreas
5. INTESTINAL JUICE – made in the small intestine
6. PEPSIN- made in the stomach and digests proteins
7. RENNIN – made in the stomach

ENZYMES

Enzymes are chemicals that speed up the digestion of food. There are many types of enzymes. Digestive enzymes are made in glands, and mix with water to break down the food.

END PRODUCTS OF DIGESTION

CARBOHYDRATES – are broken down to glucose. Glucose provides the body with energy.

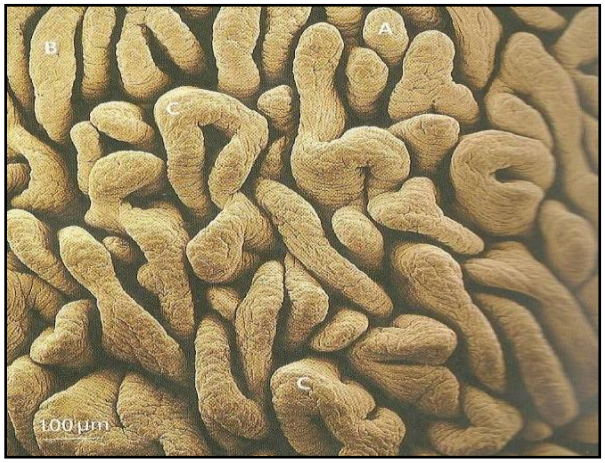
PROTEINS – are broken down to amino acids. Amino acids are used to build body tissues like muscles.

FATS / OILS – are broken down to fatty acids. Fatty acids are used for energy and help to keep the body warm.

VITAMINS, MINERALS, and WATER- are three nutrients that do not have to e digested.

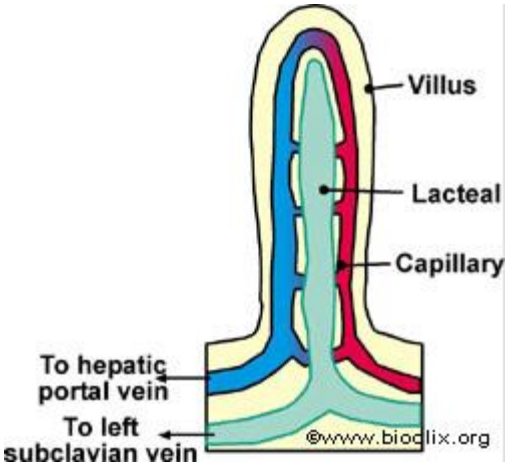
ABSORPTION AND ASSIMILATION OF NUTRIENTS

ABSORPTION



The walls of the small intestine have millions of structures called villi. Each villus has blood vessels which absorb the digested food nutrients. The blood then carries the digested some food to the liver by the the Hepatic Portal Veil, where it is stored until needed by the body. Some nutrients are carried straight to the body cells for growth, energy and repair.

ASSIMILATION



When our bodies need more energy, the blood picks up the digested nutrients and carries it to the body cells. This is called assimilation.

HUMAN TEETH

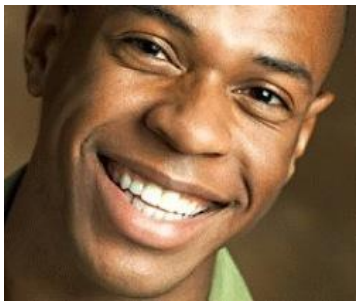
Human teeth has three (3) very important function:

1. Teeth give shape to our face
2. Teeth help us to make sounds and to speak.
3. Teeth help us to crush and chew our food (mastication)

Everyone has two sets of teeth:

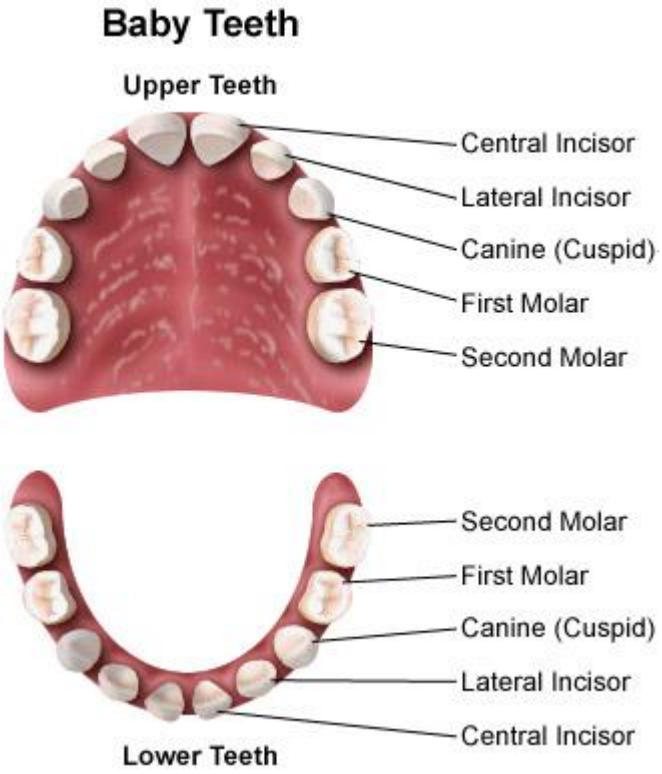
i. Temporary Teeth

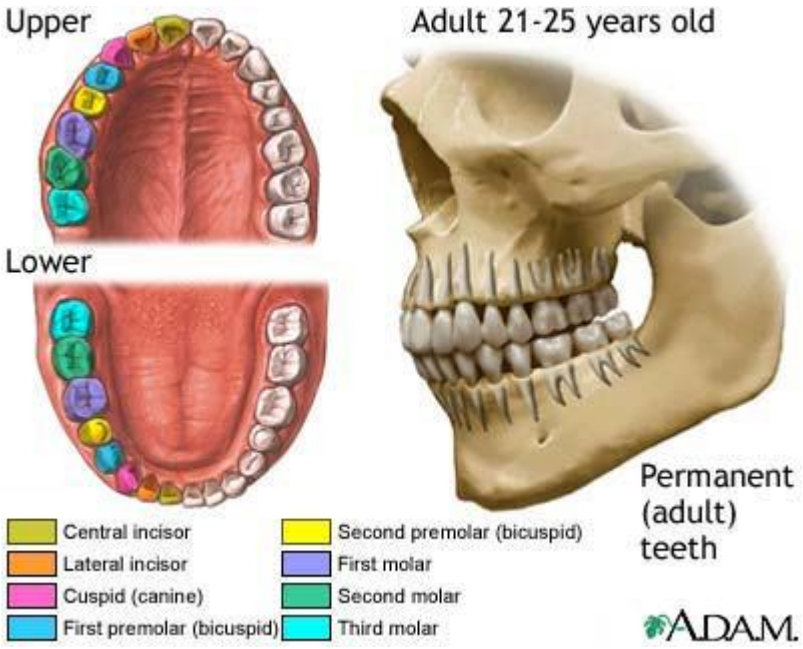
ii. Permanent Teeth



There are 20 teeth in the temporary or milk set. There are no molars in the milk set of teeth. There are 32 teeth in the Permanent set.

KINDS OF TEETH





8 INCISORS – these are flat, cutting teeth found in the front of the mouth.

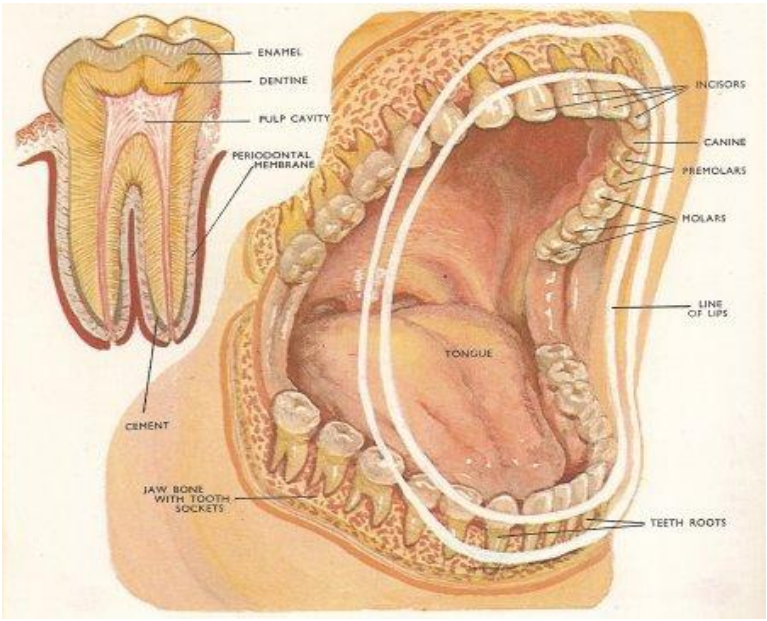
4Canines- these are sharp, tearing teeth found at the sides of the mouth

8 PRE- MOLARS- these are small, thick grinding teeth found behind the canines.

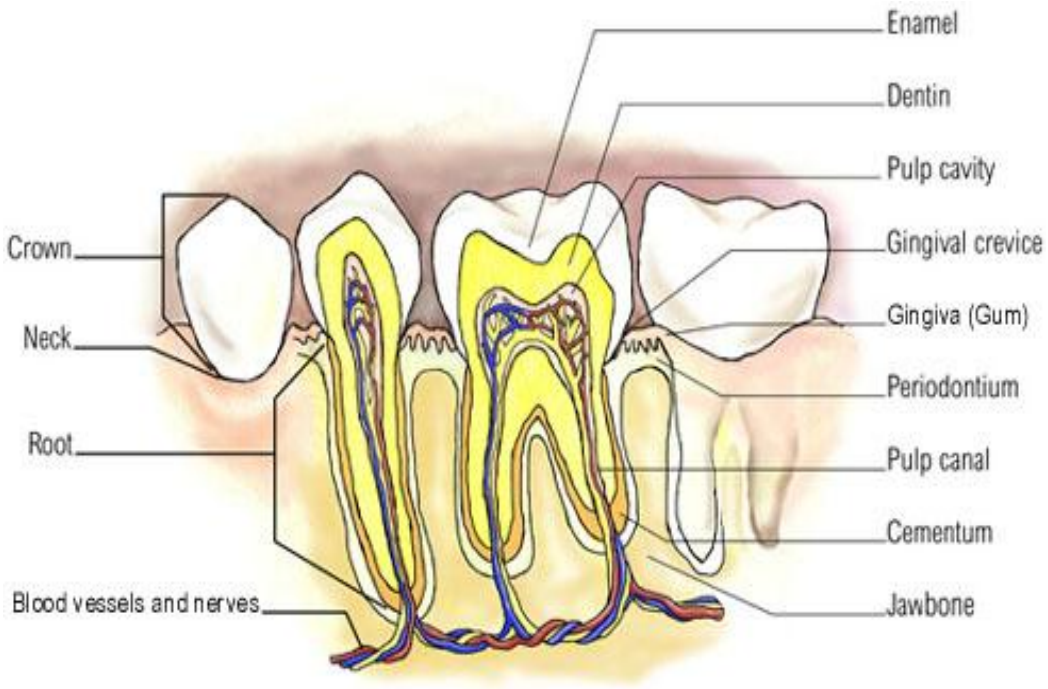
12 MOLARS – these are large crushing and chewing teeth found at the back of the mouth.

ENAMEL

Every tooth is covered with a layer of hard. Whitish enamel. Enamel is the hardest material in the human body. Enamel protects the teeth from decay.



PARTS OF A TOOTH



Each tooth has a crown and one or more root(s).

1. CROWN- the part of the tooth which is above the gums. The crown of each tooth is covered with enamel.

2. ROOT- THE root is the part that supports and holds the tooth in the jaw bone.

3. DENTINE- an ivory- like substance found below the enmal. The dentine makes up most the tooth.

4. PULP – a cavity of tissue found in the center of the tooth. The pulp is made up nerves, blood vessels and other tissues. The pulp is made up of nerves, blood vessels and other tissues. The pulp canal goes down the length of the tooth in the gum.

5. CEMENTUM- another kind of tissue. The cementum is a thin covering found on the root that helps to hold the tooth in the gum.

Milk, cheese and green vegetables are foods which help the teeth to grow strong and healthy. These foods contain Calcium and phosphorus which makes the teeth strong.

CARE OF THE TEETH

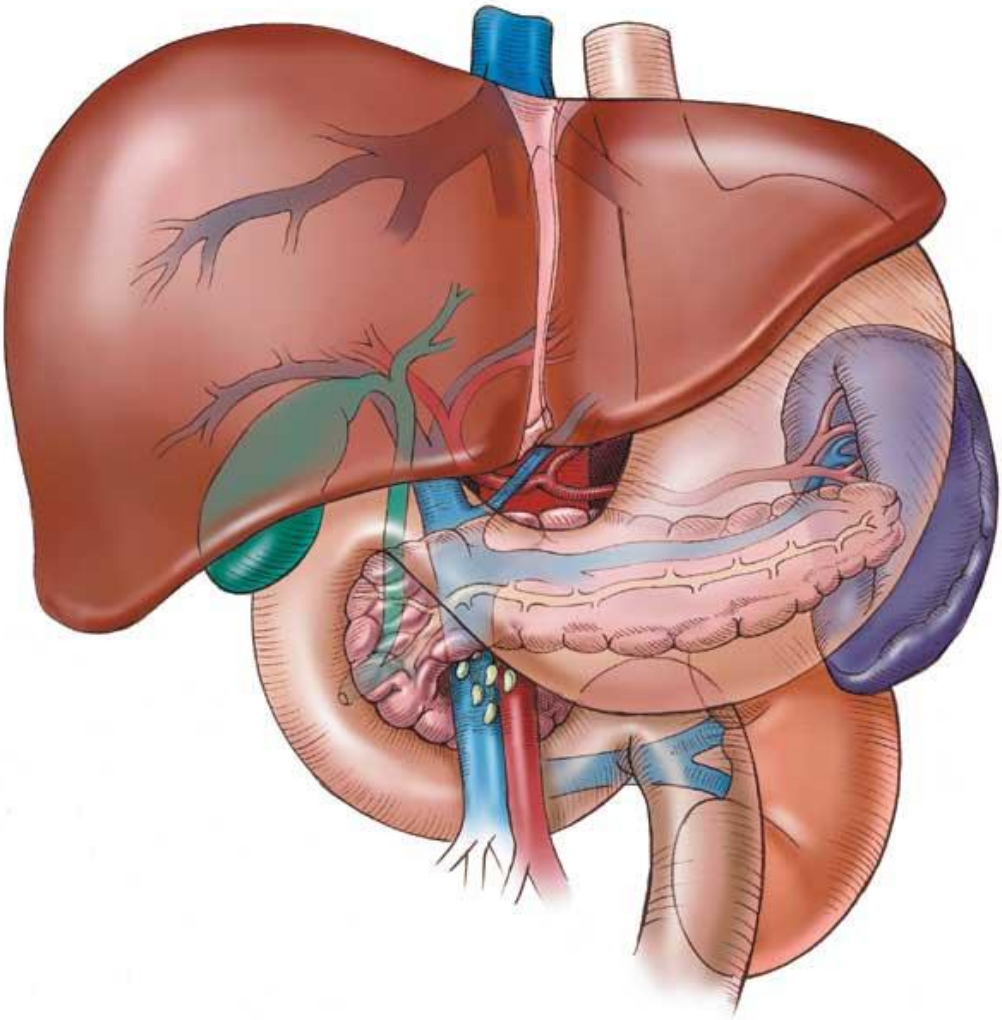
1. Brush your teeth immediately after each meal or rinse your mouth with water to remove food particles.

2. Use dental floss to clear between the teeth and use toothpaste that has fluoride.

3. Visit the dentist at least twice per year.

THE LIVER

The liver is the largest internal body organ. The liver is found below the diagram in the abdominal cavity and it is dark, red or brown.



FUNCTIONS OF THE LIVER

The liver had six (6) important functions:

1. The liver produces bile
2. The liver produces blood protein that helps clotting
3. The liver stores vitamin A, D, B and mineral iron
4. The liver stores excess glucose
5. The liver breaks down harmful substances like alcohol
6. The liver produces urea

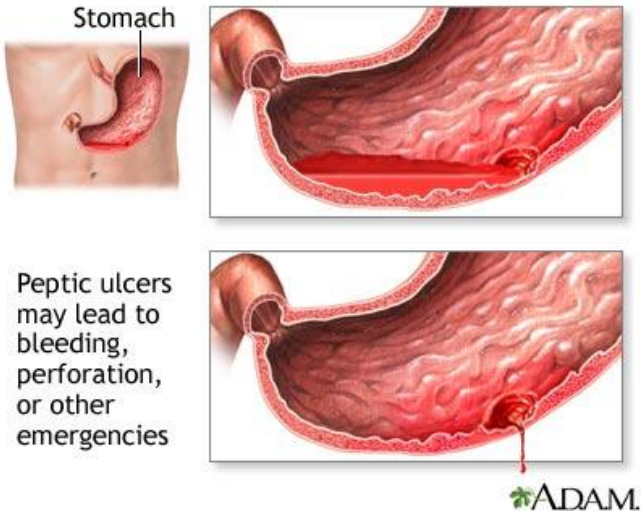
BILE
Bile is a thick, greenish or yellowish fluid that is made by the liver. Bile is stored in the gall bladder and helps to digest fats and oils in the small intestine.

UREA
Urea is a toxic (poisonous) substance that is produced by the liver when the liver breaks down excess proteins (amino acids).

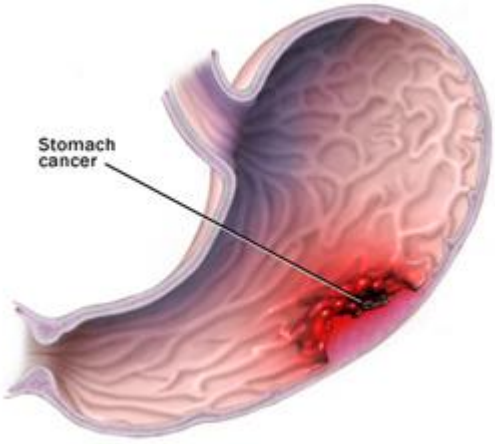
DISORDERS OF THE DIGESTIVE SYSTEM

There are four (4) common disorders of the digestive system:

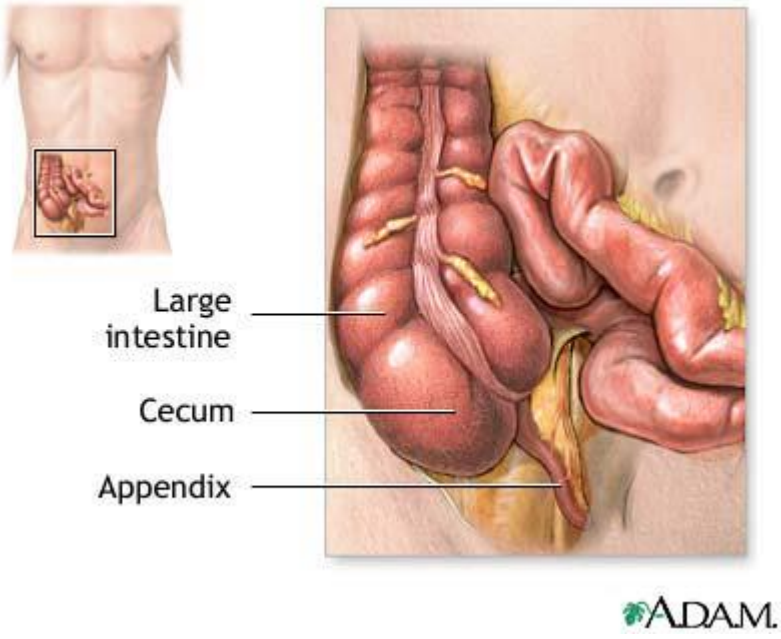
1. PEPTIC ULCERS – Peptic ulcers can affect the stomach or the small intestine. It is caused by the pepsin and acids that are made in the stomach. These juices tear the stomach muscle and may cause bleeding.



2. CANCER- can affect any part of the digestive system. Cancer of the stomach usually requires surgery.



3. APPENDICITIS – is more common among young people and is very easy to detect. Pains in the lower right side of the abdomen are a sign of a blocked appendix. Usually a person who has appendicitis may feel sick and continue to vomit.



4. HEPATITIS- causes jaundice which turns the eyes yellow. Hepatitis affects the liver and other digestive organs.

FOOD AND NUTRITION

Food is any substance that the body can use. Food help the body to

1. Make energy
2. Build and repair cells
3. Grow strong
4. Work properly and stay healthy

FOOD NUTRIENT

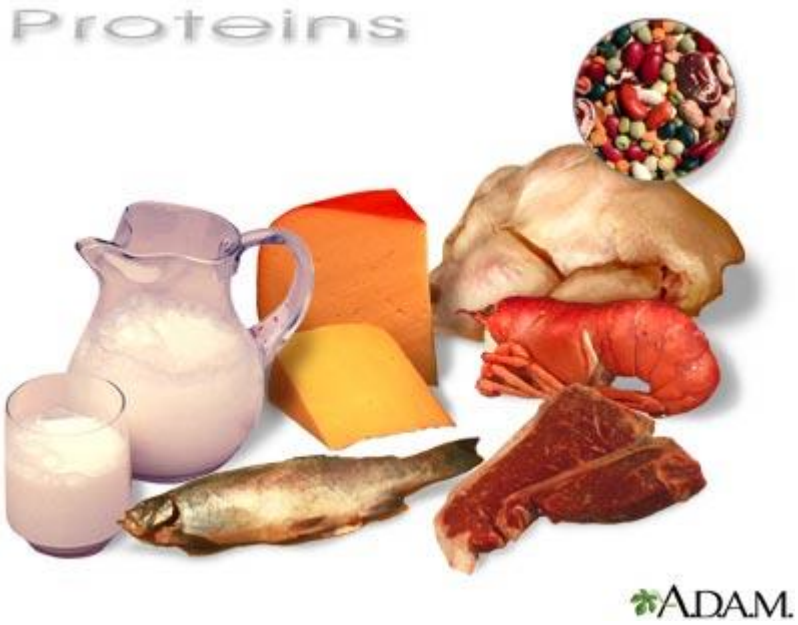
Food nutrients are chemicals found in the food we eat. Food nutrients are used by the body. There are six food nutrients.

Carbohydrates, Proteins, Fats and Oils, Minerals, Vitamins, Water and Fiber

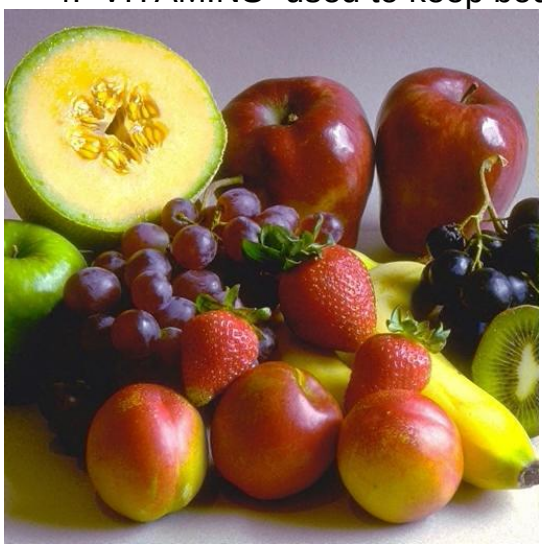
1. CARBOHYDRATES – used to make energy. Foods rich in carbohydrates are potatoes, sugar, bread, cereal; Carbohydrates are made of Carbon, Hydrogen and Oxygen.

2. FATS- used to make energy, and to keep the body warm. Foods rich in fats are butter, margarine, cooking oil; Fats are made of carbon, Hydrogen and oxygen.

3. PROTEINS- used to build and repair cells. Also used for growth, foods rich in proteins are fish, chicken, beef, milk eggs and peanuts. Proteins are made of Carbon, Hydrogen, Oxygen and Nitrogen.



4. VITAMINS- used to keep body healthy. There are many types of vitamins.



TYPES OF VITAMINS

VITAMIN A – helps with eyesight and is found in liver, carrots, sweet potatoes, etc

VITAMIN B - needed for strong nervous system and good health. Is found in pore, nuts, cereal, and also in meat.

VITAMIN C – needed for healthy teeth and gums. Helps fight infections and is found in citris fruits, green peppers and vegetable

VITAMIN D - builds strong bones and teeth, and is found in sunlight, milk, liver and eggs.

VITAMIN K- helps to clot the blood and is found in green vegetables and tomatoes.

5. MINERALS- help the body grow and stay healthy.

MINERALS

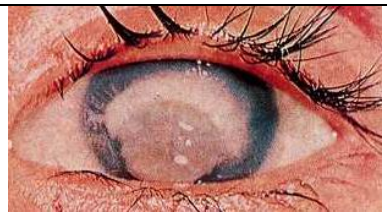
Minerals are needed for the growth and repair of our bodies. Minerals are very important for our diets and can be found in foods and rocks. There are many types of minerals.

1. CALCIUM – help bone teeth, and is found in milk and cheese.
2. PHOSPHORUS- makes hard material in bones.
3. IRON AND COOPPER – makes hemoglobin in blood
4. SULFUR- helps hair and nails to grow.
5. SODIUM- control the heart beat and is found in salt.
6. CHLORINE – digestive juice made in the stomach.
7. IODINE –found in salt and lack of iodine causes goiter.
6. WATER- help the body grow and is found in all foods.

7. FIBER- is also considered a vital food substance needed by the body.

DEFICIENCY DISEASES

A deficiency disease is caused by a lack of particular food nutrient. Some deficiency diseases are:

Anemia	a lack of iron		
Beri Beri	lack of vitamin B		
Scurvy	lack of vitamin C		
Goitre	lack of iodine		
Rickets	lack of vitamin D		
Kwashiorkor	lack of protein		
Night Blindness	lack of vitamin A		

FOUR FOOD GROUPS

There are four food groups.

1. Dairy (Milk) Group

2. Meat and Egg Group

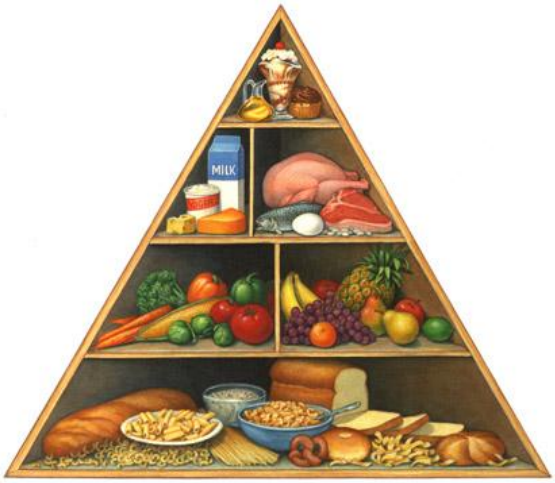
3.Fruit and Vegetable Group

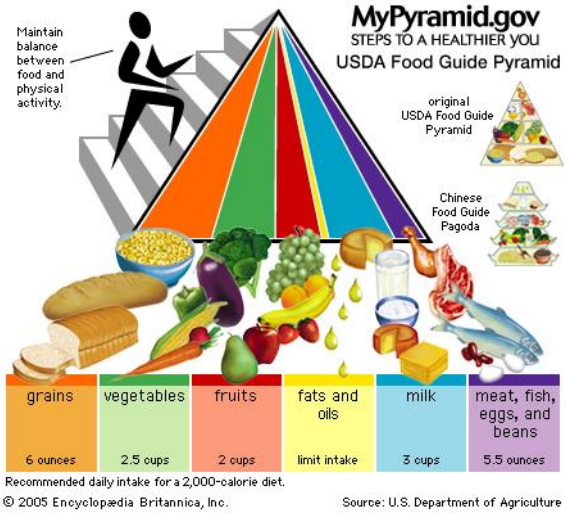
4. Bread and Cereal Group

1. Dairy (Milk) Group includes food such as milk, ice cream, cheese
2. Meat and Egg Group includes fish, chicken, beef, pork, nuts, eggs
3. Fruit and Vegetable Group includes bananas, carrots, lettuce, beets,
4. Bread and Cereal Group includes bread, rolls, buns, crackers, grain

BALANCED DIET

A balanced diet is made up of meals that have foods from all four food groups in the correct proportion size or amount.





THE BLOOD

FUNCTIONS OF THE HUMAN BLOOD

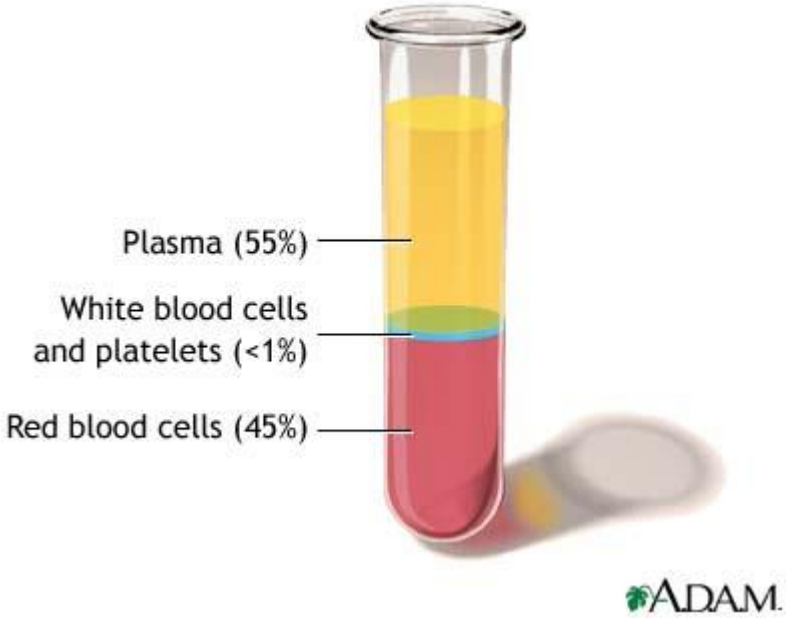
The human blood has five (5) very important functions or jobs:

1. Blood transport digested food through the body
2. Blood transport waste materials through the body eg. water, urea, carbon dioxide etc
3. Blood controls our body temperature
4. Blood protects our bodies from germs and bacteria
5. Blood transports hormones in our bodies

COMPOSTION OF BLOOD

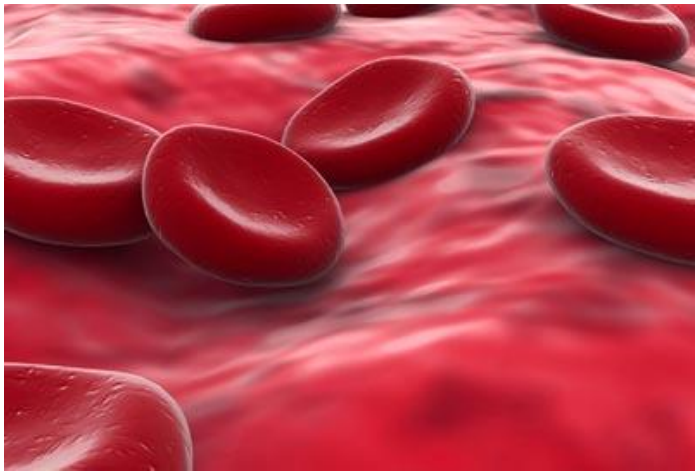
Blood is made up of four (4) parts:

1. Red blood cells or corpuscles
2. White blood cells or corpuscles
3. Platelets
4. Plasma



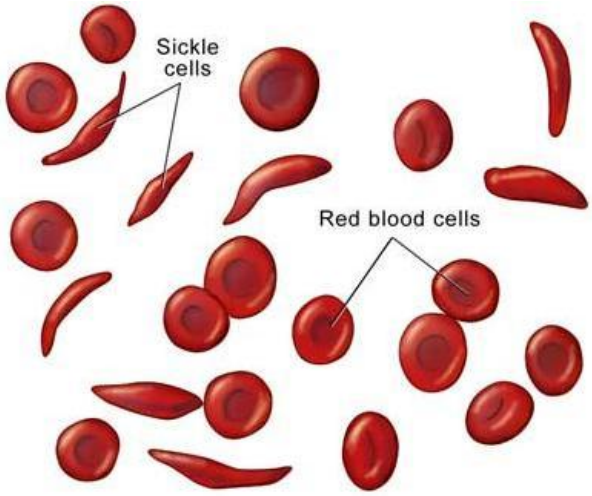
RED BLOOD CELLS

Red blood cells are also called red blood corpuscles. Red blood cells are very small, round cells that do not have a nucleus. Red blood cells are made in the marrow of long bones, and are stored in the spleen. Red blood cells contain HAEMOGLOBIN, which is made of the mineral iron. Hemoglobin helps the red blood cells to absorb and carry oxygen throughout our bodies.



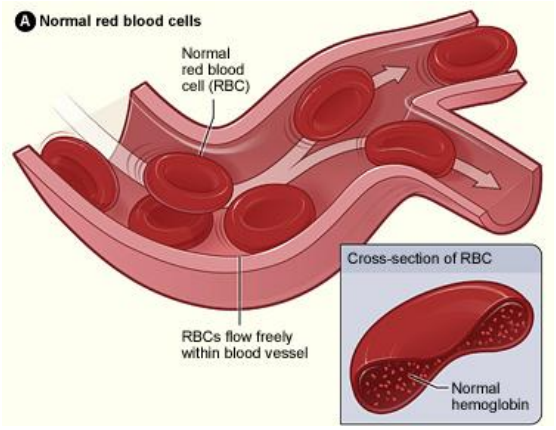
ANEMIA

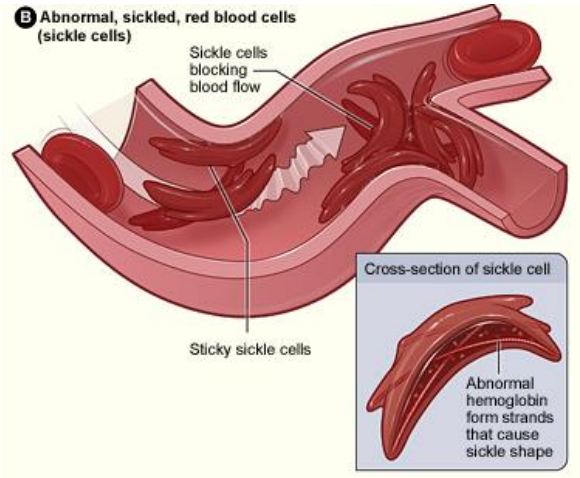
Anemia is a disease caused by the lack of red blood cells. People with anemia feel weak, tired and they lack energy. Anemia can be treated by adding more iron to the diet.



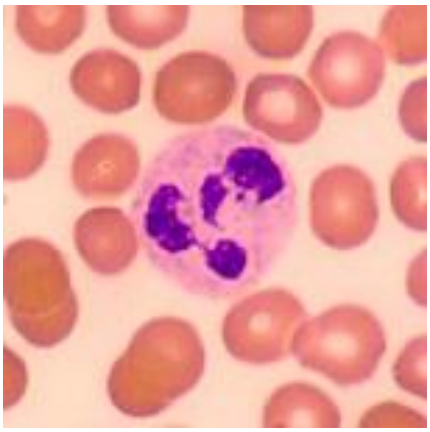
SICKLE CELL ANEMIA

This is a disease where the red blood cells have an abnormal thick banana shape. Because the cells are not shaped properly, the can not absorb sufficient oxygen and they cannot move through the blood vessels easily.





WHITE BLOOD CELLS



White blood cells are also called white blood corpuscles. They are larger than the red blood cells, but are also fewer in numbers. White blood cells do not have a definite shape but they have nucleus. White blood cells help to fight and kill all most germs and bacteria that enter body.

When germs enter our bodies, white blood cells ingest these germs. Other white blood cells break down the poisons or toxins produced by bacteria. When a white blood cell ingests a germ or bacteria, the white blood cell dies. Dead white blood cells are called Pus.

LEUKEMIA

Leukemia is cancer of the white blood cells causing over production of white blood cells. As a result of this increase production, the person may die.

PLATELETS

These are very small cells which float in the blood. Platelets have chemicals that help the blood to clot. Clotting is important because it prevents a person from losing too much blood from a wound or cut. Clotting also stops germs and bacteria from entering our bodies. Platelets help a sore to become dry and hard to form a scab.

PLASMA

Plasma is the liquid part of the blood. It is a clear light yellow liquid and is mostly water. The red and white blood cells along with the platelets float around in the plasma.

BLOOD TRANSFUSIONS

If a person has a serious accident they may lose too much blood from the body. If this happens other people may donate or give blood so that the injured person may live. This is called blood transfusion. It is important for people to have their blood tested before it is given to a sick person.

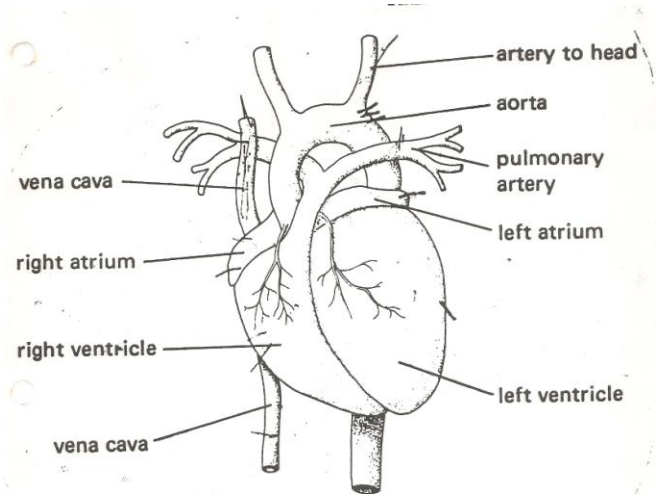
BLOOD GROUPS

People have 7 to 10 pints in their bodies. However everyone has a special blood group. There are four (4) main blood groups: A, B, AB, and O. if one blood type is given to a person of another blood type, the person may die.

Group A can take from groups A and O
Group B can take from groups B and O
Group AB can take from groups A, b, AB, and O
Group O can only take from Group O

THE HUMAN HEART

The human heart is made of strong cardiac muscle. The heart has four chambers, which pump blood to all parts of the body. A human heart is about the size of his fist, and is found between the lungs in the middle of the chest. The heart beats about seventy to ninety times per minute.



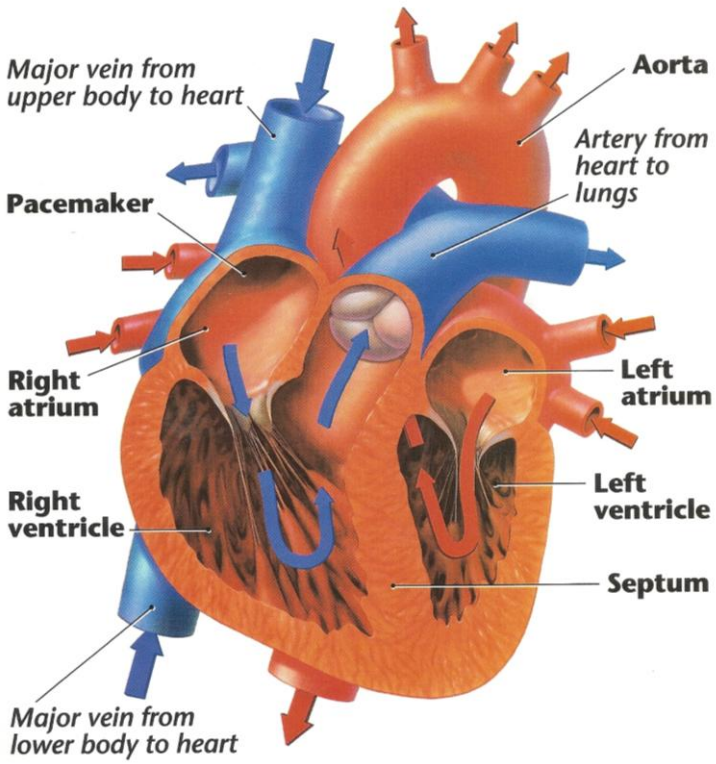
1. The heart has four (4) chambers, two upper chambers called Auricles or Atria and two lower chambers called Ventricles.

2. The Septum muscle (wall) separates the heart into two sides: the right side and the left side.

3. Valves are found inside the heart. Valves help the blood to flow in the right direction and stop the blood from flowing backward.

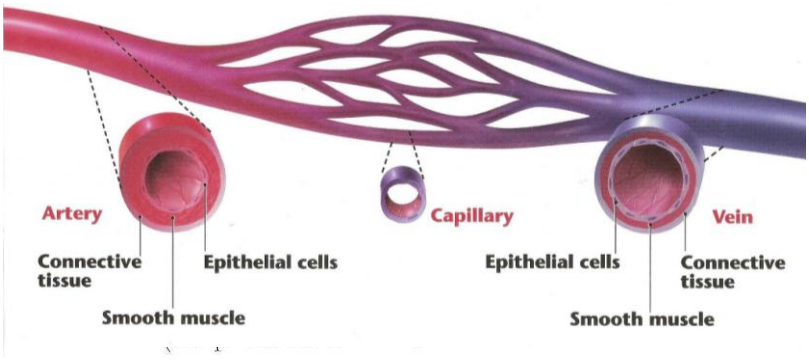
4. The heart is enclosed in a tough sac called the Pericardium.

5. The heartbeat is called the pulse. Doctors listen to heartbeats with a stethoscope.

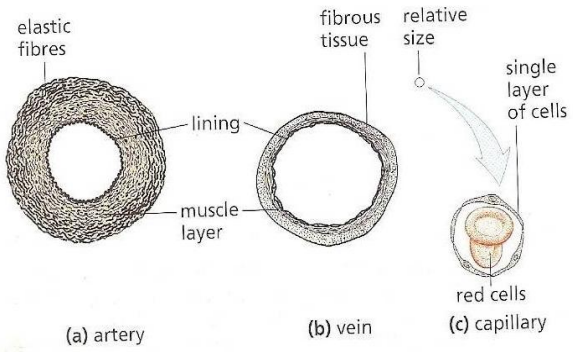


BLOOD VESSELS

The blood in our bodies circulates or travels through tubes called blood vessels. There are three (3) kinds of vessels in our bodies:



1. Arteries
2. Veins
3. Capillaries



ARTERIES

1. Arteries are blood vessels, which carry blood away from the heart.
2. All arteries carry oxygenated or bright red blood except the pulmonary artery.
3. All arteries have thick, strong elastic walls.
4. The strongest artery is called the Aorta. The Aorta carries oxygenated blood to all parts or our bodies.
5. Tiny arteries are called arterioles.

CAPILLARIES

1. Capillaries are the smallest blood vessels in the body. They can only be seen with a microscope. Capillaries are so small that blood cells can pass through only in single file.
2. Capillaries connect or join arterioles to venules.
3. Carbon dioxide, digested food, oxygen and other materials pass through the walls of the capillaries and enter the blood stream.

VEINS

1. Veins are blood vessels which carry blood back to the heart.
2. All veins carry deoxygenated of blue blood except the Pulmonary Vein.
3. The walls of vein are thin and not as strong as arteries.
4. Most veins have valves which prevents the blood from flowing backwards.
5. Tiny veins are called venules, and venules are joined to capillaries.

OXYGENATED BLOOD

Oxygenated blood is blood that has oxygen in it. Oxygenated blood is bright red in color.

DEOXYGENATED BLOOD

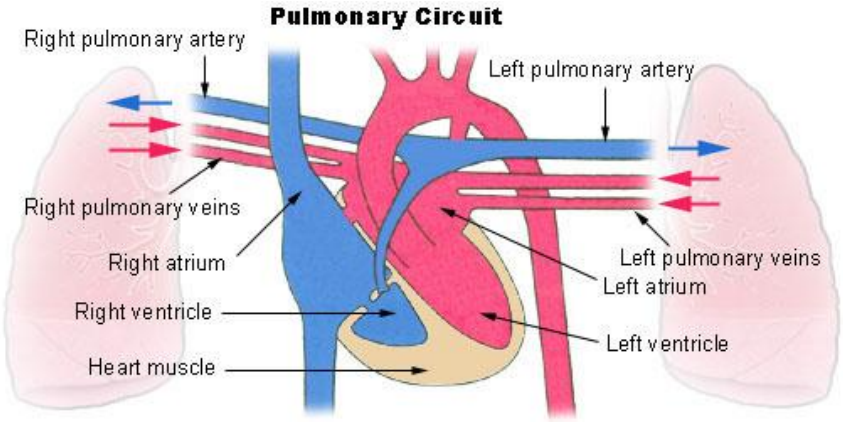
Deoxygenated blood is blood that does not have any oxygen, deoxygenated blood is dull red or bluish in color.

THE CIRCULATORY SYSTEM

1. The circulatory system is made up of the heart, blood vessels and the blood.
2. In the circulatory system, blood carries food, oxygen and hormones to all parts of the body and picks up carbon dioxide, urea and other waste products.

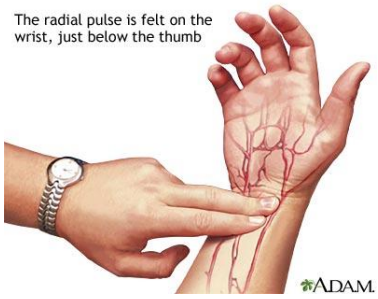
Types of Body Circulation

1. Pulmonary Circulation – the flow of blood from the heart to the lungs and back to the heart.

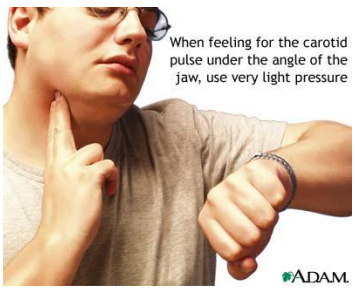


BLOOD PRESSURE

Blood Pressure is the pressure of blood in the arteries. Blood pressure is measured with a Sphygmomanometer. Normal blood pressure varies with age.



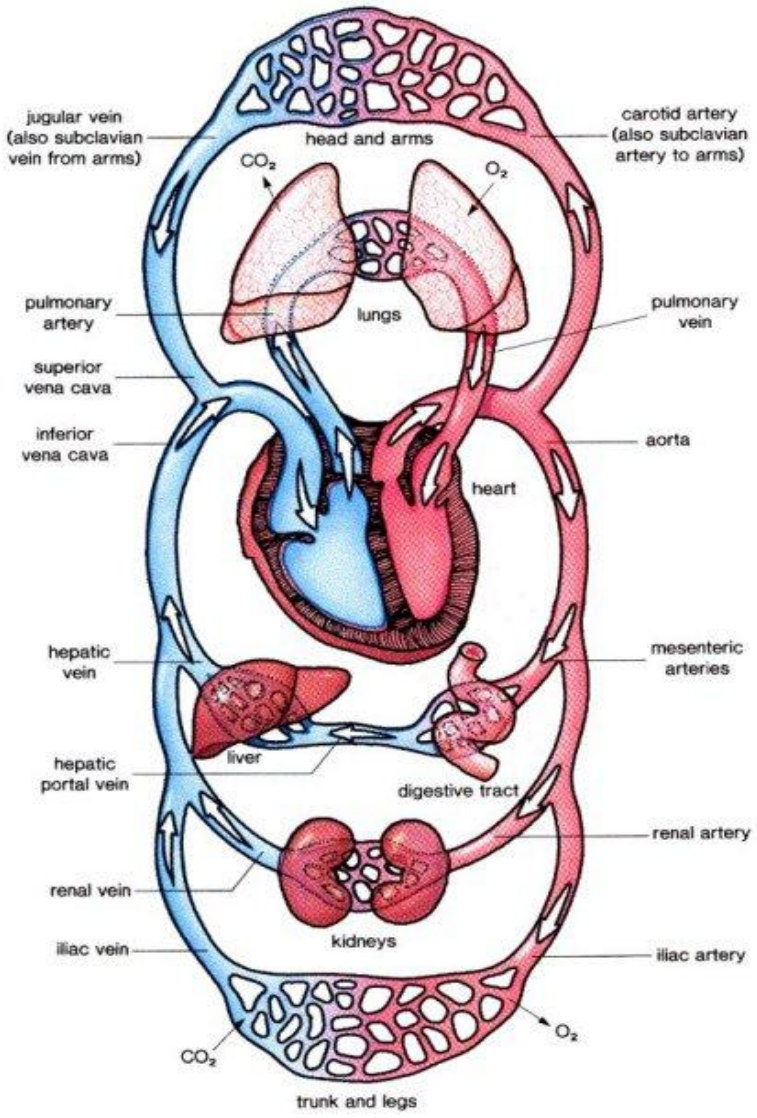
HYPERTENSION – is also called high blood pressure. It a person has high blood pressure, the heart must work harder to pump blood through the arteries. Smoking, drinking alcohol and eating fatty foods can cause high blood pressure.



HYPOTENSION – is also called low blood pressure. Low blood pressure happens after a person has lost a great amount of blood and goes into shock.

2. Hepatic Circulation – the flow of blood from the heart to the small intestine and liver, and back to the heart.

3. Renal Circulation – the flow of blood from the heart to the kidneys and back to the heart.



THE SPLEEN AND LYMPHATIC SYSTEM

The spleen is a blood filter and is found in the upper part of the abdomen. The lymphatic system is a secondary circulatory system, which fights infections.

THE LYMPHATIC SYSTEM

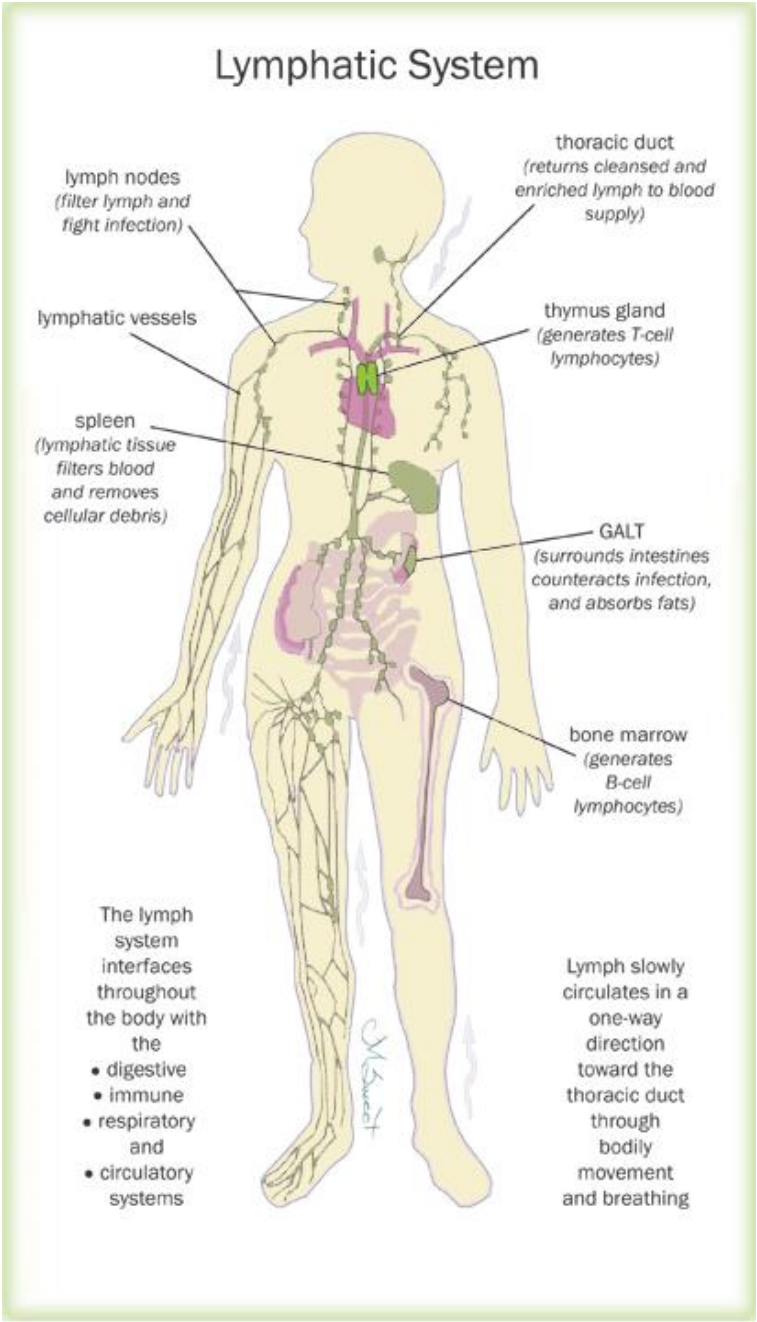
The lymphatic system is a secondary circulatory system, which fights infections.

The Lymphatic system consists of lymph glands linked together by a system of tubes lymph vessels (lymphatic) – which penetrate throughout of tissues of the body and contain a clear fluid called lymph. The spleen is a blood filter and is found in the upper part of the abdomen.

Functions of the lymphatic system.

The lymphatic system:

1. Filters lymph to remove unwanted matter from it
2. Produces lymphocytes} to destroy germs (bacteria and viruses.)
3. Produces antibodies
4. Removes excess fluid from the tissues.
5. Lacteals absorb digested fat.



THE RESPIRATORY SYSTEM

All living things (plants and animals) need energy to live. Respiration involves getting oxygen into the body and using it along with the food we eat to make energy.

Respiration takes place in two (2) stages:

1. External Respiration – getting oxygen into our bodies and getting carbon dioxide out of our bodies.
2. Internal Respiration – using the oxygen and glucose in the body cells to make energy.

GLOCOSE + OXYGEN $\longrightarrow$ CARBON DIOXIDE + WATER + ENERGY

$C_6 H_{12}$ + 60_2 $\longrightarrow$ $6CO_2$ + $6H_20$ + ENERGY

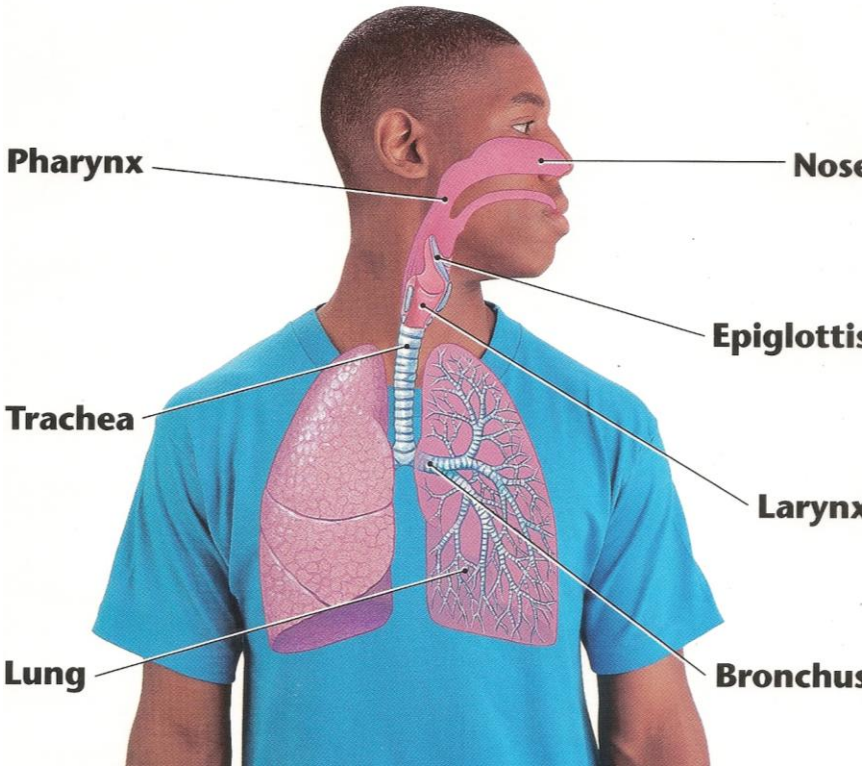
COMPOSTION OF AIR

20% Oxygen 78% Nitrogen 0.03% Carbon Dioxide 1.17% Other gases

RESPIRATORY ORGANS

The main organs of the human respiratory system are the lungs.

There are two lungs found in the chest or thoracic cavity. The lungs are very spongy and are protected by the rib-cage and sternum (breast bone).



1. When we breathe in oxygen through our nose and mouth all dust and solid particles are removed by tiny hairs lining the nostrils.

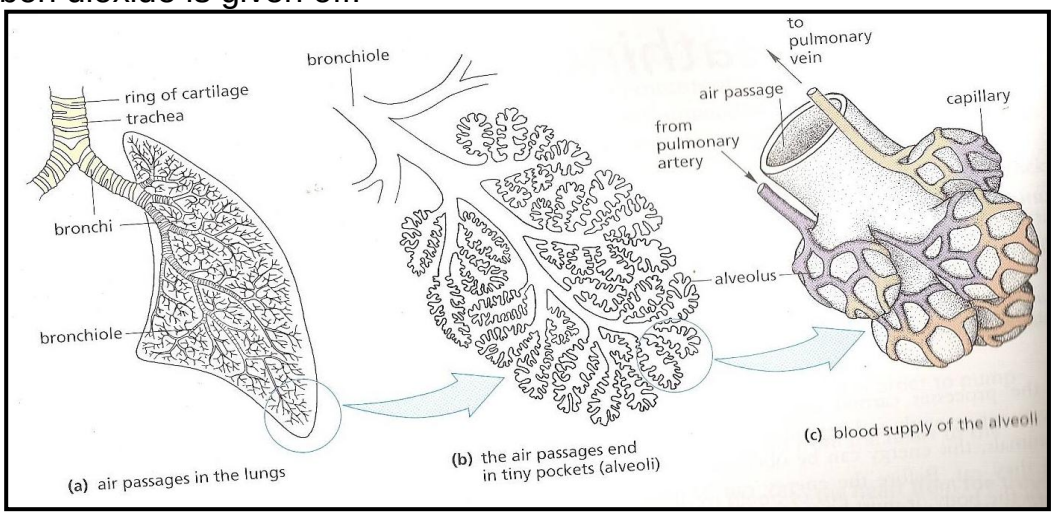
2. The air then passes to the Larynx (voice box) and into the Trachea. The trachea is made up of rings of cartilage and branches into two tubes called bronchi. (Bronchus- one tube).

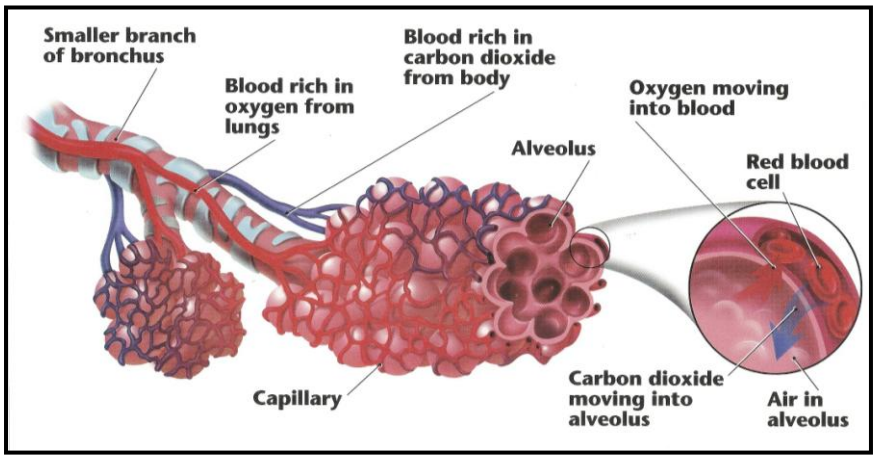
3. After the oxygen leaves the bronchi tubes, it passes into smaller brachial tubes and finally into small air sacs called alveoli. (Alveolus – one air sac). Each lung has millions of alveoli.

The epiglottis is a flap of skin. When we eat our food, the epiglottis covers the trachea so that food and drink cannot enter the trachea.

EXCHANGE OF GASES

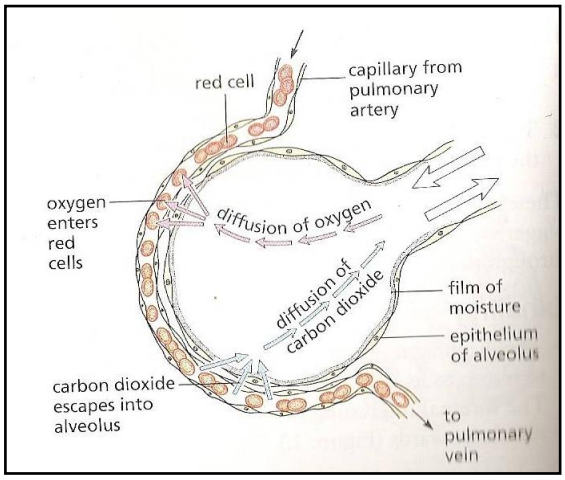
The exchange of gases takes place in the alveoli. In the alveoli, oxygen is taken up and carbon dioxide is given off.





EXCHANGE OF GASES

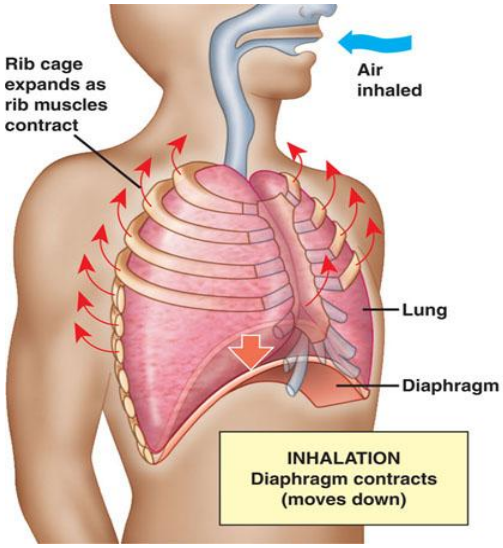
1. Oxygen passes from the alveoli into the capillaries that surround them.
2. The red blood cells then carry the oxygen to the body cells.
3. In the cell, the oxygen combines with the digested food and energy is released.
4. At the same time, carbon dioxide and water are produced and taken to the alveoli and by other red blood cells.
5. The alveoli then pass the carbon dioxide and water off into the lings to be carried to the outside of the body.

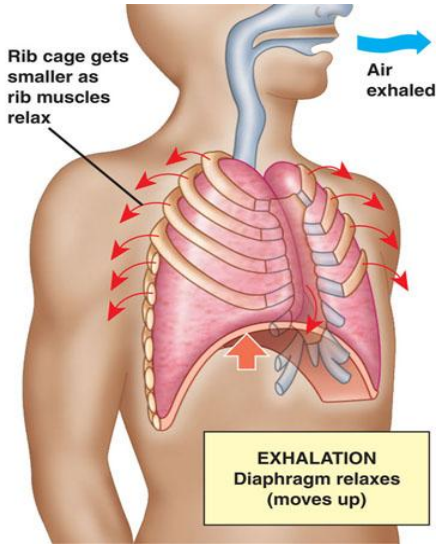


We can see water vapor coming from our lungs when we breathe on a glass or mirror, and when we breathe out during cold weather the water vapor looks like smoke.

HAEMOGLOBIN – is found in the red blood cells and it helps the blood to absorb and transport oxygen. The blood that leaves the lungs (alveoli) has more oxygen.

MECHANICS OF BREATHING





Inhale or Inspire Exhale or Expire

Constituent	Inhaled Air	Exhaled Air
Oxygen	20.9%	16%
Carbon dioxide	0.03%	4.0%
Water vapour	Variable	Variable but more than in inhaled air
Nitrogen	78.1%	78.1%
Noble gases	0.94%	0.94%

RESPIRATORY DISEASES

Respiratory Diseases affect the organs, tissues and membranes, which are used for breathing. Some of these diseases are contagious and others are not.

1. Common Colds – are caused by viruses. Colds are infections of the mucous membranes for the nose, throat, air passages and lungs. People with colds should drink plenty fluids especially orange juice.

2. Bronchitis – a disease which develops from a bad cold. Bronchitis is a swelling of the bronchial tubes. It is also caused by smoking, lung infections, heart diseases, measles etc. people with bronchitis has harsh coughs.

3. Pneumonia – when the lungs become swollen and infected. Pneumonia is a contagious disease.

4. Tuberculosis – a lung disease which can be fatal and which is very contagious. Tuberculosis is caused by bacteria and is sometimes called T.B.

5. Emphysema – a disease that causes a person to have difficulty breathing. Emphysema is found mainly in persons who smoke. It is a lung disease that can not be cured. People who smoke can damage the alveoli and when this happens, the oxygen and carbon dioxide are not exchanged properly or sufficiently

6. Asthma – is an allergy that attacks the bronchial tubes by blocking them. People with asthma have difficulty breathing. Asthma attacks are usually treated by giving the person a supply of oxygen.

7. Hay Fever – is also an allergy. Persons who are very sensitive to certain flowers, plants, animals etc, have difficulty breathing and also sneeze a great deal.

CIGARETTE SMOKING

People who smoke can damage the alveoli and when this happens, the oxygen and carbon dioxide are not exchanged properly nor sufficiently. Smokers sometimes have a disease called Emphysema and other lung diseases. Smokers breathing is sometimes difficult especially when they exercise or is under stress.

THE EXCRETORY SYSTEM

EXCRETION – is the removal of waste products from the body. It is very important that these waste products are eliminated because they can be very harmful to the body.

ORGANS OF EXCRETION
The five (5) main organs of excretion are:

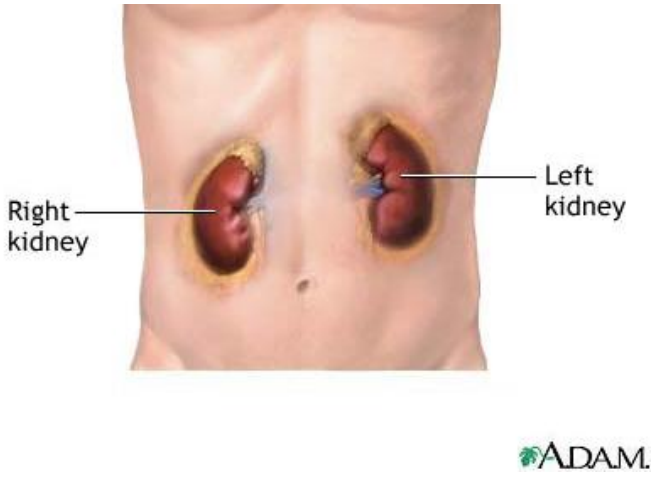
1. Lungs 2. Skin 3. Liver 4. Rectum 5. Kidneys

Organs of Excretion	Waste Products
1. Lungs	Carbon dioxide and water
2. Skin	Urea and water
3. Liver	Makes urea
4. Rectum	Undigested food and feces
5. Kidneys	Urea and water

UREA – the liver makes urea which is a poisonous chemical. Urea is made from extra protein in the liver. It is then taken by the blood to the kidneys.

FAECES – is the waste products of digestion. All foods that are not digested are called feces. The removal of feces is called defecation.

THE KIDNEYS
The Kidneys are mainly responsible for excreting urea from the body. Our bodies have two (2) dark red, bean-s shaped kidneys. They are found in the back of our abdomen, just below the diaphragm.



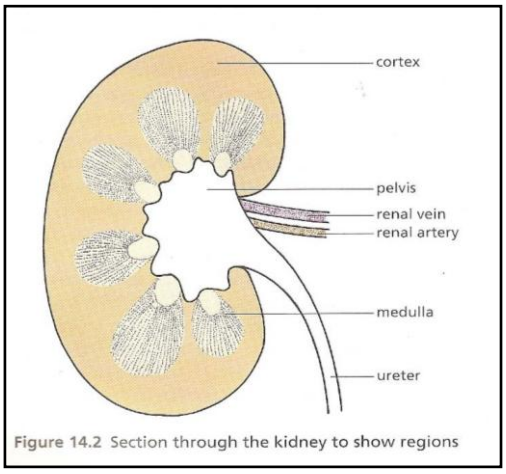


Figure 14.2 Section through the kidney to show regions

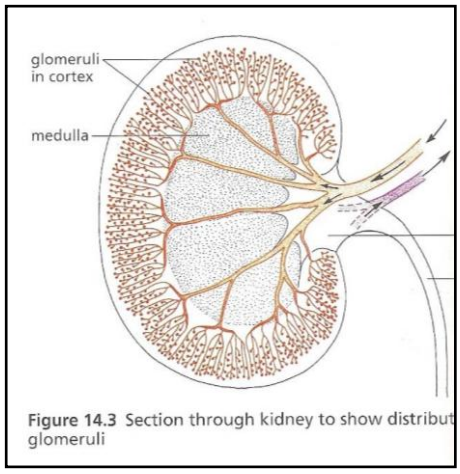


Figure 14.3 Section through kidney to show distribut glomeruli

THE URINARY SYSTEM

1. As the blood flows through the kidneys, it filters out or drops off urea into the kidneys.

2. This urea along with other salts dissolves in water to form urine.

3. The urine then flows down a tube called the ureter.

4. From the ureter the urine enters the bladder a sac that stores urine.

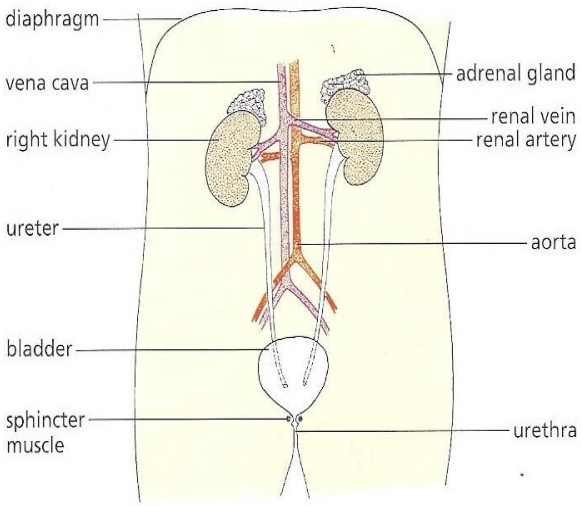


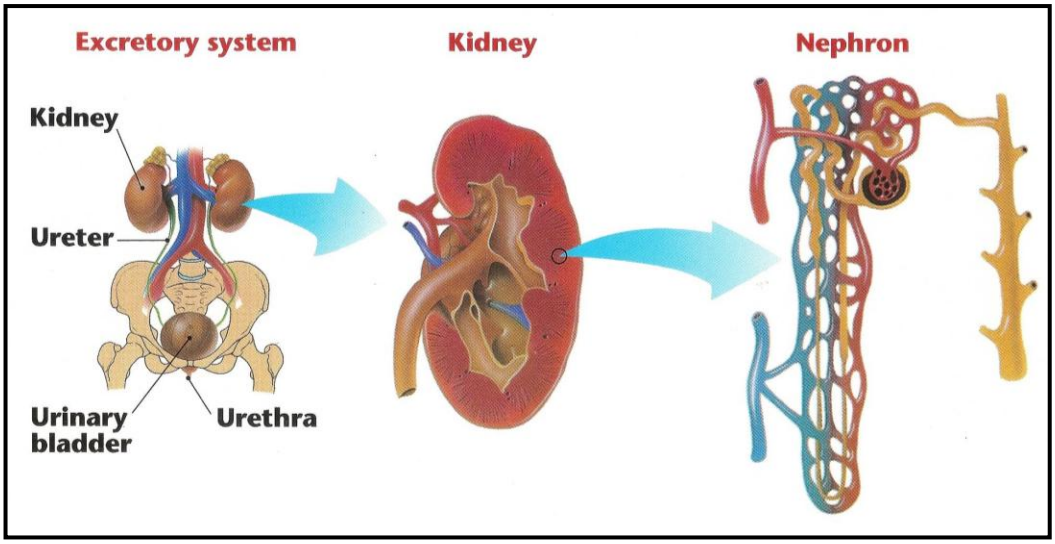
Figure 14.1 Position of the kidneys in the body

5. When the bladder is filled with urine, the bladder muscles contracts and squeezes the urine into the Urethra.

6. The urine passes through the urethra and out of the body. Urine is made of water, urea and salt. Urine helps doctors to diagnose or identify many body illnesses, as well as pregnancy in women.

7. The Renal Artery carries blood from the heart (aorta) to each kidney.

8. The Renal Vein carries blood from each kidney back to the circulatory system.



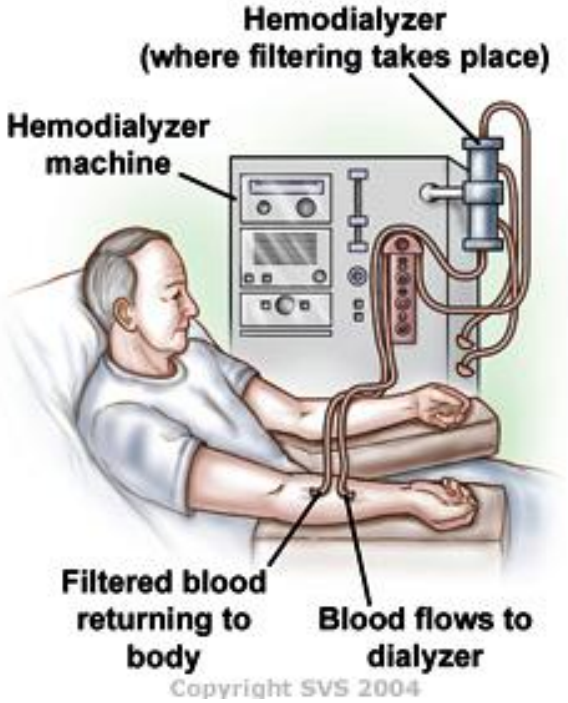
DISORDERS OF THE URINARY SYSTEM

1. CYSTITIS – an infection of the urinary bladder. Cystitis can be very painful.

2. PYELITIS – is an infection of the kidneys.

3. NEPHRITIS- is also called B

4. UREMIA- a serious disease caused by the build up of poisonous wastes in the body. This disease can even destroy the kidneys.



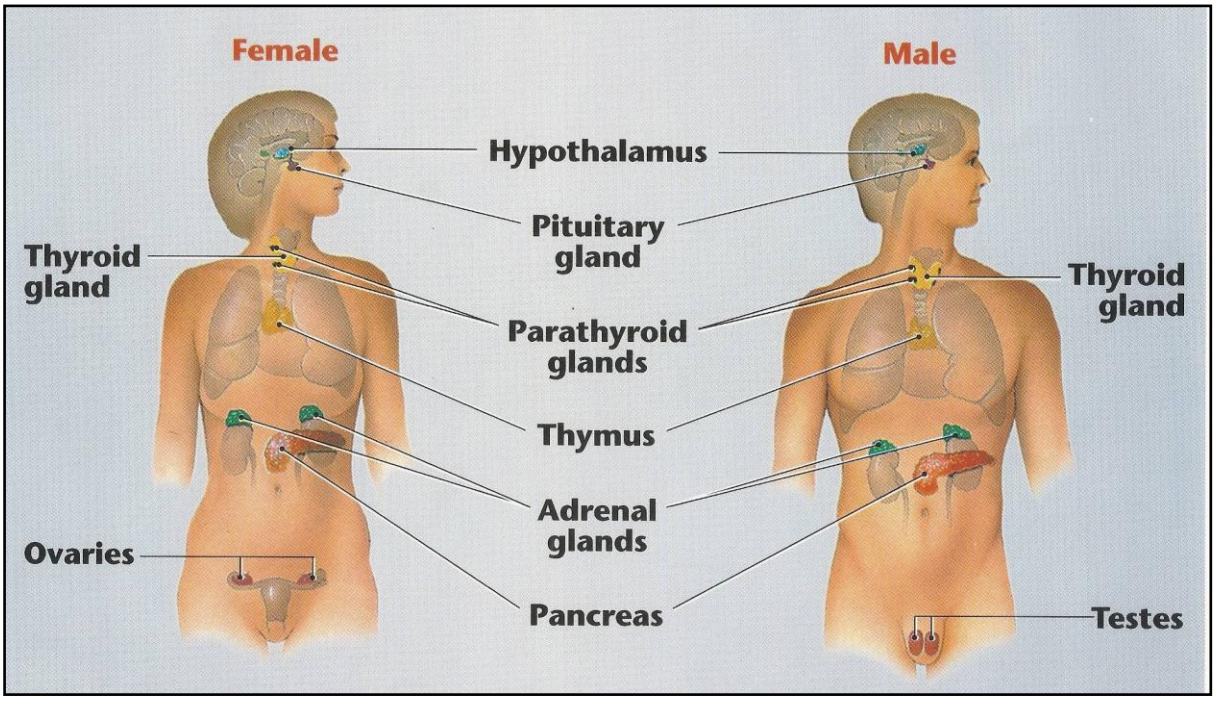
THE ENDOCRINE SYSTEM

The Endocrine system is made up of ductless glands that secrete or release special chemicals into the bloodstream.

1. Glands – and organ that produces and stores special chemicals needed and used by the body.

2. Hormones – special chemicals produced by the body that helps our body to grow and function properly.

ENDOCRINE GLANDS IN THE HUMAN BODY



THE MAIN ENDOCRINE GLANDS ARE:

1. Pituitary Gland – this gland is also called the Master Gland. It produces hormones, which control all other glands. It also controls the growth of our bodies.

2. Thyroid Gland – this gland uses iodine to make a hormone called Thyroxin. The thyroid gland controls the rate of growth of our bodies.

3. Parathyroid Glands – these are four small glands found in the thyroid gland.

4. Pancreas Gland – this gland has special cells called Islet's of Langerhans which produce a hormone called insulin. Insulin helps the liver to store sugar and to oxidize sugar.
5. Adrenal Glands – these are found on top of the kidneys they make a hormone called adrenaline which speeds up our bodies' activities when we are frightened or angry.
6. Sex Glands –
    i. Ovaries – these glands are found only in females and produce a hormone called Estrogen. Estrogen controls the growth of breasts, menstrual cycles and reproduction.
    ii. Testes- these glands are found only in males and produce a hormone called Testosterone controls deeper voice, hair growth on face, chest and public areas.
7. Thymus gland – found above the heart and is only found in babies and children. Hormones produced by the thymus gland help to immunize babies and small children.

DISORDERS OF THE ENDOCRINE SYSTEM

1. Diabetes – this happens when the pancreas does not produce enough insulin to store and oxidize sugar. When this happens the person may " fall out" or go into a coma.
2. Dwarfism- when the pituitary gland does not produce enough hormones. The person will be very short.
3. Giantism – when the pituitary gland produces too much hormones. The person will be very tall and big.
4. Goitre – when the thyroid gland does not have sufficient iodine it becomes swollen. This swelling in the neck is called goiter.

THE NERVOUS SYSTEM

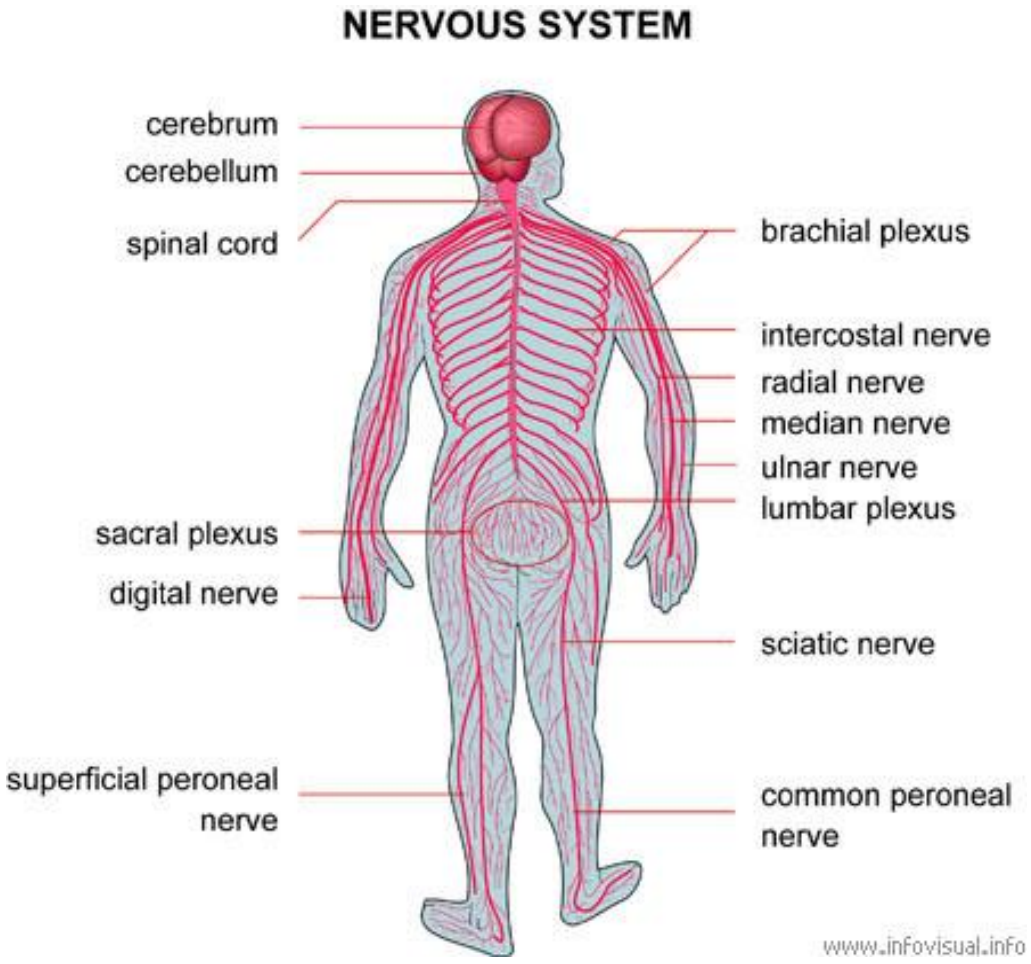
The Nervous System is the control center for all activities. It is the communicating system, which acts like a large telephone network. Just how Batelco controls all telephone wires as they carry messages back and forth, the Brain and Spinal Cord work the nerves as they carry messages back and forth.

The Nervous System may be divided into two (2) systems.

A. The Central Nervous System
B. The Peripheral Nervous System

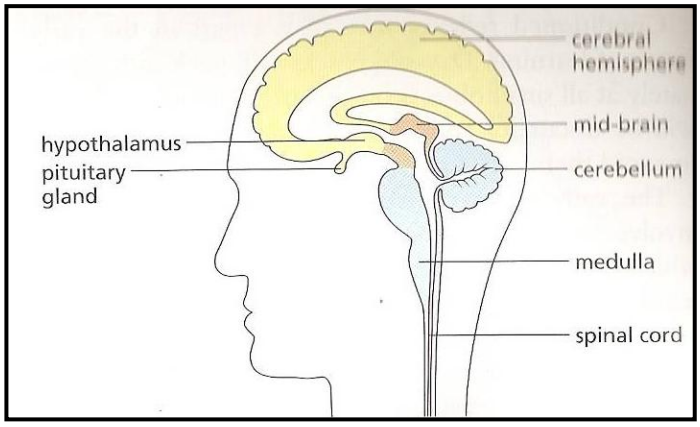
A CENTRAL NERVOUS SYSTEM

The Central Nervous System is the made up of the Brain and Spinal Cord. This system is the main control system used to direct our body actions.



THE BRAIN

The brain is the master organ of the body. It receives messages from all parts of the body and sends out responses. The brain is divided into three (3) main parts. The brain is protected by the skull and the spinal cord is protected by the vertebra.



i. **Cerebrum –** This is the largest part of the brain that controls our thinking, memory, learning, movement of the face, head and body. The cerebrum is gray and surface cerebrum has many deep folds or wrinkles.

ii. **Cerebellum –** It is found below the cerebrum and its function is to balance the body and co-ordinate the muscular activities of the body.

iii. **Medulla Oblongata**- It is found at the base of the brain. Its function is to control the activities of the internal organs. It also controls the heartbeats, muscular actions in the digestive system and respiration.

THE SPINAL CORD

The Spinal Cord is a long, rod-like structure that connects the brain with the rest of the body. Many nerves branch out from the spinal cord, and carry out several reflex actions.

SPINAL CORD – The spinal cord is attached to the medulla oblongata and runs down the spine. It is made up of gray matter inside and white matter outside. The spinal cord has 31 parts of nerves that branch off from it.

PERIPHERAL NERVOUS SYSTEM

The peripheral nervous system is made up of two smaller systems:

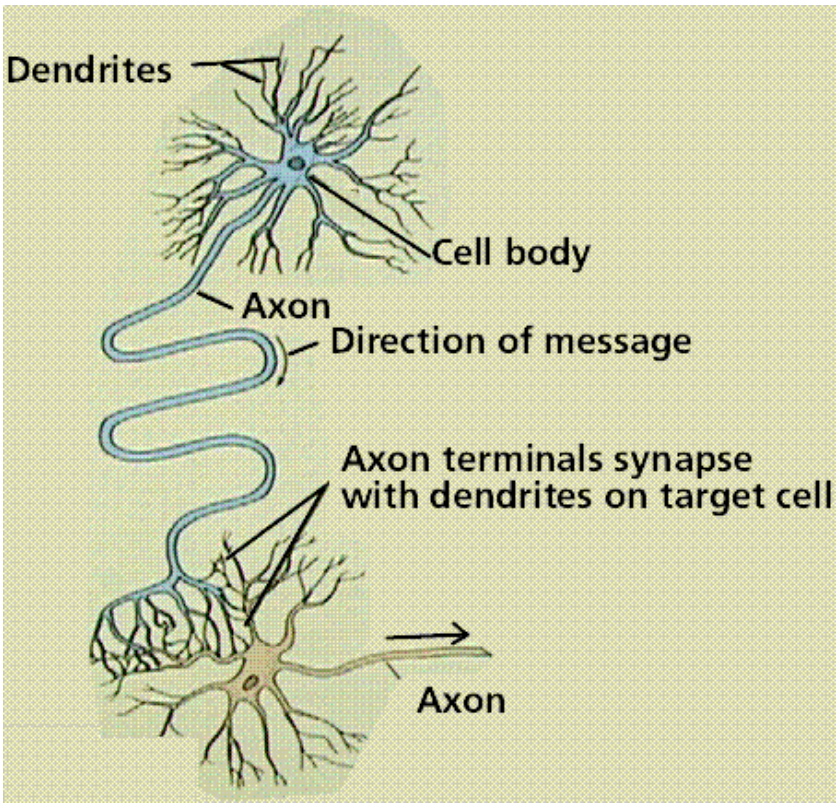
1. Voluntary System- this system is responsible for controlling all body movements: eg: walking, writing, jumping etc.

2. The Automatic Nervous System is a part of the motor system, and it controls involuntary actions such as heart beat, breathing, peristalsis etc.

NERVE CELLS

Each nerve cell is made up of cells called neurons.

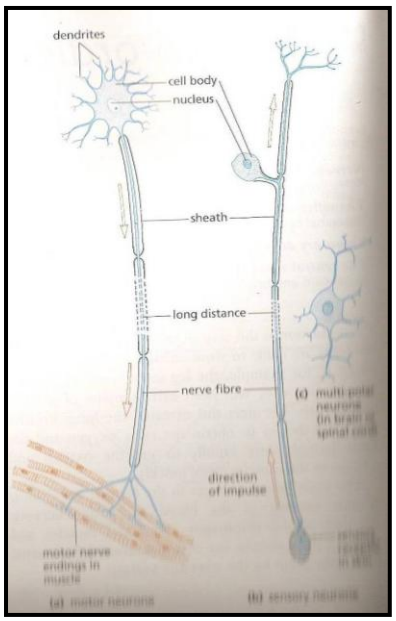
i. **Nucleus**- found in the center of the cell body.
ii. **Dendrite**- fine threads that pick up nerve impulse and transmits it to the Axon.
iii. **Axon**- transmits the nerve impulse to the dendrite of another neuron.
iv. **Cell Body**- made up of the nucleus and the cytoplasm.



NEURONS / NERVE CELLS

There are three (3) types of neurons

a. Sensory Neurons – carry nerve impulses/messages from the sense organ to the Spinal Cord or Brain. The sense organs are: eyes, ears, nose, tongue and skin.
b. Motor Neurons- carry impulses from the Brain or Spinal Cord to the muscles, tissues and organs.
c. Inter-neurons or Connector neuron – found in the Brain and Spinal Cord, and connect the sensory and motor neurons.



REFLEX ACTIONS

A reflex action is an involuntary, automatic reaction that does not require thinking, e.g. pulling your hand away from a hot stove, coughing, yawning, sneezing, etc

CONDITIONED REFLEX

Conditioned reflexes are learned and require a person to think. Some conditioned reflexes are walking, talking, writing, riding a bicycle, driving a car, etc

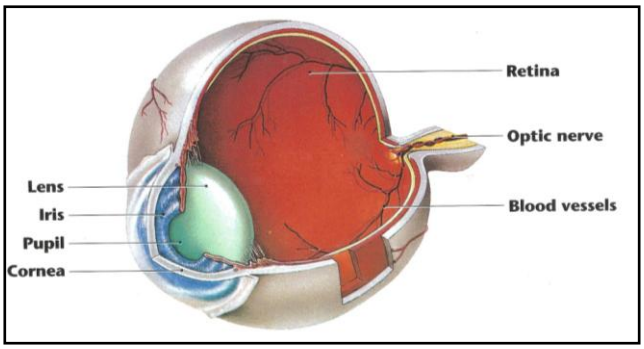
THE FIVE SENSE ORGANS

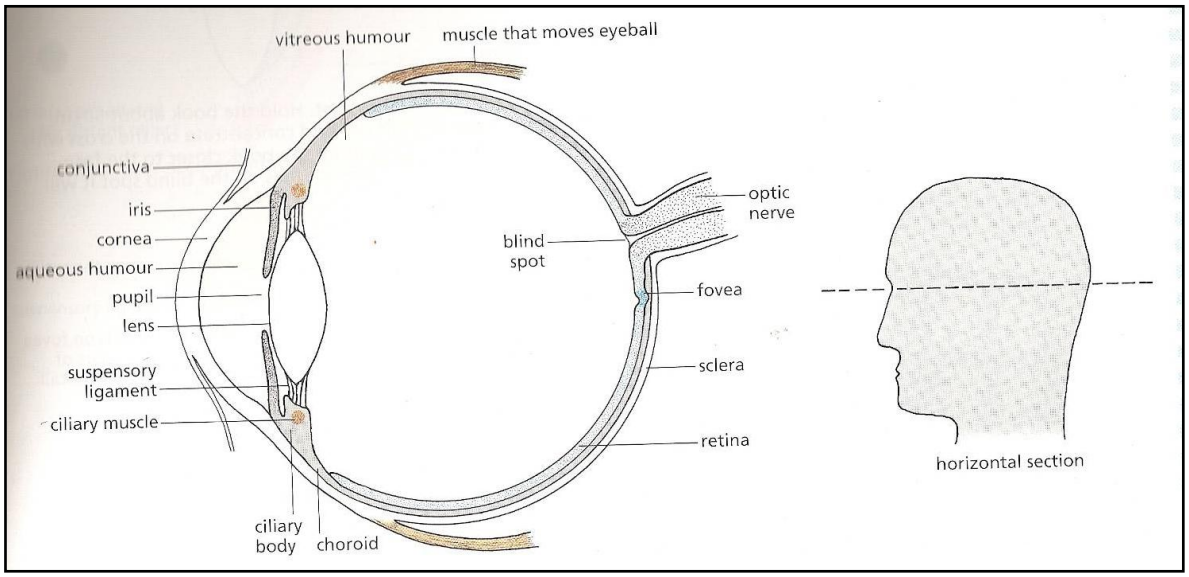
Human sense organs are located all over the body. There are five (5) main sense organs. Sense Organs are also called Receptors.

1. Eyes- receive the sense of sight from light.
2. Ears- receive sense of hearing from sound waves.
3. Tongue- receives sense of taste from chemicals.
4. Nose- receives sense of smell from chemical vapors.
5. Skin- receives sense of touch from contact and temperature.

THE EYES - SENSE ORGAN FOR SIGHT

The human eyeball is shaped like a globe and is about one inch across strong muscles are hold threw eyeballs in their sockets and cause the eyes to move.





1. Cornea- the clear part of the sclera that lets light into the eye
2. Vitreous Humor- the soft, jelly-like material that helps the eye keep its shape
3. Pupil – An opening at the centre of the iris that opens and closes to allow more or less light into the eye.
4. Iris- The colored portion of the eye, (blue black or brown).
5. Lens- the clear football shape structure that helps focus light on to the retina.
6. Retina – the layer of nerve cells that change light into electrical signals.
7. Optic Nerve- the nerve that carry electrical signals from the retina to the brain
8. Blind Spot- the point where the nerve cells of the retina form the optic nerve. No vision is possible.
9. Sclera- the white tough outer wall of the eye.

HOW WE SEE

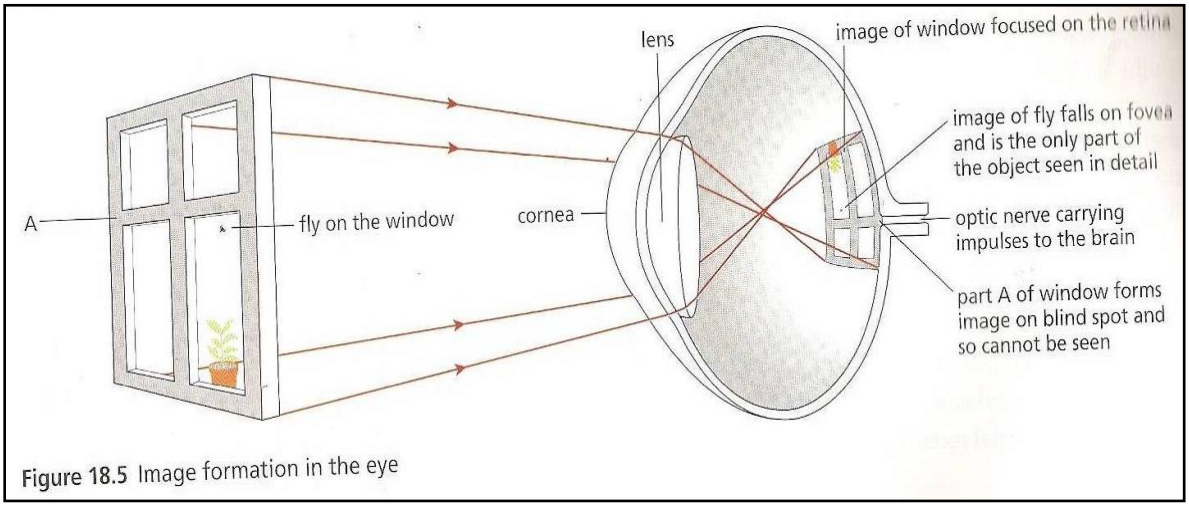


Figure 18.5 Image formation in the eye

When we look at an object, it appears to be upside down or inverted. When the light rays strike the lens in our eyes, the light rays cross and then a right side up image is formed on the retina.

DISEASES OF THE EYE

1. Glaucoma- the pressure of the fluid in the eyeball increases until the retina and the optic nerve are badly damaged.

2. Cataracts- the lens becomes opaque or cloudy so that vision is blurred. This happens frequently in old people.

3. Conjunctivitis- the inflammation of the conjunctiva and redness of the eye caused by duet or germs.

4. Myopia- short sightedness

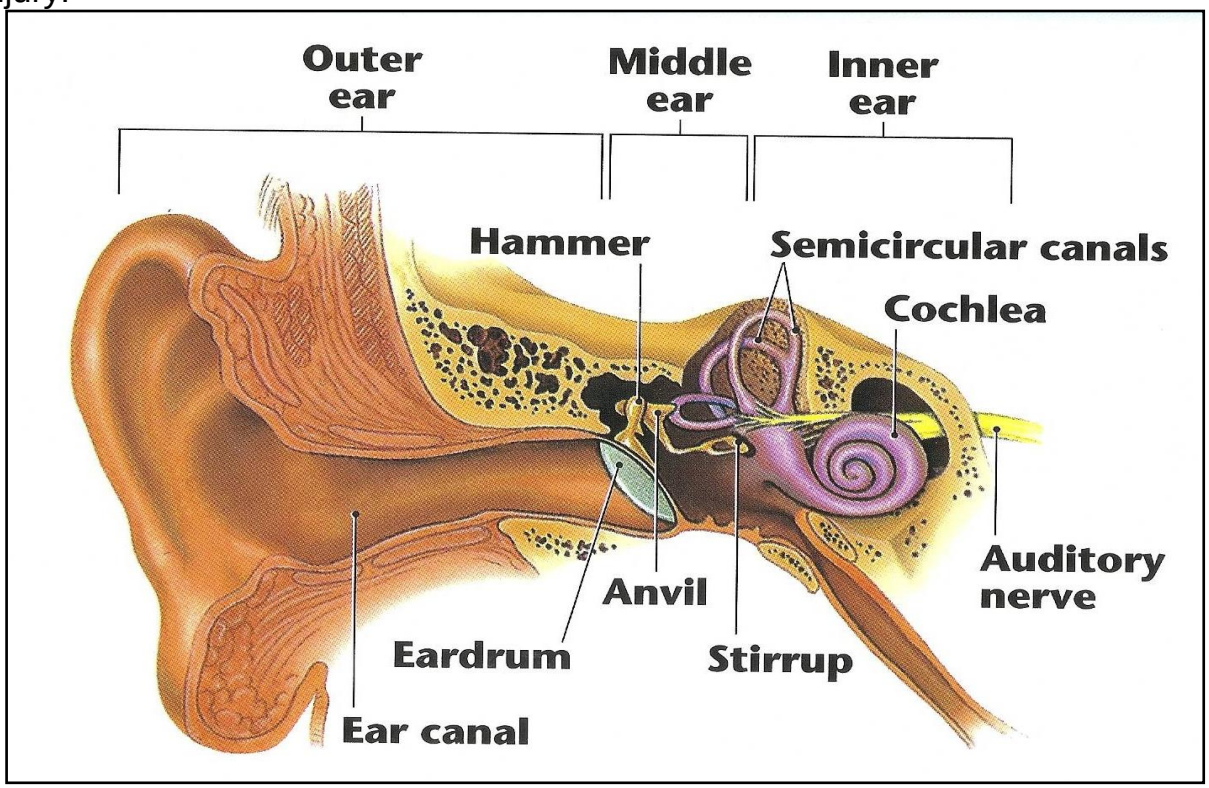
5. Hypermetropia – long sightedness

CARE OF THE EYES

1. Eat foods rich in vitamin A such as carrots.
2. Read in good light, which is not too bright or too dim.
3. Do not rub your eyes when dirt and germs enter your eyes. Wash your eyes with clean warm water.
4. Keep sharp objects and sticks away from your eyes.

THE EAR - SENSE ORGAN OF SOUNDS/ HEARING

The human is delicate important sense of organ that can be easily damage by infection or injury.



a. Pinna – the outer ear the pinna cannot move in humans, but animals use the pinna to listen to strange sounds.

b. Meatus- this is the tube, which leads from the pinna to the tympanum. Inside the meatus, tiny hair strands are found which help to repel insects, and many glands which produce wax to keep the ear drum soft or pliable.

c. Tympanum- this is also called the ear drum. The ear drum is a thin skin stretched across the inner end of the meatus and is very delicate. The ear drum can be damaged easily.

d. Hammer, Anvil, Stirrup- there are three small bones found in the middle part of the ear. When sound passes through the ear these small bones vibrate or hit each other and then pass the sound wave to the semi- circular canal.

e. Semi-circular canal- this is called the organ of balance.

f. Eustachian tube- this tube connects the middle ear to the nose and throat.

g. Cochlea- coiled tube filled with watery liquid. Hearing part of the ear.

h. Auditory Nerve- this nerve takes the message to the brain.

i. Ear Drum or Oval window – separates the inner ear from the outer ear.

THE TONGUE - SENSE ORGAN OF TASTE

Functions of the Tongue

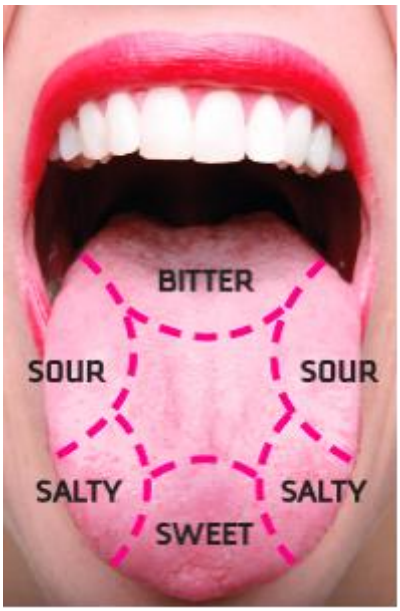
The tongue is a muscular organ attached to the floor of the back of the mouth. It is the chief organ of taste. It is also helpful in chewing and swallowing food and in forming sounds of speech.

The many groups of muscles, which make up the tongue, are under conscious control. These muscles arise from various areas and run in different directions so that the front part of the tongue can be moved many different ways.

Structure of the Tongue

The tongue moves food about, push it between the teeth, rolls it into small masses, and pushes it back into the throat. In swallowing, the tongue presses against the roof of the mouth and spreads against the sides of the mouth so the food can only move back into the throat.

The tongue is covered with mucous membrane and is smooth on the undersurface. The rough surface on the top of the tongue is due to small projections called papillae. Inside the papillae are taste buds connected to nerves. The taste buds send information about the chemicals in food to the nerves, and the nerves carry the taste signals to the brain. The brain interprets the signals, and we become aware of taste.

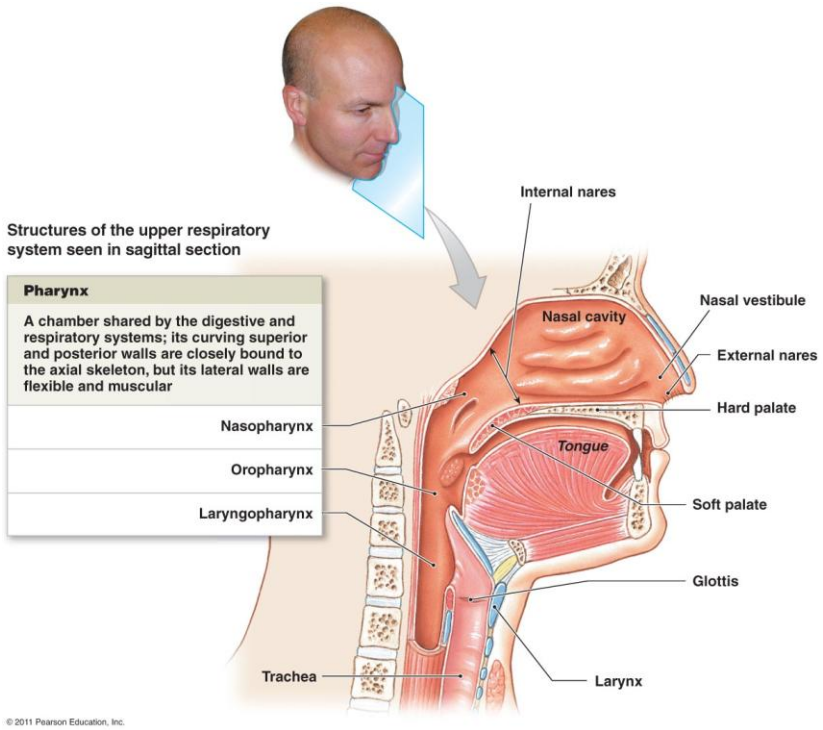


The **tongue map** or **taste BUD ZONES** show the different sections of the tongue which are usually responsible for different basic tastes.

It is illustrated with a schematic map of the tongue, with certain parts of the tongue labeled for each taste. Although widely taught in schools, this was scientifically disproven by later research; all taste sensations come from all regions of the tongue, **although different parts are more sensitive to certain tastes**

THE NOSE – SENSE ORGAN OF SMELL

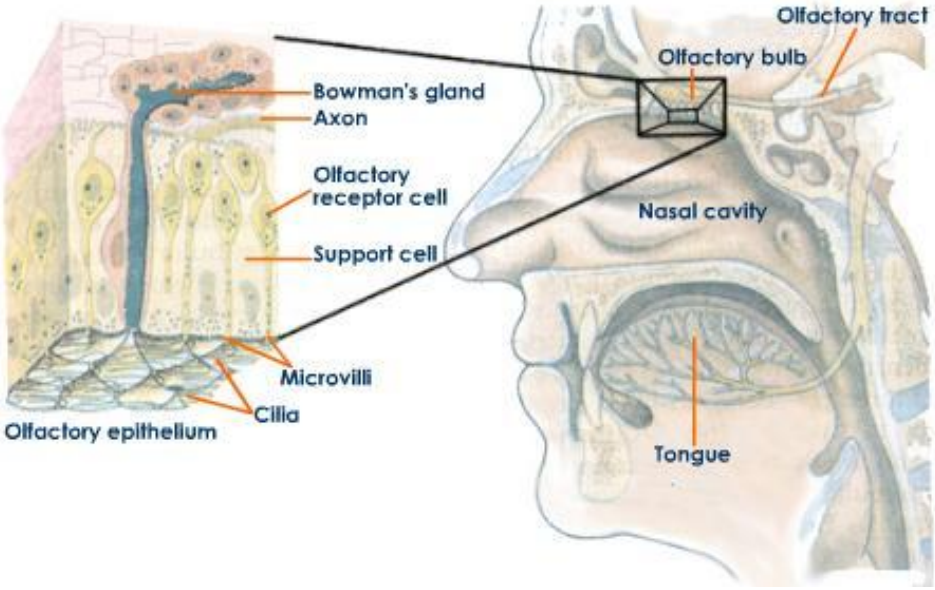
The nose is made mainly of bone, cartilage, and tissue. It is used for breathing and smelling. Air enters through the nostrils and passes into the nasal passages or cavities.



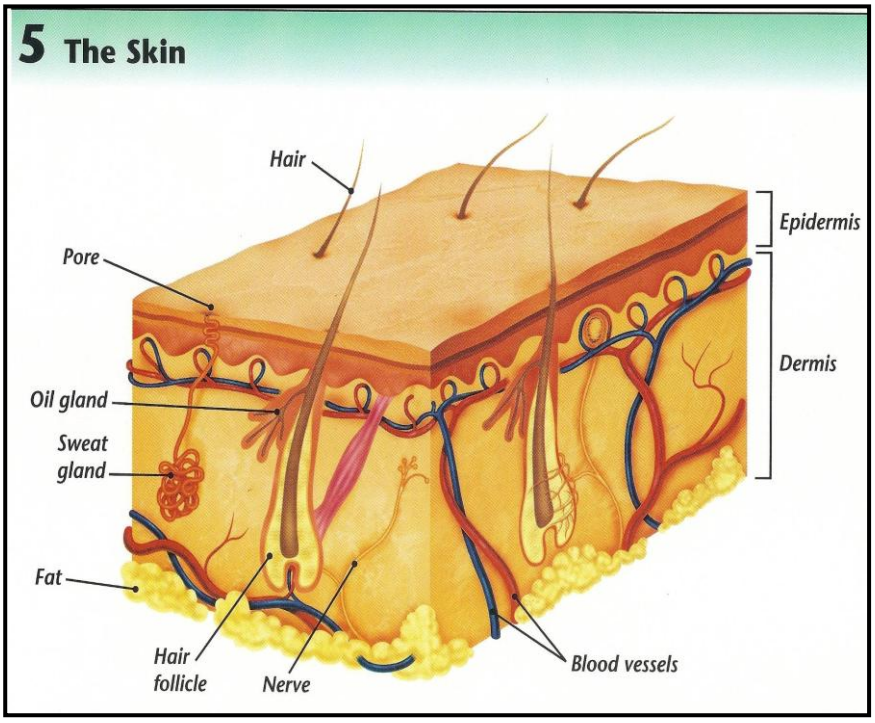
A mucous membrane covered with tiny hairs called cilia lines the nasal passages. The moist membrane traps many germs, which enter the nose. The cilia wave back and forth to move foreign bodies such as dust and bacteria to the throat for swallowing.

Each nasal passage contains three large bones called turbinates. These warm air and stir up the air so that dust sticks to the mucous membrane. The air which passes into the lungs is then warm and clean. The olfactory nerves, which carry sensations of smell to the brain, lie in the highest part of the nasal cavity.

The nerves are stimulated when molecules of a substance enter the nasal passages and touch the nerves. The brain interprets the odor.



THE SKIN - SENSE ORGAN OF TOUCH



The sense of touch also called the tactile sense is the earliest sense to mature. Man learns the shape and hardness of objects through this sense. When we touch objects we feel cold, warmth, pressure, and pain.

There are many kinds of touch organs in the skin, the tongue, the lining of the mouth and inside the body.

The skin is the most important organ for the touch sense. One touch organ is found near hairs, another in hairless areas and stills another in deeper tissue. When an object comes in contact with the sense organs, it pushes them out of shape or touches a nearby hair. The nerves from these organs then carry impulses to the brain.

Touch is more sensitive in some parts of the body than in others because the end organs for touch are not scattered evenly over the body but are arranged in clusters. Heat and cold are separate skin senses. Some nerve endings give you feeling of cold others of heat. The cold kinds are more common. Scientists are not sure just how we feel heat and cold. Sometimes temperature has nothing to do with feeling cold, such as when you are scared. Sometimes very cold things can give you a feeling of heat.

Temperature control
Vasodilation, vasoconstriction, sweating.
Homeostasis and negative feedback

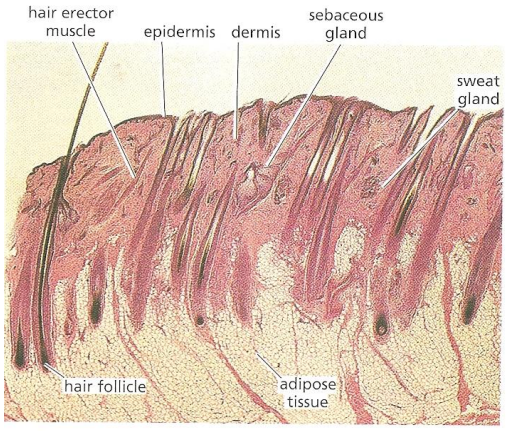


Figure 15.2 Section through hairy skin (×20)

The skin has five very important functions:

1. The skin protects the body.
2. The skin excretes sweat from the body.
3. The skin produces vitamin D
4. The skin controls body temperature.
5. The skin is a sense organ of touch.

The skin is the largest organ of the human body. It helps to perform many important body functions.

1. Our skin has two (2) section

i. The outer section that we see called the Epidermis.
ii. The inner section that we cannot see called the Dermis.

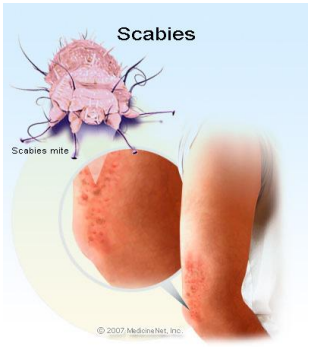
2. The Epidermis is made up of dead cells. These cells are always being rubbed off from the surface of our skin.
3. Malpighian cells replace these lost cells. Malpighian cells also produce a chemical called Melanin, which gives our skin its colour, and which helps to protect our skin from sun rays.
4. Nerve endings, blood vessels, hair follicles, hair muscles, sweat and sebaceous glands are all found in the dermis section of the skin.

Sebaceous glands are oil- producing glands. Sweat is made up of water, salt and urea.

SWEAT HYGIENE - It is very important to keep the skin clean and healthy. Washing the skin, washing the hands and washing the hair daily are three ways to keep good, healthy skin.

COMMON SKIN DISEASES

1. RINGWORM – is caused by a small plantlike fungus that lives on our body's skin. It is very itchy and is highly contagious.
2. ATHLETES FOOT- is caused by another type of fungi, which attacks the skin between the toes and under the toenails. Special skin powder may be used to stop athlete's foot.
3. SCABIES- is caused by an insect like parasite and is very itchy. The insect burrows a hole in the skin and lays her eggs. Scabies is very contagious and may be stopped by taking hot baths and using medication.
4. ACNE- is a skin condition where the face, neck, shoulders, chest and back may be covered with pimples, blackheads, whiteheads or boils. About 80 percent of all teenagers suffer from Acne. Acne may be caused by dirty, clogged pores certain foods like sweets or sodas, certain creams or soaps.



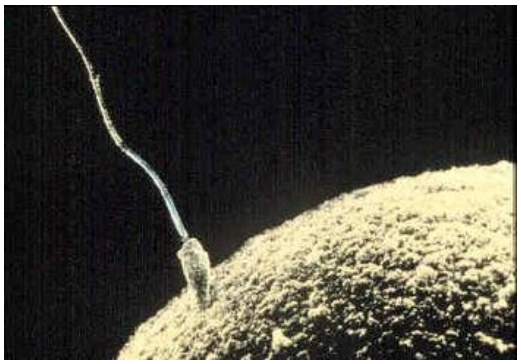
THE REPRODUCTION SYSTEM

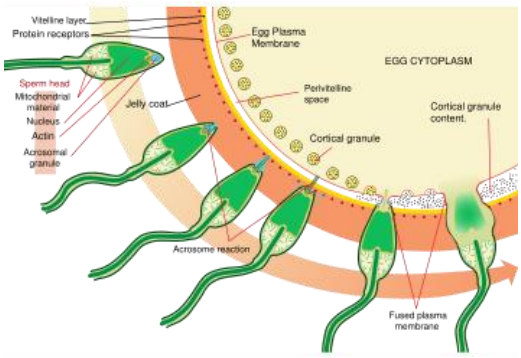
REPRODUCTION- the process by which man, other animals and plants create or produce more of their own kind. Reproduction is very important because through reproduction life continues or goes on.

SEXUAL REPRODUCTION – when a male species and female species have intercourse and a new offspring (baby animal or plant) is formed.

ASEXUAL REPRODUCTION- when a female species of certain animals or plants is able to produce a young one without the help of the male species. Lower animals and plants such as bacteria, algae molds and protozoa.

FERTILIZATION- the union or joining of a male sex cell with the female sex cell. In animals (humans) fertilization usually takes place in the female's fallopian tube or oviduct. When the male gamete (sperm cell) and the female gamete (egg or ovum cell) fuse, a zygote is formed. Fertilization is also called conception.

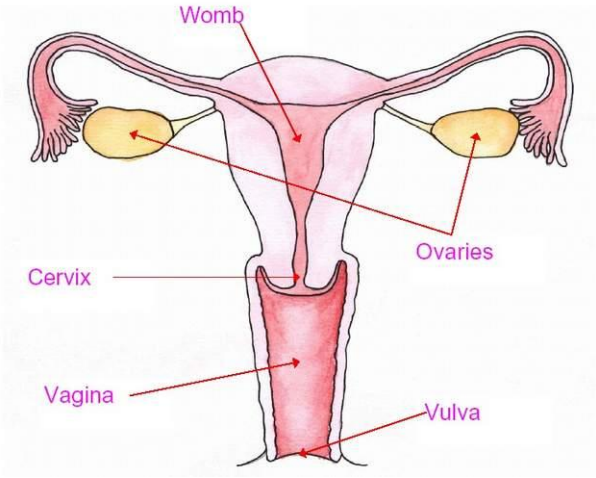




THE FEMALE REPRODUCTIVE SYSTEM

The female reproductive system is situated in the lower part of the abdominal cavity and its functions are to:

i. Make hormones.
ii. Produce eggs,
iii. Receive sperm
iv. Protect and feed the unborn child
v. Give birth



The female reproductive system includes:

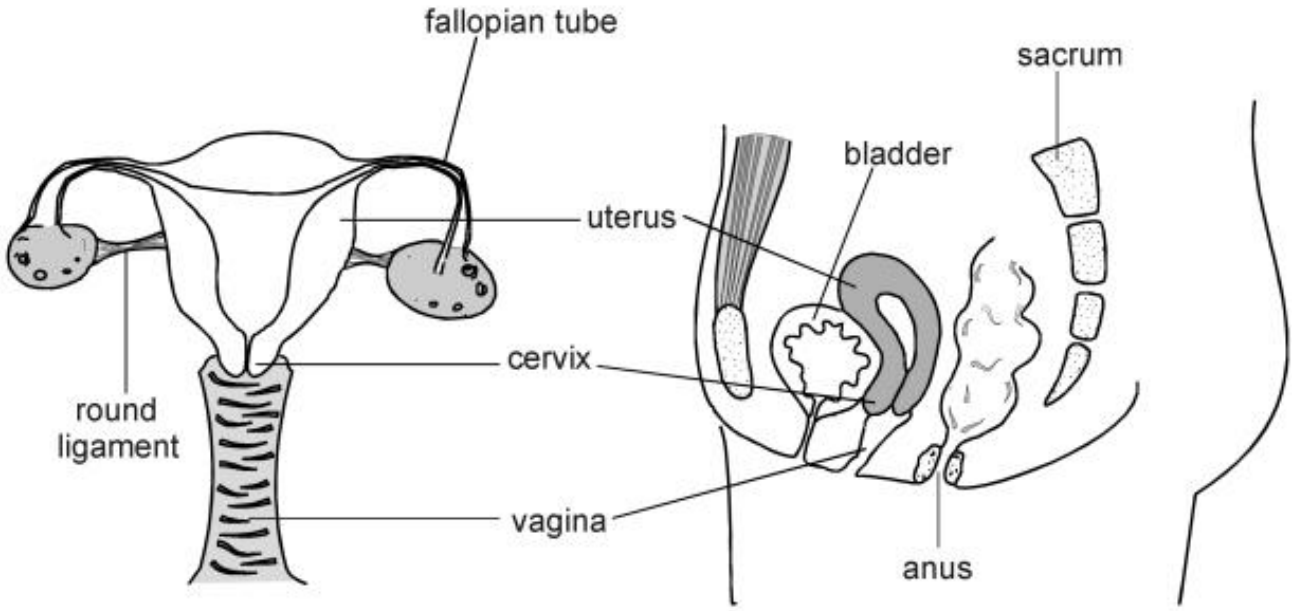
i. Two ovaries,
ii. Two fallopian tubes (oviducts).
iii. One uterus or womb,
iv. One vagina and
v. One vulva.

Female Reproductive System (diagram)

1. OVARY – there are two ovaries in the female's abdomen. The ovaries does the following jobs:
    i. produces or makes females hormones called Estrogen and Progesterone.
    ii. Produces egg or ova cells
    iii. Stores egg or ova cells
    iv. Discharges egg or ova cells

2. OVIDUCT- there are two fallopian tubes that lead from the ovaries to the uterus or womb. Fertilization occurs in the oviducts.

3. UTERUS OR WOMB- the uterus is a hollow, muscular organ. The uterus can stretch or expand to a very large size.



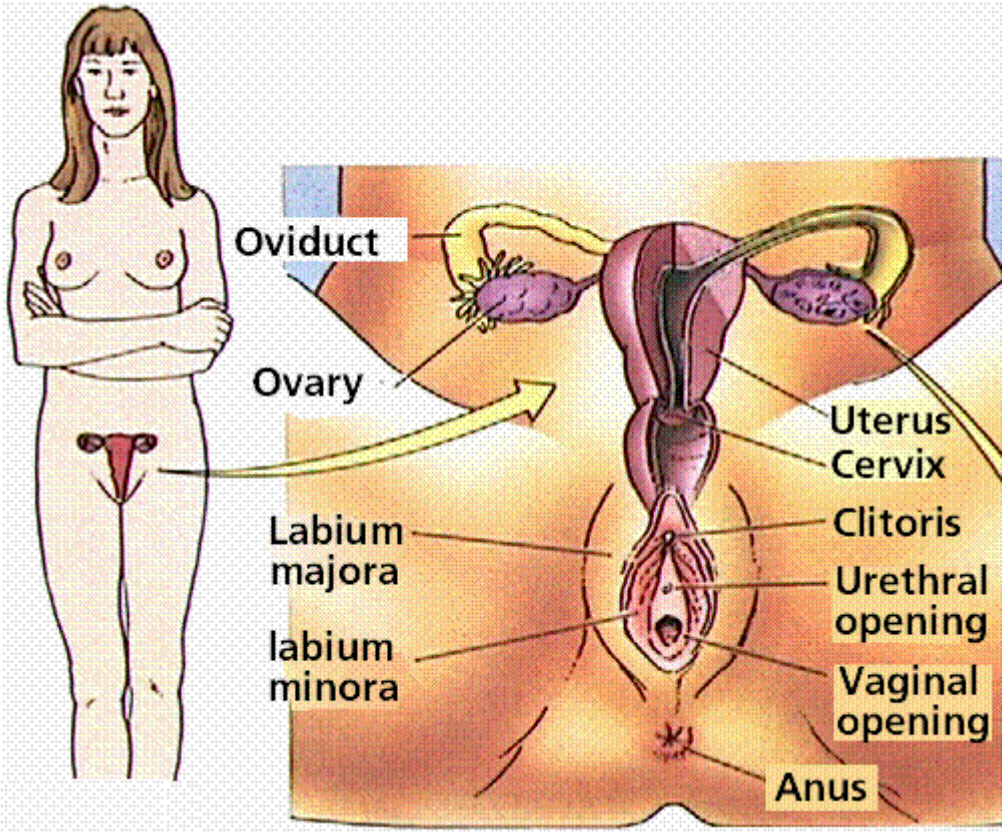
FEMALE REPRODUCTIVE SYSTEM

4. CERVIX- the lower and narrower part of the uterus or womb. The entrance of the cervix is very tiny.

5. VAGINA – vagina is a tube- like muscular structure. The vagina is where sperm cells are deposited during sexual intercourse.

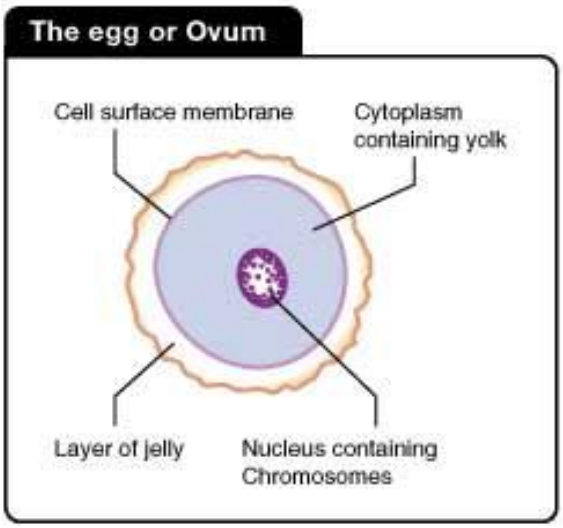
6. VULVA- the external part of the vagina.

7. CLITORIS- a small protuberance found near the urinary opening.



Structure of the ovum gamete

The female sex cell or gamete is also called the egg or ovum cell.



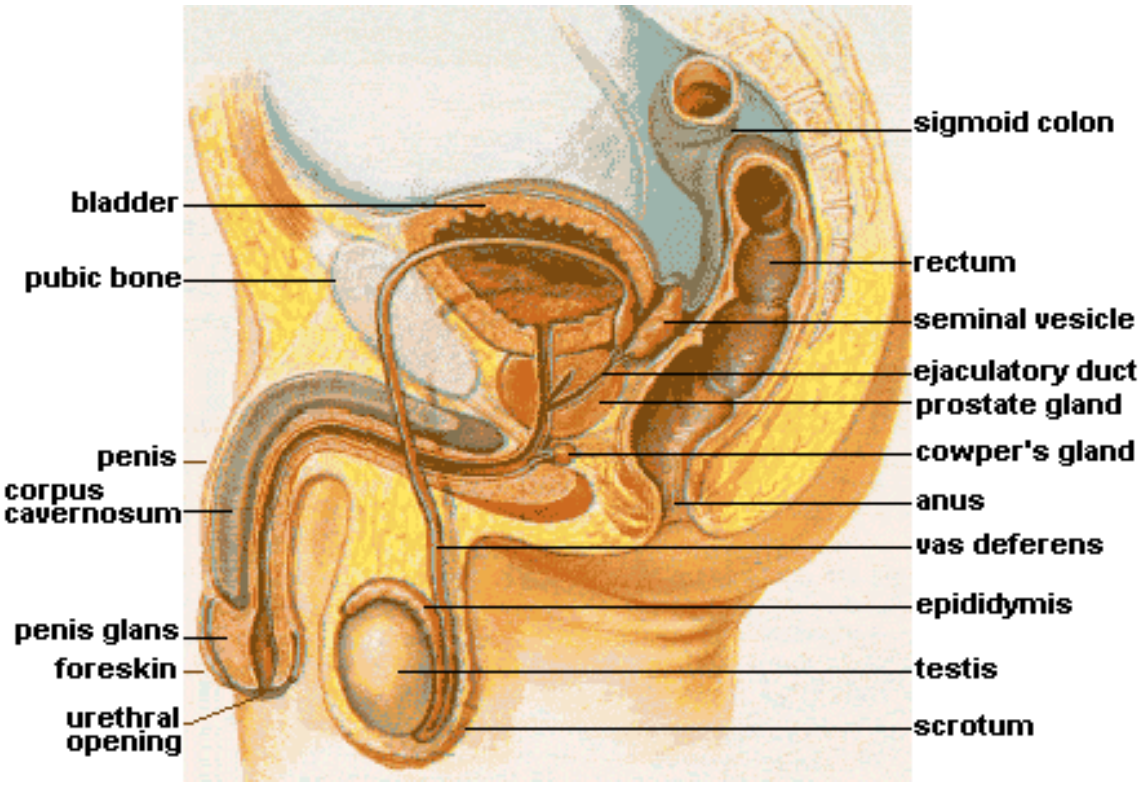
THE MALE REPRODUCTIVE SYSTEM

The male reproductive system has three functions:

i. To make hormones
ii. To make sperm (spermatozoa)
iii. To eject sperm into the female vagina.

The male reproductive system is designed to make sperm and deposit them in the female's body. The male organs are found in the lower abdomen and include:

Two-testis tubes (ducts) glands penis scrotum



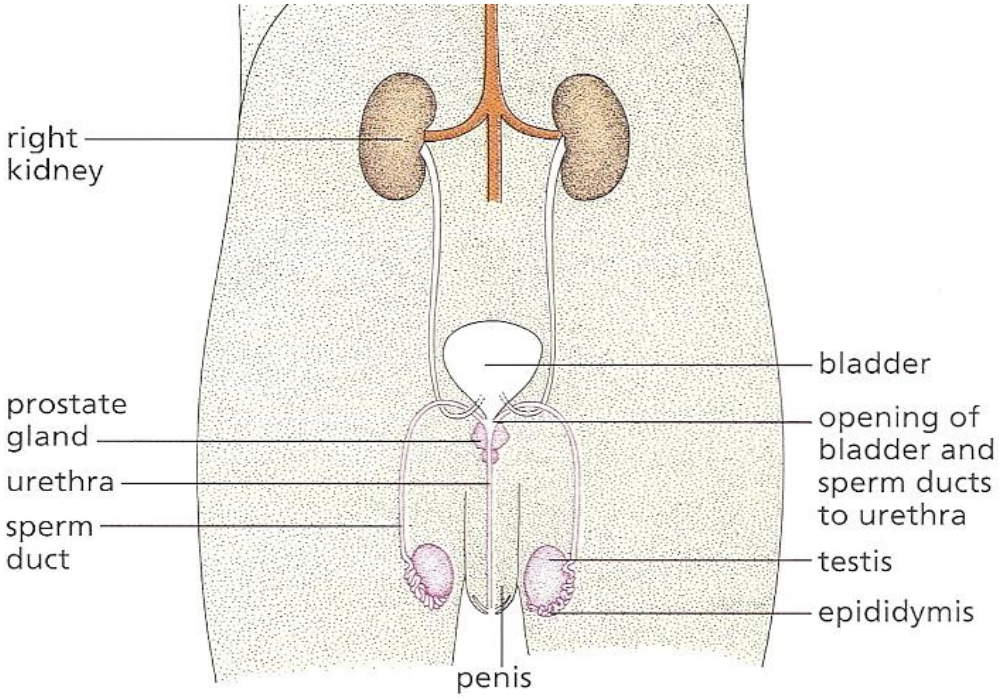


Figure 16.4 The male reproductive organs; front view

1. TESTES- the two testes are important organs of the male reproductive system. They are oval in shape and are about 5 cm long. The testes do the following jobs:

    i. Produce or make sperm cells
    ii. Produce a hormone called testosterone that causes puberty in boys.

2. SCROTUM – the scrotum is an external pouch of skin which is sometimes called a sac. The temperature inside the scrotum is cooler than the body's temperature. The testes are found in the scrotum.

3. EPIDIDYMIS- the epididymis is a coiled tube that stores the millions of sperm cells. The epididymis is found alongside the testes in the scrotum. If sperm cells remain in the epididymis more than six weeks they disintegrate and die.

4. Seminiferous Tubules – Organ were sperm cells are made. The seminiferous tubules are found inside the testicle.

5. VAS DEFERENS – this is also called the sperm duct. The Vas deferens is a white muscular tube that leads from the epididymis to the urethra.

6. SEMINAL VESICLE – this is a gland that produces thick secretion that provides food and energy for the sperm cells.

7. PROSTRATE GLAND – this gland secretes fluids that help the sperm to swim.

8. COWPER'S GLAND – this gland secretes a fluid that helps to keep the sperm alive. When the fluids of these glands combine with the spermatozoa (sperm cells) it is now called semen.

9. PENIS – the external reproductive organ that serves to deposit sperm into the female's vagina. The penis is usually small and soft except during intercourse when it is hard and erect due to the supply of blood to the erectile tissue.

10. ERECTION – when the penis becomes filled with blood so that it is hard and erect (stiff).

11. EJACULATION- when semen is expelled from the penis and deposited into the female's vagina. About one teaspoon of semen is released.

12. NOCTURNAL EJACULATION – when a young boy experiences semen release during the night. Also called Wet Dream.

13. MASTURBATION- when a male plays with or fondles his penis so that he may experience an erection or ejaculation.

14. INTERCOURSE – also called copulation. This is when the male places his penis in the female's vagina.

15. ORGASM- when a wife or husband experiences a pleasurable or good feeling during intercourse.

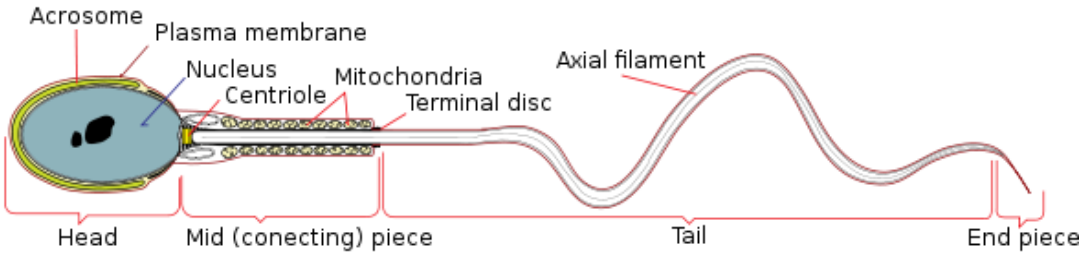
16. ADOLESCENCE- a young girl or boy between the ages of twelve (12) and fourteen (14).

17. PUBERTY – when the body of a young boy or girl begin to change.

GIRLS ONLY	BOYS ONLY	BOYS AND GIRLS
Breasts enlarge Pelvic or hip girdle widens Uterus and vulva enlarge Menstruation starts Ovulation starts	Penis and scrotum enlarge Larynx enlarges, so voice gets deeper (breaks) Prostrate enlarges Sperms are made Beard grows	Hair grows in pubic regions and armpits Sex hormones are secreted Increase in growth rate Sexual maturity causes psychological changes Attraction to opposite sex Sexual desire

Structure of the sperm gamete

The male sex cell or gamete is called the sperm cell.

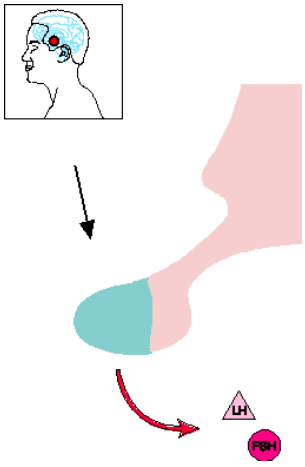


Male

Reproductive Hormonal Control

A. Hypothalamus:

1. This part of the brain produces gonadotrophic releasing hormone (GnRH)
2. It stimulates the anterior pituitary to make and secrete two hormones:



•FSH and •LH

B. Anterior Pituitary:

Menstrual cycle and role of hormones

OVULATION- the release of the egg or ovum from the ovary into the fallopian tube. After ovulation, the uterus begins to thicken and many blood vessels grow into it. The uterus is preparing for a fertilized egg.

MENSTRUATION – when blood is discharged from the females body every 28 days.

MENOPAUSE – when menstruation or bleeding stops. This happens between the ages of 45- 50.

MENSTRAL CYCLE- a regular series of changes which take place in the female reproductive system to prepare for fertilization and pregnancy.

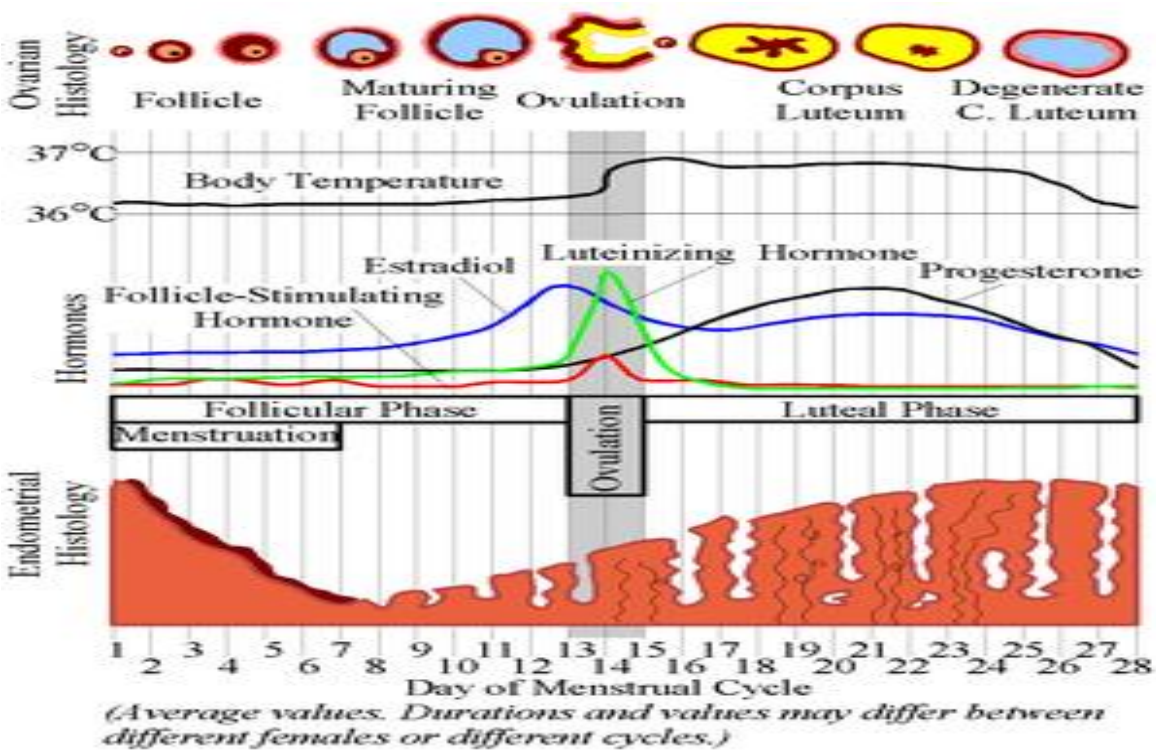
Female Reproductive Hormonal Control

A. Hypothalamus

1. The part of the brain that produces and secretes gonadotrophic releasing hormone (GnRH)
2. It stimulates the anterior pituitary to produce and secrete two hormones
a. FSH
b. LH

B. Anterior Pituitary

1. It produces and secretes follicle stimulating hormonal (FSH)
a. which promotes the development of the follicle into an ovum
b. it also results in the follicle producing estrogen
2. The anterior pituitary also produces luteinizing hormone (LH)
a. It causes ovulation or release of the ovum from the ovary
b. It promotes the development of the corpus luteum
c. It results in the production of progesterone by the corpus luteum
3. Estrogen is the female sex hormone that causes:
a. Causes the development and maturation of the female reproductive organs
b. Causes the development of secondary sex characteristics:
    - breast development
    - pubic hair
    - body contours
c. Initiates the menstrual cycle
4. Progesterone is also a female sex hormone:
a. It causes the proliferation and vascularization of the epithelial lining of the uterus
b. If fertilization did not occur, it initiates the menstrual cycle

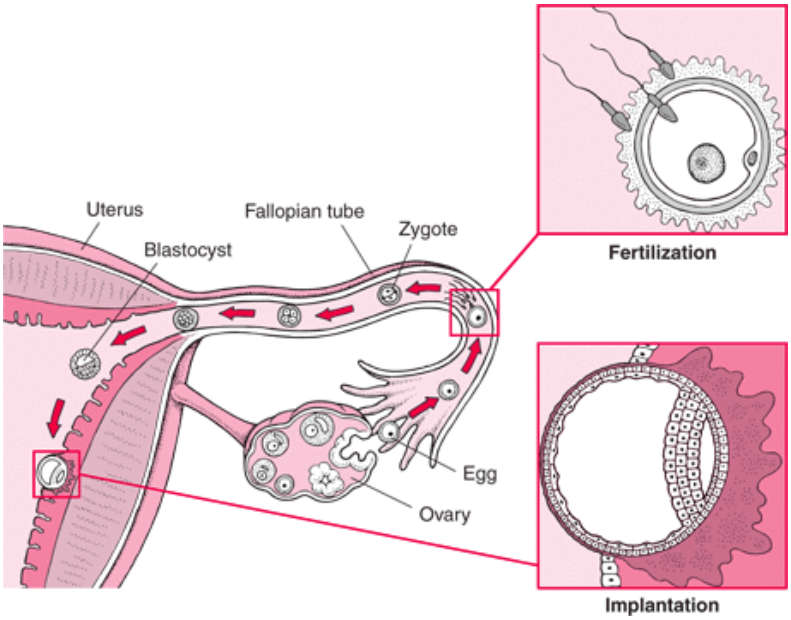


HEREDITY AND GENES

Every cell in the human body except the eggs and sperm contains 23 pairs of chromosomes. In 22 of these pairs, the two chromosomes look alike. The 23rd pair are the sex chromosomes: one of the chromosomes is called x and the other is called Y. Females are XX and males are XY.

Gestation or Pregnancy – when fertilization occurs and the zygote begins to develop this is called pregnancy. Also the mother's body changes. **Pregnancy is also called gestation and lasts for 266 days of nine (9) months or 38 weeks.**

PREGNANCY is the period from conception to birth. After the egg is fertilized by a sperm and then implanted in the lining of the uterus, it develops into the placenta and embryo, and later into a fetus. Pregnancy is a state in which a woman carries a fertilized egg inside her body. Pregnancy usually lasts 40 weeks, beginning from the first day of the woman's last menstrual period, and is divided into three trimesters, each lasting three months.



1. Once a month, an egg is released from an ovary into a fallopian tube. After sexual intercourse, sperm move from the vagina through the cervix and uterus to the fallopian tubes, where one sperm fertilizes the egg. Humans exhibit **internal fertilization** (i.e. the union of the ovum and the sperm occurs inside the female).

2. The resulting fertilized ovum is now called a **zygote**. It has 23 pairs of chromosomes (46 chromosomes). The fertilized egg (zygote) divides repeatedly as it moves down the fallopian tube to the uterus.

3. The zygote undergoes cellular divisions referred to as **cleavage divisions**. These divisions increase the number of cells but, do not significantly increase the cell volume.

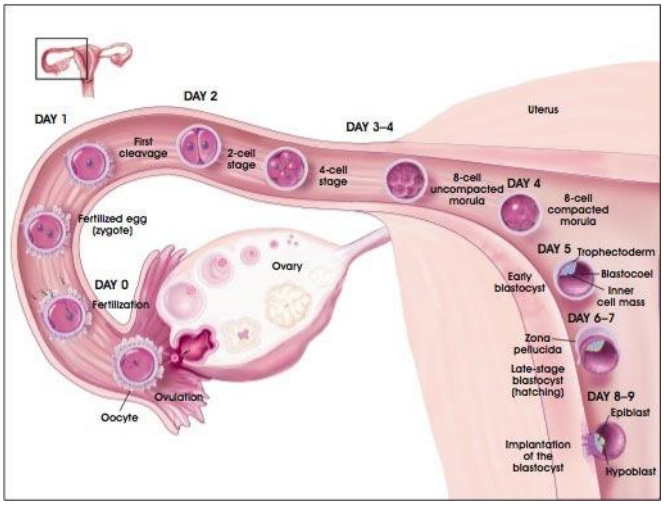
4. The cleavage divisions eventually produce a hollow ball of cells called the **blastula**. Inside the uterus, the blastocyst implants in the wall of the uterus, where it develops into an embryo attached to a placenta and surrounded by fluid-filled membranes.

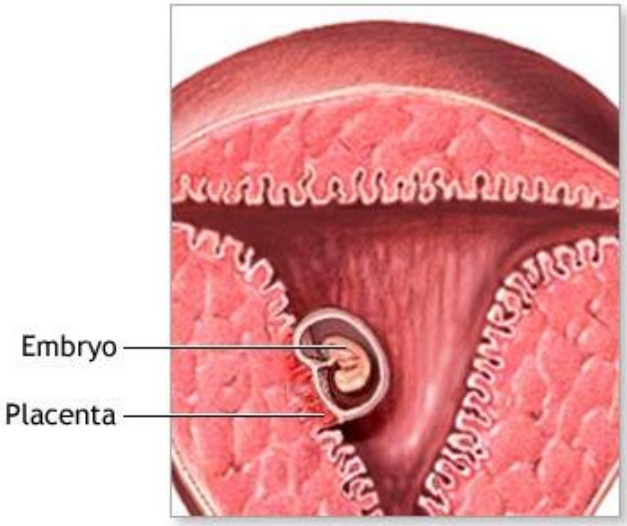
5. Growth and **internal development** of the fertilized ovum continues for approximately 290 days, after which the baby is born.

ZYGOTE- After fertilization the zygote is formed.

EMBRYO – the developing young is called the embryo from 3 weeks – 2 months

FOETUS- (FETES) – the developing young from 3 months until birth.

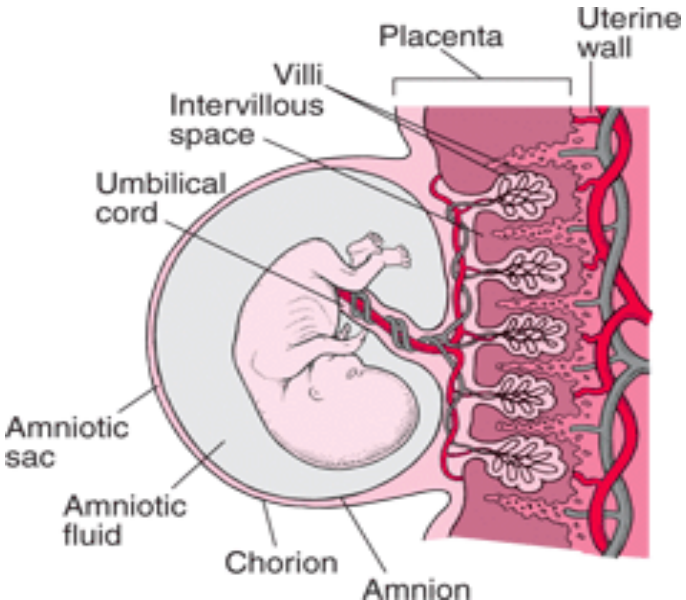




ADAM.

A FOETUS IN BEFORE BIRTH

THE UTERUS



At 8 weeks of pregnancy, the placenta and fetus have been developing for 6 weeks. The placenta forms tiny hairlike projections (villi) that extend into the wall of the uterus. Blood vessels from the embryo, which pass through the umbilical cord to the placenta, develop in the villi. A thin membrane separates the embryo's blood in the villi from the mother's

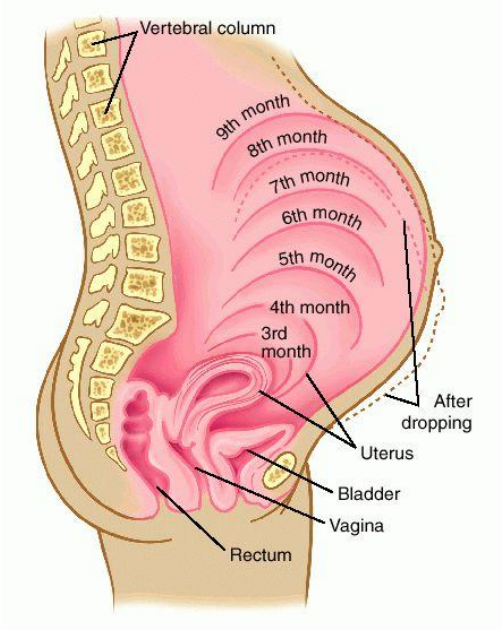
blood that flows through the space surrounding the villi (intervillous space).

This arrangement allows materials to be exchanged between the blood of the mother and that of the embryo. It also prevents the mother's immune system from attacking the embryo because the mother's antibodies are too large to pass through the membrane.

The embryo floats in fluid (amniotic fluid), which is contained in a sac (amniotic sac). The amniotic fluid provides a space in which the embryo can grow freely. The fluid also helps protect the embryo from injury. The amniotic sac is strong and resilient.

Gestation or Pregnancy

First month



At the end of the first month, the embryo is about a third of an inch long, and its head and trunk—plus the beginnings of arms and legs—have started to develop. The embryo receives nutrients and eliminates waste through the umbilical cord and placenta. By the end of the first month, the liver and digestive system begin to develop, and the heart starts to beat.

Second month

In this month, the heart starts to pump and the nervous system (including the brain and spinal cord) begins to develop. The 1 in (2.5 cm) long fetus has a complete cartilage skeleton, which is replaced by bone cells by month's end. Arms, legs and all of the major organs begin to appear. Facial features begin to form.

Third month

By now, the fetus has grown to 4 in (10 cm) and weighs a little more than an ounce (28 g). Now the major blood vessels and the roof of the mouth are almost completed, as the face starts to take on a more recognizably human appearance. Fingers and toes appear. All the major organs are now beginning to form; the kidneys are now functional and the four chambers of the heart are complete.

Fourth month

The fetus begins to kick and swallow, although most women still can't feel the baby move at this point. Now 4 oz (919 g), the fetus can hear and urinate, and has established sleep-wake cycles. All organs are now fully formed, although they will continue to grow for the next five months. The fetus has skin, eyebrows, and hair.

Fifth month

Now weighing up to a 1 lb (454 g) and measuring 8–12 in (20–30 cm), the fetus experiences rapid growth as its internal organs continue to grow. At this point, the mother may feel her baby move, and she can hear the heartbeat with a stethoscope.

Sixth month

Even though its lungs are not fully developed, a fetus born during this month can survive with intensive care. Weighing 1–1.5 lb (454–681 g), the fetus is red, wrinkly, and covered with fine hair all over its body. The fetus will grow very fast during this month as its organs continue to develop.

Seventh month

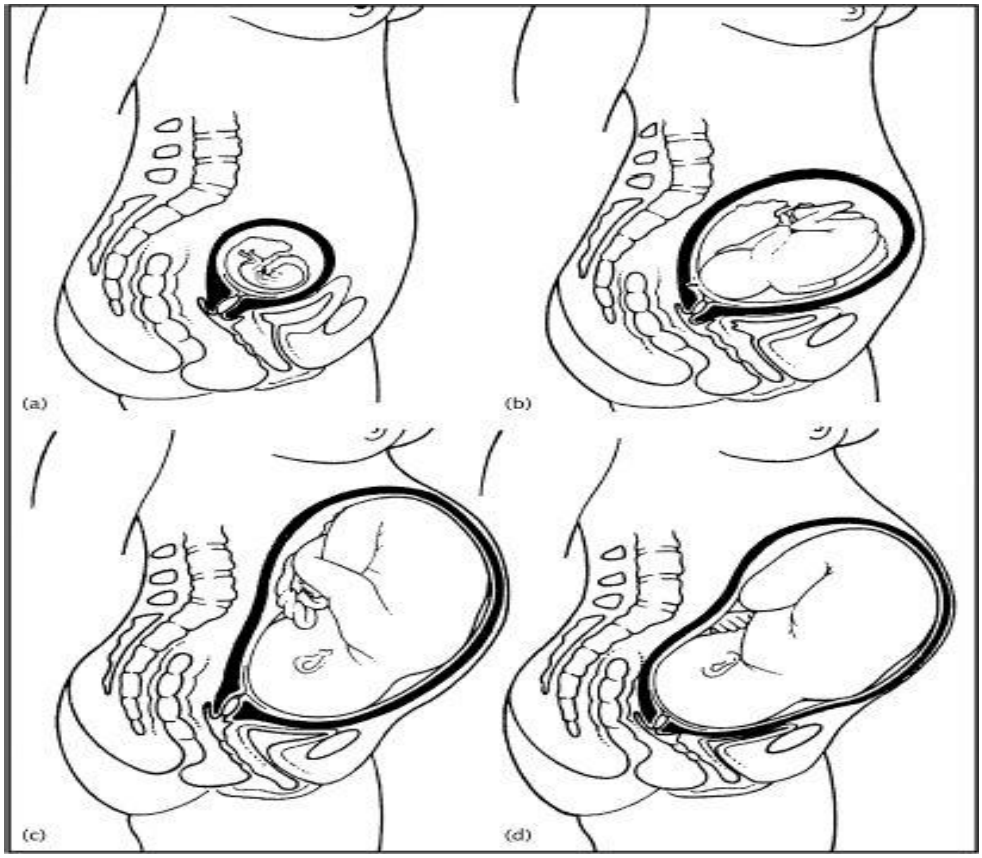
There is a better chance that a fetus born during this month will survive. The fetus continues to grow rapidly, and may weigh as much as 3 lb (1.3 kg) by now. Now the fetus can suck its thumb and look around its watery womb with open eyes.

Eighth month

Growth continues but slows down as the baby begins to take up most of the room inside the uterus. Now weighing 4–5 lbs (1.8–2.3 kg) and measuring 16–18 in (40–45 cm) long, the fetus may at this time prepare for delivery next month by moving into the head-down position.

Ninth month

Adding 0.5 lb (227 g) a week as the due date approaches, the fetus drops lower into the mother's abdomen and prepares for the onset of labor, which may begin any time between the 37th and 42nd week of gestation. Most healthy babies will weigh 6–9 lbs (2.7–4 kg) at birth, and will be about 20 in long.



1. PLACENTA – The placenta is also called the " after birth ". the placenta is attached to the wall of the uterus and it does the following jobs:
    i. Prevents the mother's blood from mixing with the blood of the embryo.
    ii. Allows food and oxygen to pass from the mother to the embryo
    iii. Allows carbon dioxide and wastes to pass from the embryo to the mother.
    iv. Acts as a filter and prevents bacteria from entering the embryo.

2. UMBILICAL CORD – serves the following functions:

    i. Connects the embryo to the placenta
    ii. Contains blood vessels which carry materials back and forth between the mother and the embryo.
    iii. The umbilical cord is about 20inches long and 1 inch thick.

3. AMNIOTIC SAC – is a protective membrane that surrounds the embryo during the gestation period. As the embryo grows the sac grows also.

4. AMNIOTIC FLUID- this is found in amniotic sac and it protects the baby and acts as a shock absorber.

BIRTH

Approximately nine months after conception or fertilization, the fetus moves into the correct position with its head pointing downwards.

There are three (3) main stages of the birth process:

STAGE I

i. A small discharge of blood and mucous from the vagina.
ii. Contraction of the uterus called labour pains
iii. The breaking of the amniotic sac or the water bag.

STAGE II

i. very strong contractions or pains
ii. widening of the cervix also called dilation
iii. pushing of the baby through the birth canal of the mother. Baby cries, breathes and turns very pink or red.
iv. Cutting of umbilical cord.

STAGE III

i. removal of the after birth or placenta

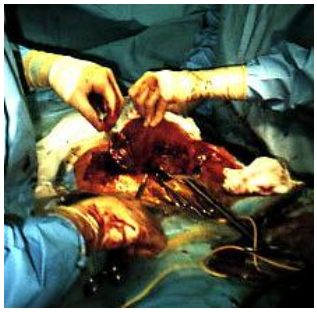
BIRTH

BIRTH PROBLEMS

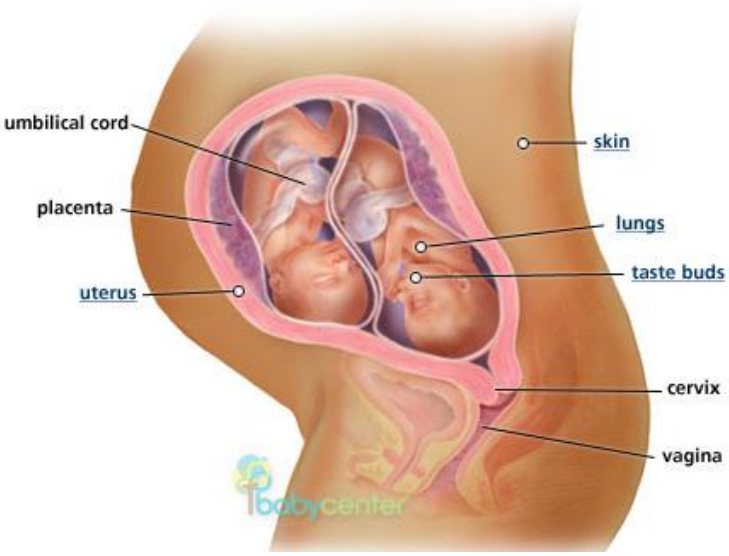
1. BREECH BIRTH – when the baby comes out of the birth canal feet, head, hip, hands or shoulders first.

2. FORCEPS DELIVERY – when the contractions are not strong enough to push the baby out, the doctor uses a special forceps to ease the baby's head out.

3. CAESARIAN SECTION- an operation to remove the baby from the uterus. This is done when the birth canal is too narrow. An incision or cut is made through the abdominal wall and into the uterus to remove the baby.



4. INDUCTION- when the mother is given medication which stimulates or speeds up the contraction of the uterus.



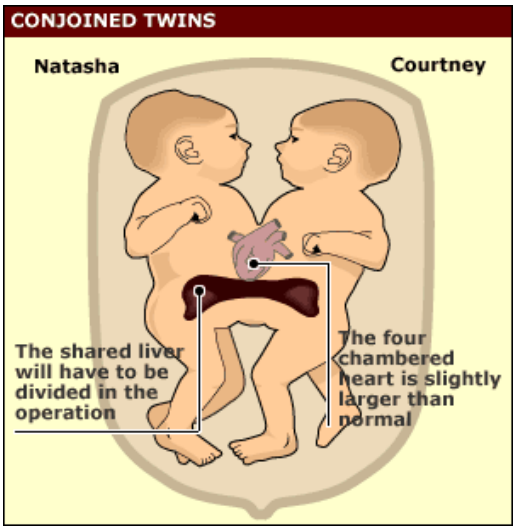
TWINS

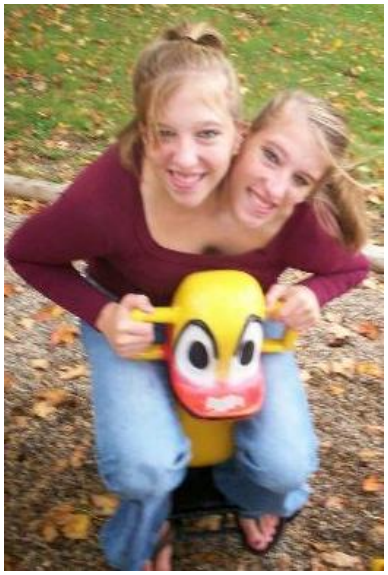
Oftentimes, a female may give birth to as many as five babies during one pregnancy.

1. **IDENTICAL TWINS** – when a fertilized egg splits into two. The twins are of the same sex, and are very similar in appearance and attitude because they have the same genes.

2. **FRATERNAL TWINS** – when two eggs are released at the same time and both are fertilized by different sperm cells. The twins may or may not be of the same sex, and they usually do not have the same appearance or attitude.

3. **SIAMESE TWINS**- are identical twins who failed to separate completely in the womb. They may be joined by the head, arm, abdomen, legs etc.





Antenatal and post natal care

Antenatal care is the systemic medical supervision of women during pregnancy. Its aim is to preserve the physiological aspect of pregnancy and labour and to prevent or detect, as early as possible, all that is pathological. Early diagnosis during pregnancy can prevent maternal ill-health, injury, maternal mortality, foetal death, infant mortality and morbidity. Hence, the earlier in pregnancy a woman comes under the supervision of an obstetrician, the better.

Birth Control Methods

Types of Birth Control

Birth control is a regimen of one or more actions, devices, or medications followed in order to deliberately prevent or reduce the likelihood of a woman becoming pregnant. Methods and intentions typically termed birth control may be considered a pivotal ingredient to family planning. Mechanisms which are intended to reduce the likelihood of the fertilization of an ovum by a sperm may more specifically be referred to as contraception. Contraception differs from abortion in that the former prevents fertilization, while the latter terminates an already established pregnancy. Methods of birth control which may prevent the implantation of an embryo if fertilization occurs are medically considered to be contraception. It is advised to talk with a doctor before choosing a contraceptive. If you have genetics problems or blood conditions, such as factor V leiden, certain contraceptives can be deadly.

Type	Procedure	Method	Effectiveness	Risks
Abstinence	Refrain from sexual intercourse	No sperm in vagina	100%	None
Rhythm Method	Intercourse is avoided for about an 8-day span every month in middle of her cycle, from about five days before ovulation to three days after ovulation.	fertilization is only possible during 8-day span in middle of menstrual cycle	70-80%	None
Withdrawal	The man withdraws his penis from the vagina at just the right moment before ejaculation.	sperm are unable to enter vagina if male penis is removed at the right time	70-80%	None

Tubal Ligation (Vasectomy)	Oviducts are cut and tied	No eggs in oviduct	Almost 99%	About 75% Irreversible
Hormonal IUD (intrauterine device)	Flexible, plastic coil inserted by physician	Releases small amounts of estrogen. In most cases, stops egg from developing and being released	About 99%	May cause infections, uterine perforation
Oral Contraceptive	Hormone medication taken daily	Stops release of FSH and LH	More than 90%	Blood clots, especially in smokers
Contraceptive Implants	Tubes of progesterone implanted under the skin	Stops release of FSH and LH	More than 90%	None known
Contraceptive Injections	Injections of hormones	Stops release of FSH and LH	About 99%	Possible osteoporosis
Diaphragm	Latex cup inserted into vagina to cover cervix before intercourse	Blocks entrance of sperm into uterus	With spermicide, about 90%	Latex or spermicide allergy
Cervical Cap	Latex cup held by suction over cervix	Delivers spermicide near cervix	Almost 85%	UTI, latex or spermicide allergy
Female Condom	Polyurethane liner fitted inside vagina	Blocks entrance of sperm into uterus and prevents STD’s	Almost 85%	None

Male Condom	soft sheath, made of latex or animal membrane, encloses penis, trapping ejaculated sperm	Blocks entrance of sperm into vagina and prevents STD's	90%	None
Jellies, Cream, Foams	Spermicidal products inserted before intercourse	Kills large number of sperm	About 75%	UTI, allergy to spermicides
Natural Family Planning	Keep record of ovulation using various methods	Avoid sexual intercourse near ovulation	About 70%	None known
Douche	Vagina cleansed after intercourse	Washes out sperm	Less than 70%	None known
Plan B Pill	Pill taken after intercourse	Prevents release of egg, fertilization of egg, or egg from attaching to uterus	About 89%	Same as oral contraceptive

i. Sexually Transmitted Diseases

INFECTIONS AND DIEASES OF REPRODUCTIVE SYSTEM

The sex organs can be infected by various microbes. Such infections may be known as Venereal Diseases (VD) or sexually transmitted diseases (STD).

WARMING SYMPTOMS OF INFECTION

1. Unusual discharge from vagina or penis. Different colour, foul smell or may be thick.
2. Sore or blister near the vagina, penis or anus.
3. Rash or irritation around the vagina, penis or anus.
4. Pain or burning feeling when passing urine.

5. Passing more urine that usual.
6. Pain during intercourse.

TYPES OF INFECTION

1. Urethritis, Vaginitis and Cystitis may not be caused by sexual intercourse. Instead they may be caused by microbes similar to bacteria.

2. Thrush – caused by yeast, which affects the skin near the mouth, vagina or penis.

3. Genital warts- caused by a virus, which produce warts or bumps on the genitals.

4. Herpes- produces sores on the genital area and is caused by a virus. Also produces cold sores around the mouth, causes headaches, fever etc

5. Gonorrhea – also called the Clap. Is caused by bacteria which produce blood like fluids or secretions from the penis. Is not very noticeable in female but is very dangerous.

6. Syphilis- also called the Pox. It is caused by bacteria which are spread only by intercourse. Syphilis produces blindness, heart disease, deafness, insanity and death.

7. Hepatitis B- caused by sexual intercourse sometimes and produces inflammation of the liver.

8. A.I.D.S- Acquired Immune Deficiency Syndrome- caused by a H.I.V. virus which breaks down or destroys the white blood cells and the body's immune system.

Diseases

A disease is a particular abnormal condition, a disorder of a structure or function, that affects part or all of an organism. The causal study of disease is called pathology. Disease is often a medical condition associated with specific symptoms and signs.

Classification of diseases:

1. Inherited Diseases – genetic disorders or genetic problems caused by one or more abnormalities in the genes, especially a condition that is present from birth (congenital). Most genetic disorders are quite rare and affect one person in every several thousands or millions.Examples: sickly cell, cystic fibrosis, albinism, color-blindness, baldness etc.

2. Pathogenic Diseases –

Table 7-3. Sample microorganism diseases

BACTERIAL DISEASES	FUNGAL DISEASES	PROTOZOAL DISEASES	RICKETTSIAL DISEASES	VIRAL DISEASES
Anthrax Brucellosis Cholera Diphtheria Glanders Leprosy Plague Tetanus Tuberculosis Tularemia Typhoid Fever	Actinomycosis Blastomycosis Coccidioidomycosis Histoplasmosis Nocardiosis	Amoebiasis Malaria Toxoplasmosis	Q Fever Rickettsialpox Rocky Mountain Spotted Fever	Chicken Pox Dengue Fever Encephalitis Hepatitis Herpes Influenza Measles Mumps Poliomyelitis Psittascosis Smallpox Rabies Yellow Fever

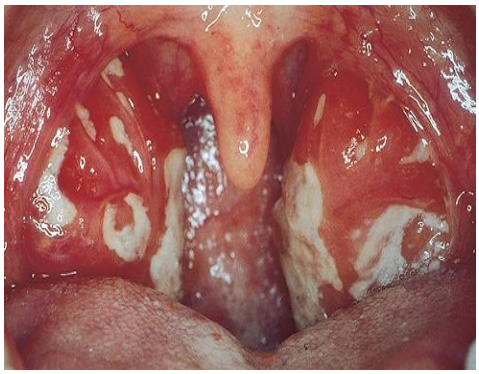
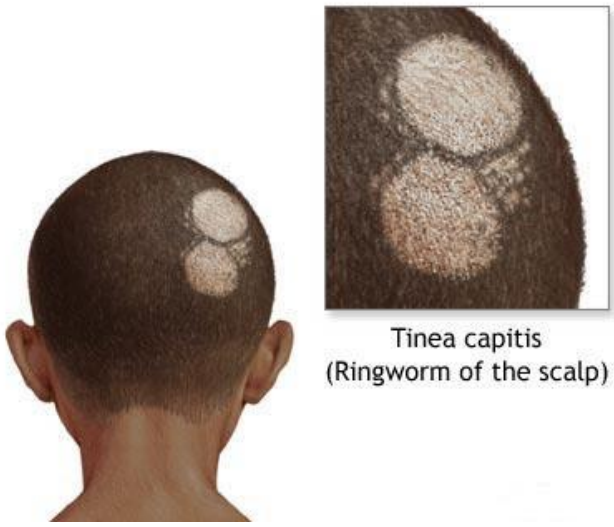


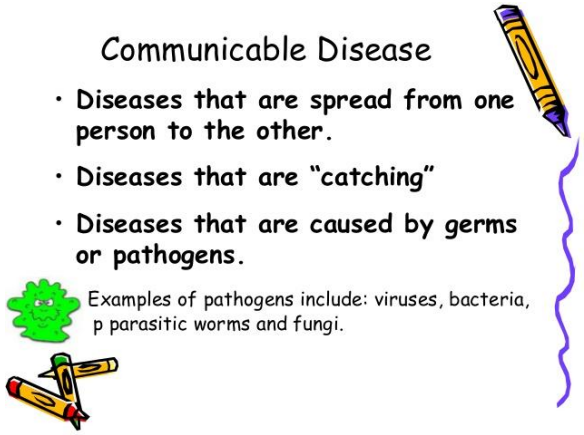
TABLE 24-4 A Summary of Bacterial Diseases

Disease	Pathogen	Areas affected	Mode of transmission
Botulism	*Clostridium botulinum*	nerves	improperly preserved foods
Cholera	*Vibrio cholerae*	intestine	contaminated water
Dental caries (tooth decay)	*Streptococcus mutans, sanguis,* and *salivarius*	teeth	bacteria enter the mouth from the environment
Gonorrhea	*Neisseria gonorrhoeae*	urethra, fallopian tubes, epididymis	person-to-person by sexual contact
Lyme disease	*Borrelia burgdorferi*	skin, joints, heart	tick bite
Rocky Mountain spotted fever	*Rickettsia ricketsii*	blood, skin	tick bite
Salmonella food poisoning	*Salmonella*	intestine	contaminated water and food
Strep throat	*Streptococcus pyogenes*	upper respiratory tract, blood, skin	person-to-person by sneezes, coughs, or direct contact
Tetanus	*Clostridium tetani*	nerves at synapses	contaminated wounds
Tuberculosis	*Mycobacterium tuberculosis*	lung, bones, other organs	person-to-person by coughs

3. Contagious Diseases – A contagious disease is a subset category of transmissible diseases (can transmit from person to another), usually infections or some non-infection diseases, which are transmitted to other persons, either by physical contact (hence the name-origin) with the person suffering the disease, or by casual contact with their secretions or objects touched by them or airborne route among other routes.



Tinea capitis
(Ringworm of the scalp)



4. Communicable Diseases -

Infection is the invasion of an organism's body tissues by disease-causing agents, their multiplication, and the reaction of human body tissues to these organisms and the toxins they produce. **Infectious disease**, also known as **transmissible disease** or **communicable disease**, is illness resulting from an infection.

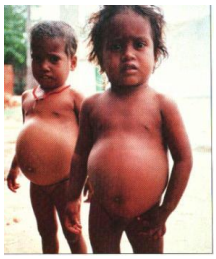
Infections are caused by infectious agents including viruses, bacteria, nematodes such as parasitic roundworms and pinworms, arthropods such as ticks, mites, fleas, and lice, fungi such as ringworm, and other macroparasites such as tapeworms and other helminths.

DISEASE	*HOW SPREAD*	*INCUBATION PERIOD*	*SYMPTOMS OF ILLNESS*	*COMMUNICABLE PERIOD*	*MINIMUM ISOLATION PERIODS AND CONTROL MEASURES*
Meningitis *(Bacterial and Viral)* **Report to the local health unit**	Infected respiratory droplets	Varies depending on causative agent: 2 to 10 days	Sudden onset of fever; intense headache, nausea, often vomiting, stiff neck, delirium or petechial rash, shock	Variable	**Report immediately by telephone;** exclude for duration of illness; no exclusion of contacts; chemoprophylaxis is sometimes appropriate for family and intimate contacts; local health unit will determine if chemoprophylaxis indicated
Mumps *(Epidemic Parotitis)* **Report to the local health unit**	Infected respiratory droplets or direct contact	12 to 25 days (average 14-18 days)	20-40% of those infected do not appear ill or have swelling; 60-70% have swelling with pain above angle of lower jaw on one or both sides.	1 to 2 days before onset of paratoid swelling to 5 days after onset of parotid swelling	**Report immediately by telephone**
Pediculosis *(Head or body lice)*	Direct contact with infected person or personal objects	Eggs of lice hatch in about a week; mature in about 2-3 weeks	Itching; infestation of hair and/or clothing with insects and nits (lice eggs)	While lice remain alive and until eggs in hair and clothing have been destroyed. Direct and indirect contact with infested person and/or clothing required.	Exclude until treatment is started; no exclusion of contacts; however, they should be notified of exposure; specific treatment usually lindane or pyrethrin shampoo and nit comb




5. Deficiency Diseases





Diseases caused by lack of nutrients, vitamins or minerals in diet.

6. Vectors Causing Diseases –
"Vector-borne disease" is the term commonly used to describe an illness caused by an infectious microbe that is transmitted to people by blood-sucking arthropods. The arthropods (insects or arachnids) that most commonly serve as vectors include: 1.) blood sucking insects such as mosquitoes, fleas, lice, biting flies and bugs, and 2.) blood sucking arachnids such as mites and ticks.

The term “vector” refers to any arthropod that transmits a disease through feeding activity. Vectors typically become infected by a disease agent while feeding on infected vertebrates (e.g., birds, rodents, other larger animals, or humans), and then pass on the microbe to a susceptible person or other animal. In almost all cases, an infectious microbe must infect and multiply inside the arthropod before the arthropod is able to transmit the disease through its salivary glands. The most common vector-borne diseases in Virginia are carried by **mosquitoes** and **ticks**.


Bush medicines for named disorders/diseases

Bahamians have used indigenous or local plants for medicinal purposes for hundreds of years. This tradition, called "bush medicine" was brought to the Bahamas by enslaved Africans and became very important for families to say well and healthy. The use of bush medicine to restore or maintain health as a long-standing tradition in The Bahamas is becoming less well-known among the youth. The knowledge of commonly used bush medicine is critical to help treat many disorders and diseases.

When using bush medicine to stay or become well it is critical to tell the doctor so that prescription medical drugs (medicine) are not used at the same time as bush medicine.

Also a person using bush medicine must seek wise instruction from an elderly relative or bush medicine practitioner so that the correct dosage or amount of bush medicine may be taken.

Finally it is critically important to know how to correctly use the bush medicine since there are very little written instructions on how to use bush medicine.

New Life Health Centre located on East Street and Independence Highway is a professional research based store where thousands of Bahamians go to find out which bush medicine is the best to use for the various diseases and illnesses common in our country.

There are many authors who are now being wise and are recording our African ancestors knowledge about bush

medicine in books that are available in book stores and online. Many researchers from all around the world are beginning to study and use bush medicine as the main or source base for many pills and medicine which are sold in pharmacies today.

BUSH MEDICINE COMMON LOCAL PLANTS

ALOE VERA (Aloe succotrina)- The latex "bitter aloe" acts as a strong purgative and the jelly-like substance obtained by slitting and scraping the gel, applied directly to skin, burns or sunburn, alleviates pain.

BAY GERANIUM, SOAP BUSH (ambrosia hispida) - Can be made into a soap to relieve itching skia It is highly recommended for indigestion, and used by people declining to clear the lungs. It is widely used for the common cold. It has antihistaminic properties and is a diaphoretic (causes sweating). A strong tea is made and served hot with lime and salt.

BLUE FLOWER (valerianoides jamaicensis) Used as a drink for fevers and for cooling the blood. A leaf bound directly on a boil will bring the pus to the surface. As a wash for the skin it will relieve irritations. It will also relieve constipation, colic and gas in babies

BUTTERCUP (turnera ulmif olia) - Used in the treatment of "the gripes" and menstrual disorders, also in constipation and stomach pains in infants

CERASEE, ART PUMPKIN (momordica charantia)

A tea made of the vine is used for diabetes, hypertension, worms, dysentery, malaria and as a general tonic as a blood purifier. It is also very effective to relieve constipation and colds and fevers in children

DILL (anethum graveolens) - Dill is a common seasoning herb. It is used as a tea to sooth infants colic and mild stomach pains in adults. It can be taken anytime

GALE OF WIND, MIMOSA, HURRICANE WEED (phyllanthus amarus) - This weed grows wild near the beach, and is used to make tea to reduce fever and as a tonic to improve the appetite, constipation, typhoid fever, flu and colds. It is called the "stone breaker plant" because it has been used for generations to eliminate gallstones or kidney stones. Its popular herbal treatment is due to the fact that it is said to have no side effects or toxicity. It has been a focus of a great deal of research in recent years because of its antiviral qualities and may even be useful in treating hepatitis and the HIV virus.

LOVE VINE. DODDER (cuscuta americana) - Used in a bath to sooth the skin from itching and prickly heat

SHEPHERD'S NEEDLE (bidens pilosa) - The foliage and flowers are steeped and used for prickly heat, "cooling the blood" and to relieve "sick stomach". It can be given every day for nine days for worms in children

POUND-CAKE BUSH (parthenium hysterophorus) - Flowers from spring to autumn. It is used to combat 'weakness', coughs, and as a wash for skin sores. The flowers are sometimes 'parched' (dried) and sprinkled on skin sores. It is made into a tea for diabetics.

LIME (citrus aurantifolia) - The juice of a lime will keep mosquitoes off the body and if applied to a bite relieves the itch.

Use and abuse of legal

There are drugs available over-the-counter or even in your own medicine cabinet that provide enough of a high that, in many cases, teens don't need to seek out a drug dealer. Did you know that young people do have to hang out in dark alleys or associate with the "wrong crowd" to abuse drugs? According to the Monitoring the Future survey (United States of America data), the most recent information suggests that more than 20 percent of high school seniors admit to abusing prescription drugs over the course of their lifetimes, and nearly 70 percent have abused alcohol.

When discussing legal drugs and the abuse of these drugs by teenagers, it is important to determine what a legal drug is precisely. Is it a drug they have come by through legal means, such as purchasing it over the counter at the local convenience store? What about prescription drugs? Prescriptions are legally obtained from doctors every day, and sometimes they fall into the wrong hands – the hands of teens across the country. Sometimes, they are prescribed to the teens themselves. Is alcohol a legal drug?

Over-the-Counter Drugs Can Be Dangerous

There is a common misconception among many people that over-the-counter drugs must be absolutely safe. The Food and Drug Administration sets guidelines and can even ban certain ingredients in the over-the-counter drugs

that are sold to Americans, but the fact remains that the drugs are safe if taken according to the directions.
When teens purchase these drugs for the express purpose of getting high or to enhance their performance, or even to counteract the effects of other drugs they have taken, they are not taking them in accordance with the directions.

They will generally take them in much higher doses, which can lead to dangerous behaviors due to euphoric effects of the medication, or physical health problems that can be life-threatening.

According to an article published by the Philadelphia newspaper Daily News, there are many types of over-the-counter drugs that are readily abused by teenagers across the nature.

These drugs include:

i. They abuse cold remedies because of the ingredient dextromethorphan, which can cause hallucinations and a “high” feeling; this ingredient can also lead to increased heart rate, seizures and disrupted breathing.
ii. Caffeine drinks and “shots” can lead to excessive and dangerous dehydration.
iii. Diet pills and laxative abuse may indicate an eating disorder.
iv. Motion sickness pills taken in very large doses have similar effects to high-powered street drugs, but can also cause a teen to suffer a heart attack, coma and death.
v. Natural herbs can be very dangerous, marketed to teens as a safe and legal means to get high, causing high blood pressure, seizures, stroke and death.

If you suspect that your teen may be engaged in over-the-counter drug abuse, it is important that you find help as quickly as possible.

Signs of Legal Drug Abuse in Teens

Recognizing behaviors and other clues about your teen’s behavior is important if you suspect he may be abusing drugs or alcohol. There are many behavioral signs you can watch for, but remember that every teen is different and not all of the symptomatic behaviors will be present in every child.

Some signs include:

Has your son made new friends lately, but he doesn't want you to meet them?
Are his grades falling without any explanation?
Have you found over-the-counter drug packaging in his room, car or school bag?
Have you "misplaced" your own prescription drugs?
Does your son receive ongoing prescriptions for a chronic condition and often "run out" prior to his next refill?
Has your teen changed his attitude about his hygiene practices or appearance?

Teenager's lifestyle Disorders

When teenagers practice bad or unhealthy habits such as smoking cigarettes and marijuana, drinking alcohol, engaging in sexual activities, staying up all night, gossiping, not going to church, listening to loud music, posting nude pictures and inappropriate content on social media and cursing. If these habits and behaviors are overlooked, certain consequences may develop ranging from social problems, serious diseases, car accidents and criminal problems.

Use and abuse of illegal drugs.



Teenage lifestyle disorders can lead to many physical challenges and diseases. Taking drugs, drinking alcohol and staying awake all hours of the night causes depression, low self-esteem, self-hate and anger. Some other challenges are listed below.

If you suspect that your brother, sister, cousin, teenage friend or classmate may be abusing legal drugs to get high, you can make a difference in his or her life by seeking help immediately. In fact, the issue may be even deeper than you realize. Did you know that many individuals who abuse drugs, including teens, suffer from another mental illness that may be undiagnosed? They may have developed depression, anxiety, post-traumatic stress disorder or some other condition that needs medical attention.

The good news is that drug abuse and addiction are treatable and manageable with the right intervention. Contact us today to find out how we can help your son make significant strides to a better future.

Safety

` Adherence to safety guidelines ensures maintenances of good health.

Road Safety

Every year over many children die and more are seriously injured whilst walking or cycling on Bahamian roads. Too many are injured or die in car crashes. Children need to learn to use the roads safely, to walk and cycle in safety, and also to use their common sense when crossing a road or getting into a car. Road safety is essential for children's freedom, development, and exercise and of course the roads need to be used with respect. Road safety should be taught by example and guidance with a trusted adult, from an early age.

The Government has policies to reduce the number of children who die or are injured on our streets, but teachers, parents and child care givers have a duty to inform, educate and train our children and to maximize child safety on our roads.

1. **Child car seats** are a must – they save lives. But make sure it is properly fitted in the car.

2. **Cycle Helmets** - children should be made to wear a cycle helmet at all times. Many children have been saved by wearing one. Better use a Yellow colored Helmet.

3. **Motor Cycle Popping** – is a very dangerous practice as it may cause very serious accidents and injuries to road users. Popping motorbikes are risky because riding on one wheel causes imbalance and poor viewing of oncoming vehicles or other road users.

4. **Children playing ball games** like Football, Cricket, Tennis etc. near Roads are likely to run across the road carelessly to pick the ball as the ball goes out of the field. Strict instructions should be given to children to be very careful while crossing the road to pick the ball.

5. Small children have a tendency to **run across or along the roads**, all of a sudden on seeing their parents, siblings, friends or relatives etc. Hence small children should be given strict instructions not to do that. Also try to avoid such circumstances on roads as far as possible.

6. When you are **walking with small children on roadside**, hold on their hand. It should not be the other way ie. Don't let the children to hold on your hand. Let the child walk on the side away from the road, facing the oncoming vehicles.

7. Let 'Road Safety' be a mandatory topic for School Projects for all classes, every year. Road Safety Day / Road Safety Week should be observed in all Schools, every year. Competitions on Road Safety Tips, Slogans, Essays, and Paintings etc should be conducted for students of various classes.

8. Road Safety Clubs and Forums should be formed in all Schools.

9. School Buses should be painted with Bright Yellow color.

10. 
Significant portion of School Uniform should be of bright colors like yellow, red, green, orange etc. White is also ok. Idea is to increase visibility while crossing the road or walking on road side. The bright colors will ensure visibility even under low lighting conditions. If the current school uniform is of dark colors like gray, brown, dark blue etc., School authorities may change the uniform at the next opportunity.

11. Avoid driving if you are experiencing excessive sneezing.

12. Do not drive after taking sleep inducing tablets like anti-histamines, anti-allergic, anti-depressants etc.

13. Buy only bright colored dresses for your children. Sometimes, this may help in averting an accident. Never select black or dark color dresses for your children.

14. Learn driving from the best reputed diving school in your neighborhood.

15. Never bribe or give money or favors to the Driving Inspector to acquire a driving license for you or your children. Do not use shortcut methods to get license.

16. Appear for driving test after you are fully convinced and confident.

17. Do not park vehicles near road curves because oncoming cars will not be able to see the parked vehicle early enough to slow down.

18. Always use the pedestrian crossing to cross the road if one is present. Do not attempt to cross the road near curve, blind spots, bottom of hills as they are dangerous places to cross as the oncoming vehicle may not see you in sufficient time to stop and or slow down.

Recreational Safety

Designated Driver – Be sure that the person who will be driving after the party is over must not drink any alcohol during the party or gathering. Don't Drink and Drive.

When dancing do not leave your open drink, cup or soda unattended because someone may drop an illegal drug "date rape pill" into your drink which will impair or negatively affect your decision making judgements.

Rohypnol (flunitrazepam) is better known by its street name, Roofies. This drug is infamous for many nefarious uses, including date rape. Rohypnol may have adverse physical effects on the user, even outside of its known side effects, and the drug does create enough of a haze that a woman could quickly find herself in a compromising situation and have little or no memory once the drug has worn off. Rohypnol is illegal

Avoid Dangling wires or loose drop cords running along the wet ground

Ignite or light Fireworks far away from the crowd or house to avoid someone getting burn or a house catching afire.

Anchor *Barbecue pits or grills* to avoid it falling over and burning or crushing a small child or an adult. Never allow a child to play with or tend the food on a barbecue grill. Never leave an open fire or barbecue grill unattended.

Water Safety

Buddy system – Always go swimming with a partner and someone who is a strong competent swimmer.

Do not swim too far away from the shore.

Never allow anyone to ride on your back when swimming in the sea or pool. This is very dangerous.

Use a floating device if you are not a very good swimmer.

Be Aware of your surroundings always.

Ensure that the boat has sufficient life vests for each child and teacher or passenger on the boat.

Fire Safety - Causes of Fires

Major Causes of Fires - Fire protection doesn't have to be difficult. Even the simplest things can help save you and your family from a home fire.

Accidents and Carelessness

Many people believe that if they are careful they are much less likely to have a fire. While it is true that being careful will make you safer it will not stop fire from happening. Most fires are not caused from carelessness. They are caused from everyday living that is almost impossible for us to change.

Electrical Wiring, Electrical Outlets and Faulty Wiring

Whether it's in an electrical outlet or a short in the wall, many fires are caused by electrical wiring. Older homes are particularly susceptible, as they were not wired for the many, many appliances that we have filled our homes with. Many homes that were built in the 50′s -70′s have aluminum wiring that gets very hot and increases the chance of fire.

Appliances

Lamps, toasters and even baby monitors can short out. Be particularly careful with older appliances and extension cords. Even new appliances can be the source of a home fire. To be safe, appliances should be unplugged when not in use. Unfortunately, not all appliances can be unplugged, leaving your home at risk 24 hours a day.

Heating

Heating is another major cause of residential fire deaths. This is especially true in southeastern states and among wood stove users in the north.

Unattended Stoves

Another cause of residential fires is cooking, but not due to defective stoves or ovens. Often, it is because of unattended pots or the burner being left on accidentally -and who hasn't done that at least once or twice?

Children Playing with Matches

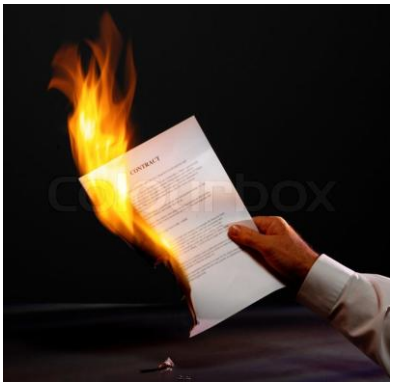
Children and grandchildren playing with matches are a major source of home fires. According to the Burn Awareness Coalition, burns are the number one cause of accidental deaths in children under two, fire and burn injuries are the second leading cause of accidental deaths in children ages 1-4, and the third leading cause of injury and death for ages 1-18. Matches and lighters in the hands of young children are a significant factor in fire fatalities. Educating parents and grandparents to the seriousness of this issue is paramount.

Types of Fires

The element of fire is found in our daily lives, mostly in a contained and useful way. We use it to cook, heat liquids and run our internal combustion engines. We can cause it to happen, adjust and moderate it. Fire becomes a problem when its ignition sequence happens outside of our control, which usually ends in damage to and destruction of homes, care, and sometimes death. Fires are classified according to the materials involved in the combustion process. No two fires spread and burn the same way.

Class A Fires

Class A fires commonly result from ordinary combustible materials, including paper, wood, cardboard and some plastic materials. They appear frequently in household fires, from accidental ignition, lit cigarettes or spontaneous combustion. They require Class A extinguishers to put them out, since these extinguishers hold a great deal of water in the mixture.



Class B Fires

Flammable liquids, such as gasoline, grease, cooking oil, acetone and paint thinner, define class B fires. These fires can originate in households, warehouses, shops and commercial properties, where such flammable liquids are used for household activities or in the manufacturing process. Class B extinguishers have square-foot ratings, indicating how much surface area can be contained with their use.

Class C Fires

Class C fires involve electrical components and equipment, including circuit breakers and panels, wall outlets, appliance wiring, machinery and engine wiring. Common sources include automobiles, household wiring, generators, turbines, fans, refrigerators, toasters, ovens and stoves. Class C fires require chemical extinguishers, which are non-conductive, since water heightens the risk of electrical shock and further damage.

Class D Fires

Fires rated as class D, typically found in foundries and chemical laboratories, involve combustible metals that have a high content of sodium, titanium, potassium and magnesium. Such metals burn by a spontaneous, chemical reaction, and can be quite dangerous in factories and plants where they have been stored. Specialized extinguishers must be used to combat metal fires.

Crown Fires

Crown fires consume the very tops of trees in a forest setting, which causes the death of most trees. The flames spread from the uppermost treetop branches to the nearby branches of other trees. Some trees across the West, such as the lodge pole pine, have developed survival strategies in that they drop seeds when their cones open during a fire, resulting in new growth.

Surface Fires

Surface forest fires burn trees from the forest floor up to approximately 10 feet above the ground. These fires burn the lower portions of the trunks of certain tall trees, such as sequoias, Douglas fir and ponderosa pine. The trees survive because of their thick and heavy bark, and their branches sit so high up in the crown that they cannot be reached by the flames. Surface fires can move very fast across the forest floor.

Ground Fires

Forest ground fires burn the most intensely of all fires. They consume dried or decomposing wood, bacteria and fungi, large amounts of kindling, and trees of every type and species. Ground fires frequently rage uncontrolled and cover hundreds or thousands of acres. They can continue to burn under a snow pack during winter months, allowing them to reignite again in the Springtime. Ground fires rob the soil of important nutrients used for forest growth and reproduction. Alaska and British Columbia commonly suffer ground fires because of their higher elevation.

Oil Fires

Oil fires involve oil derricks and offshore drilling platforms. When crude oil reaches its ignition temperature, it alights and spreads, as long as it contains oil molecules next to it. Oil typically burns on the surface of water, covering large areas, and can be corralled and contained only by foam and chemical expulsion from fire-fighting watercraft, or air-drops from specialized aircraft. Oil fires can spread by combining with natural gas and other flammable materials.

Fire Extinguishers - Types and Uses

Choosing Fire Extinguishers – You must first identify the type of materials in the area of the fire. Remember the following Class of Fires:

Class A:	SOLIDS such as paper, wood, plastic etc
Class B:	FLAMMABLE LIQUIDS such as paraffin, petrol, oil etc
Class C:	FLAMMABLE GASES such as propane, butane, methane etc
Class D:	METALS such as aluminium, magnesium, titanium etc
Class E:	Fires involving ELECTRICAL APPARATUS
Class F:	Cooking OIL & FAT etc

Types of fire extinguisher

Water Fire Extinguishers:
The cheapest and most widely used **fire extinguishers**. Used for Class A fires. Not suitable for Class B (Liquid) fires, or where electricity is involved.

Foam Fire Extinguishers:
More expensive than water, but more versatile. Used for Classes A & B fires. Foam spray extinguishers are not recommended for fires involving electricity, but are safer

than water if inadvertently sprayed onto live electrical apparatus.

Dry Powder Fire Extinguishers:
Often termed the 'multi-purpose' extinguisher, as it can be used on classes A, B & C fires. Best for running liquid fires (Class B). Will efficiently extinguish Class C gas fires, BUT BEWARE, IT CAN BE DANGEROUS TO EXTINGUISH A GAS FIRE WITHOUT FIRST ISOLATING THE GAS SUPPLY. Special powders are available for class D metal fires.

Warning: ***when used indoors, powder can obscure vision or damage goods and machinery. It is also very messy.***

CO2 Fire Extinguishers:
Carbon Dioxide is ideal for fires involving electrical apparatus, and will also extinguish class B liquid fires, but has NO POST FIRE SECURITY and the fire could re-ignite.

Wet chemical
Specialist extinguisher for class F fires.

For Metal Fires: A specialist fire extinguisher for use on Class D fires - metal fires such as sodium, lithium, manganese and aluminium when in the form of swarf or turnings.

Colour Coding

Prior to 1st Jan 1997, the code of practice for fire extinguishers in the United Kingdom was BS 5423, which advised the colour coding of fire extinguishers as follows:

Water - **Red**
Foam - **Cream**
Dry Powder - **Blue**
Carbon Dioxide (CO2) **- Black**
Halon - **Green** (now 'illegal' except for a few exceptions such as the Police, Armed Services and Aircraft).

10 Fire Safety Rules

1.) Don't play with matches and lighters. If you see matches or a lighter where you can reach them, don't touch them. Go tell a grown up right away.

2.) Ask your parents to install smoke detectors on every floor and in the sleeping areas of your home. Smoke detectors can save lives. Ask your parents to show you where each one is located.

3.) Remind your parents to test your smoke detectors every month. Make sure everyone in your family is familiar with its piercing sound. Teach them that this sound means danger, and they must escape quickly.

4.) When your parents change the time on your clocks for Daylight Savings, ask them to change your smoke alarm batteries. Give it fresh batteries and your smoke alarm will stay awake and watch for fire while you are sleeping.

5.) In case of fire: DON'T HIDE, GO OUTSIDE! Fires are scary, but you should NEVER hide in closets or under beds when there is a fire.

6.) To escape during a fire; Fall & Crawl. It is easier to breath in a fire if you stay low while getting out. Use the back of your hand to test if a door is hot before you open it. If it is hot, try to use another way out.

7.) If your clothes are on fire; Stop, Drop, and Roll until the fire is out. Shout for help, but don't run. Running makes fire burn faster.

8.) Have an escape plan and practice it with your family. Find two ways out of every room in case one way is blocked by fire or smoke. Practice escaping by both routes to be sure windows are not stuck and screens can be taken out quickly.

9.) Choose a meeting place outside, such as a big tree or the end of the driveway, so you will know that everyone has gotten out safely. NEVER go back into a burning building for any reason. If someone is missing, tell the firefighters. They have the clothing and equipment to safely rescue people.

10.) Know your local emergency number. Put stickers and magnets with emergency numbers on your refrigerator and every telephone in the house. If there is a fire at your house, choose one family member to leave your meeting place and call the fire department from a neighbors phone.

Rescuing a person in a fire

Fuels
Smoke detectors,
Fire escapes,

Fire drills

1. Make sure all family members know what to do in the event of a fire. Draw a floor plan with at least two ways of escaping every room. Make a drawing for each floor. Dimensions do not need to be correct. Make sure the plan shows important details: stairs, hallways and windows that can be used as fire escape routes.

2. Test windows and doors—do they open easy enough? Are they wide enough. Or tall enough?

3. Choose a safe meeting place outside the house.

4. Practice alerting other members. It is a good idea to keep a bell and flashlight in each bedroom.

5. Practice evacuating the building blindfolded. In a real fire situation, the amount of smoke generated by a fire most likely will make it difficult to see.

6. Practice staying low to the ground when escaping.

7. Feel all doors before opening them. If a door is hot, get out another way.
8. Learn to stop, drop to the ground, roll if clothes catch fire.

ADDITIONAL FIRE SAFETY MEASURES

1. Install smoke detectors - Check smoke detectors once a month and change the batteries at least once a year. Smoke detectors sense abnormal amounts of smoke or invisible combustion gases in the air. They can detect both smoldering and burning fires. At least one smoke detector should be installed on every level of a structure. Purchase smoke detectors labeled by the Underwriters Laboratories (UL) or Factory Mutual (FM).
2. Post emergency numbers near telephones. - Be aware that if a fire threatens your home, you should not place the call to emergency services from inside the home. It is better to get out and place the call to fire authorities from a safe location outside the home.
3. After a fire emergency - Give first aid where appropriate. Seriously injured victims should be transported to professional medical help immediately. Stay out of the damaged building. Return only when fire authorities say it is safe.
4. Make sure you have a safe fire escape method for all situations. You may have installed a very expensive home security system. But if you cannot escape the burning structure you have a false level of confidence.
5. Space Heaters Need Space - Keep portable and space heaters at least 3 feet from anything that may burn. Never leave heaters on when you leave home or go to sleep. Children and pets should always be kept away from them.

6. Smokers Need To Be Extra Careful - Never smoke in bed or when you are sleepy. Carelessly discarded cigarettes are a leading cause of fire deaths in the United States.
7. Be Careful Cooking - Keep cooking areas clear of combustibles and wear short or tight-fitting sleeves when you cook. Keep the handles of your pots turned inward so they do not over-hang the stove. If grease catches fire, carefully slide a lid over the pan and smother the flames, then turn off the burner.
8. Matches and Lighters are Dangerous - In the hands of a child, matches and lighters can be deadly! Store them where kids can't reach them, preferably in a locked area. Teach children that matches and lighters are "tools" and should only be used by adults.
9. Use Electricity Safely - If an appliance smokes or has an unusual smell, unplug it immediately and have it repaired. Replace frayed or cracked electrical cords and don't overload extension cords. They should not be run under rugs. Never tamper with the fuse box or use the improper size fuse.
10. Cool a Burn - If someone gets burned, immediately place the wound under cool water for 10 to 15 minutes. If the burn blisters or chars, see a doctor immediately!
11. Be Careful of Halogen Lights - If you have halogen lights, make sure they are away from flammable drapes and low ceiling areas. Never leave them on when you leave your home or office.

Electrical Safety

Top 10 Rules for Electric Safety

To play it safe around your home, just remember the rules for using electricity the right way.

1. DON'T plug a bunch of stuff into one outlet or extension cord.

It could damage the electrical system in your house or even cause a fire.

2. Make sure all electric cords are tucked away, neat and tidy.

Pets might chew on electrical cords, and people might trip and fall.

3. DON'T ever climb the fence around an electrical substation.

If a ball or pet gets inside the fence, ask a grown-up to call the electric company - they'll come and get it out for you.

4. DON'T yank an electrical cord from the wall.

Pulling on a cord can damage the appliance, the plug or the outlet.

5. Fly your kite far away from power lines or substations.

The kite and the string may conduct electricity - sending it right through you to the ground.

6. Ask a grown-up for help when you need to use something that uses electricity.

7. DO look up and look out for power lines before you climb a tree.

The electricity can go right through the tree branch - and right through you!

8. Have a grown-up put safety caps on all unused electrical outlets.

Covering outlets will also help save energy by stopping cold drafts.

9. Remind your mom or dad to watch out for power lines when they're using a ladder, chainsaw or other outdoor equipment.

10. Keep electrical stuff far away from water.

Most electrical accidents around the house happen when people use electricity near water.

When it is necessary to handle equipment that is plugged in, be sure hands are dry and, when possible, wear nonconductive gloves, protective clothes and shoes with insulated soles.

Remeber: gloves, clothes and shoes.

Safety clothes, gloves and shoes

Electrical Storm Safety Tips

Outdoors is the most dangerous place to be during an electrical storm. Even if the skies are clear, you should go inside if you can hear thunder. Lightening can actually travel sideways for up to ten miles, and there are reported instances of individuals being struck by lightning while standing under clear blue skies.

Once safely indoors, stay away from doors and windows, and try to avoid using landline telephones except in the event of an emergency. Cellular phones are safe to use. Unplug electronic equipment and try to avoid contact with cords or wiring during the storm.

If you get caught outside during a storm and are unable to seek shelter, find the lowest point. Lightning hits the tallest available object. Get down low if you are in an exposed area. Avoid metal. Don't hold onto metal items like bats, golf clubs, fishing rods, tennis rackets, or tools. Stay away from metal sheds, clotheslines, poles and fences. Don't forget pets during thunderstorms. Doghouses are not lightning safe. Dogs that are chained can easily fall victim to a lightning strike.

After the storm passes, if there are downed power lines, do not attempt to remove them. Contact your power company and they will dispatch someone who has the training and equipment to handle the situation. If you failed to unplug electrical appliances or equipment in your home and are noticing that there are sparks, flashes, smoke, or anything unusual, do not use the appliances until they can be examined by a professional electrician. Never attempt to repair the appliances yourself as this can be extremely dangerous.

- See more at: http://electriciancolumbiasc.net/blog/electrical-storm-safety-tips.html#sthash.fULAy2pB.dpuf

Chemical Safety

Classification of chemicals

Chemical classification means finding out how the chemicals you supply can harm you, others or the environment. Classification is very important and provides the starting point for the controls needed to protect us and the world we live in.

1. Hazardous Chemicals
2. Explosive Chemicals
3. Corrosive Chemicals

1. **Highly hazardous chemical** is a substance classified by the American Occupational Safety and Health Administration as material that is both toxic and reactive and whose potential for human injury is high if released. Highly hazardous chemicals may cause cancer, birth defects, induce genetic damage, cause miscarriage, injury and death from relatively small exposures.
[dosage for medicine] & not mixing chemicals/drugs. Some of these chemicals include: Chlorine, Bromine, Ammonia and Nitric Oxide and Cyanogen.

2. **Explosive Chemicals** - The vast majority of explosives are chemical explosives. A chemical explosive is a compound or mixture which, upon the application of heat or shock, decomposes or rearranges with extreme rapidity, yielding much gas and heat. Many substances not ordinarily classed as explosives may do one, or even two, of these things. For example, at high temperatures (> 2000 °C) a mixture of nitrogen and oxygen can be made to react with great rapidity and yield the gaseous product nitric oxide; yet the mixture is not an explosive since it does not evolve heat, but rather absorbs heat.

3. **Corrosive Chemicals -** A corrosive substance is one that will destroy and damage other substances with which it comes into contact. It may attack a great variety of materials, including metals and various organic compounds, but people are mostly concerned with its effects on living tissue: it causes chemical burns on contact. Some corrosive chemicals are valued for various uses, the most common of which is in household cleaning agents. For example, most drain cleaners contain either acids or alkalis due to their capabilities of dissolving greases and proteins inside water pipes such as lime scale. Common corrosive chemicals are classified into:
Acids Strong acids — the most common are sulfuric acid, nitric acid and hydrochloric acid

Use of safety gear

Use of personal protective equipment, including items such as protective gloves, protective aprons, acid suits, safety goggles, a face shield, or safety shoes, is normally recommended when handling corrosive substances

Storage of Chemicals

Key consideration for lab storage and handling include:

a. Chemicals should not be stored on floors or benches since they could be knocked over.

b. Storage on open shelves should be avoided.

c. Do not store chemicals in the lab above eye level;

d. Chemicals should be segregated according to chemical classes and compatibility first. Then they can be stored by a convenient finding method such as alphabetically. For example, acids should be kept separate from bases, oxidizers from organics, and cyanides from acids.

e. Physical separation should be provided for reactive chemicals. Use secondary containers in storage areas if available space does not allow incompatible materials to be properly separated;

f. Properly store flammable and combustible materials in accordance with International Laws and Codes.

g. When possible, segregate toxic chemicals from other chemicals and store in closed cabinets. Label the cabinets “TOXIC CHEMICALS" or with a similar warning;

h. Maintain chemicals per manufacturer requirements;

i. Ensure containers are labeled in accordance with the OSHA Laboratory Standard;

j. Make sure containers are closed when not in use;

k. Use secondary containment such as acid carriers when transporting liquid chemicals more than a very short distance;

Disposal of Chemicals

Safely dispose of your toxic products.

Every household has hazardous products. Old containers of household chemicals can deteriorate and leak, causing dangerous fumes and fires when stored inside your house, or polluting rainwater runoff when stored outside.

When disposed improperly, these products end up in the landfill or down the drain. They can leach toxic chemicals and heavy metals into the soil and groundwater. Workers can be injured when these products are crushed in garbage and recycling trucks.

Safe Disposal Options

1. Accepted: You can dispose of your oil-based paints, solvents, cleaning products, pesticides, fertilizers, automotive products, photo chemicals, mercury thermometers and non-empty aerosols with the free home pick up service in some countries. Call the Ministry of Health to find out if there is such a service in The Bahamas.

2 Not Accepted: Old and expired Medicines and Needles cannot be collected by the regular garbage truck because they will be dumped at the open dumpsite and may cause fire, poison and contamination of the air, land and water table.

Recycle - Know where to find convenient drop off locations near you for the following items:
• House paint (latex and oil-based)
• Fluorescent tubes and bulbs
• Used Motor Oil & Filters - Find a used motor oil & filter drop-off location near you.
• Used and Un-used Needles & Syringes - Get information on safe storage and packaging of "sharps." (Recology SF)
• Small Empty Propane Tanks & Cylinders - Note: for tanks & cylinders which are not empty, use home pick-up service or permanent facility programs.
• Household **Batteries** - alkaline & rechargeable, AA, AAA, D, button batteries, etc. Read this important safety information on storing and transporting batteries. (Recology SF)
• TV's, Computers, Cell Phones & Electronics - Large Electronics: Get information on free pick-up service for TVs or large electronics. (Recycle My Junk, Recology SF)
• Medicine - Medicine disposal is only available at designated neighborhood drop-off sites. Medicines are NOT accepted by the Home Pick-up Service or at the Permanent Facility

Instructions
• Pack household chemicals in a sturdy box and transport them in your trunk or truck bed outside of your breathing zone.
• Put each leaking or damaged container in a separate box, plastic tub, or zip-lock bag.
• Recycle: Empty cans of **aerosol** paint and latex paint (acrylic or water-based) may be placed in your blue recycling bin. All nozzles, caps and lids must be removed and placed separately into the blue recycling bin.
• Landfill: Put all other types of empty hazardous waste containers into your black bin for disposal - do not try to recycle these containers.

Even Better Than Recycling: Reduce, Reuse
To avoid the worry of how to store and dispose of household hazardous waste:
• Buy only what you need.
• Share unused products or half full containers with your friends or neighbors.
• Use up the products you purchase.

Hurricane Safety

Before a hurricane
Preparation for a hurricane is very important as it can save lives.

1. Listen to the news update on the radio as the meteorological department tracks the location of the hurricane.

2. Buy sufficient drinking water and can good foods.

3. Secure your home and or buildings by nailing plywood and or hurricane shutters over the windows.

4. Listen to the radio and read the newspaper to know what are the other basic equipment & packing items you may need. Example: flashlight, battery operated radio, garbage bags to secure your clothes and valuable documents in case of flooding.

5. Remind parents to full the vehicle with fuel / gasoline.

During a hurricane
1. Remain indoors and do not go outside even if the weather conditions become calm as the eye of the hurricane may be passing.

2. Move to the inner rooms if a window or door becomes broken.

3. Climb upon a table or furniture if flooding becomes to high. Climb into the ceiling if necessary.

Post-hurricane
1. Eat sparingly (little at a time) to conserve or use food wisely.

2. Eat cooked food first and throw away any left over which may become spoiled.

3. Inspect your home to determine if anything was damaged.

HURRICANES

A hurricane is a tropical storm that is formed over the sea. Hurricanes travel many square miles and can be very destructive causing great damage to houses, buildings, cars, trees, landscapes, etc. The hurricane season in the Bahamas is between the months of June and November.

DEVASTATING AFFECTS OF RECENT HURRICANES ON THE BAHAMAS

Flooding

Destruction of home

Damage to landscape

Fallen Trees

Erosion and Flooding

Damage to Infrastructure

Gun Safety

A gun is not a toy. Most guns are illegal which means that the person who has the gun does not have a government issued license to own and use the gun in our country. Guns are not made in The Bahamas but are smuggled into our country on ships, and in luggage from other countries. Each year there are hundreds of persons killed by guns in our country. In September 2015 a primary school boy was killed by an illegal gun in Kemp Road. Everyone must be responsible to call the police and report illegal guns in our country. No child must bring a gun to school as this will endanger the lives of innocent children and teachers alike.

Bahamas Emergency contact numbers:

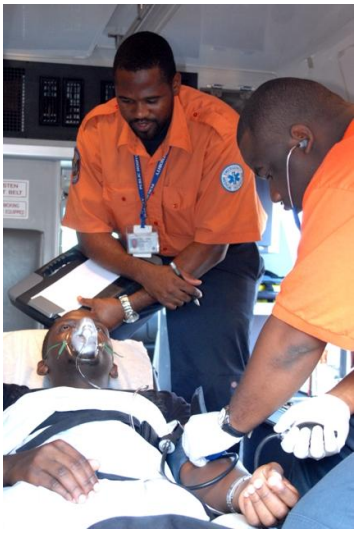
Police Emergency Numbers

POLICE EMERGENCY NUMBERS

Police Emergency Numbers Important Notice Police wish to inform the public that the emergency numbers 919 & 911 are malfunctioning. Until the problem is resolved, persons requesting the assistance of the police or Emergency Medical Services (EMS) are asked to contact Police Control Room: 323-0850, 323-0845, 323-0853/4, 302-8177/8

BAHAMAS RED CROSS SOCIETY
Tel: (1242) 323-7370/328-4415
Fax: (242) 323-7404
Telegram: BAHREDCROSS NASSAU
Email: redcross@bahamas.net.bs
Web: http://bahamasredcross.com

PRINCESS MARGARET HOSPITAL AMBULANCE



N.E.M.S. had its beginnings in 1949 when a ground ambulance service was implemented in New Providence attached to the Princess Margaret Hospital. Special work began in 1993 to upgrade and expand these services to a coordinated, professional response system for pre-hospital emergency care throughout the Bahamas. In 1911, N.E.M.S. became a part of the Enhanced 919 system. In New Providence and Grand Bahama E.M.S. may be accessed by **dialing 919 or 911**. This is a common emergency response number that networks police, fire and ambulance for a comprehensive emergency response. The N.E.M.S. service operates **24 hours a day, 7 days a week**, including weekends and holidays. Since September 2010 provisions were made for an ambulance to be dispatched from the E.M.S. room located at the Lynden Pindling International Airport from 8 a.m. - 4 p.m. on weekdays. N.E.M.S. has a full range of highly trained staff, equipment and protocols.

Princess Margaret Hospital
Shirley Street
P.O. Box N-3730
Nassau Bahamas
Main Telephone: (242) 322-2861
Fax: (242) 356-9469

DOCTORS HOSPITAL - General Information

Main Number	(242) 302-4600
Fax Number	(242) 322-3284
Health Fairs	(242) 302-4603
Email	info@doctorshosp.com

First Aid

Definition - First Aid is the assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening, and/or promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available, such as performing CPR while awaiting an ambulance, as well as the complete treatment of minor conditions, such as applying a plaster to a cut. First aid is generally performed by the layperson, with many people trained in providing basic levels of first aid, and others willing to do so from acquired knowledge. Mental health first aid is an extension of the concept of first aid to cover mental health.

Fractures – First Aid Care

First Aid: Broken Bones

A broken bone, or a fracture, can occur during an athletic competition, accident, or some kind of trauma. Broken bones are usually not life threatening, but they do require immediate medical care.

Symptoms of a Broken Bone

Signs of a broken bone include one or more of the following:

1. •intense pain at the site of the injury that worsens with movement
2. •swelling, numbness, or bluish color of the injured area
3. •deformity of the limb or joint if the injury occurred in the arm or leg
4. •bone protruding through the skin
5. •heavy bleeding at the injury site

First Aid Care

1. •If the person is unconscious and/or not breathing or moving, call 911 for medical help and begin CPR.
2. •Stop any bleeding. Apply pressure to the wound with a sterile bandage, a clean cloth, or a clean piece of clothing.
3. •While waiting for medical care, give first aid treatment for shock if the victim has symptoms such as dizziness, weakness, pale and clammy skin, shortness of breath, and increased heart rate. The person should lie quietly with the feet elevated about 12 inches. Cover him or her with a blanket to maintain body warmth.
4. •Immobilize the injured area if you will be moving the victim. Do not move them if there is a back or neck injury. Make a splint by folding a piece of cardboard or newspaper or a magazine, then

placing it gently under the limb. Carefully tie the splint to the injured area with pieces of cloth.

5. •Apply a cold compress or ice in a plastic bag to the injured area. Make sure to place a cloth between the skin and the ice so you don't damage the skin.

How to make an arm sling An arm sling stops someone's arm moving (immobilisation) and protects it so it can heal. It's also a useful warning to others that someone has an injury so they should be careful around them.

There are two types of arm sling – an arm sling and an elevation sling. You can make both using a triangular bandage.

Watch St. John Ambulance video - how to make a sling

Arm sling

An arm sling holds someone's forearm in a horizontal or slightly raised position. This gives support for:

•an injured upper arm
•an injured wrist or forearm
•someone who can bend their elbow
•someone with a rib fracture

Arm sling – what you need to do

Step 1 of 5: Support their bad arm

- Ask them to support their bad arm with their other hand. Slide the triangular bandage underneath it, with the longest edge (the base) parallel to their body at the tip of the little finger. The tip of the bandage (the point) should stick out past their elbow.

Step 2 of 5: Pull the top bit

- Gently pull the top bit under their bad arm and around the neck to the opposite shoulder.
- Take the bit that's hanging down over their arm and up to meet the other end at their shoulder.

Step 3 of 5: Make a reef knot

- Tie the ends together in a reef knot at the hollow above their collar bone and tuck in the ends.

Step 4 of 5: Adjust the sling

• Adjust the sling so that it supports their arm all the way to the top of their little finger.
• Twist the tip by their elbow until it fits snugly around their elbow and tuck it in or safety pin it.

Step 5 of 5: Check their circulation

• Check their circulation in their fingers and keep checking every ten minutes. If it's too tight, loosen the bandage and sling and tie them again.

Dislocations and First Aid Care

A dislocation is when two connected bones become separated. Dislocations are caused by falls and hard impacts, such as in sports injuries, and are more common in teens than young children. These injuries require emergency medical care to avoid further damage.

Dislocation - Signs and Symptoms

A joint is where two or more bones come together. A joint may be dislocated if it is:

a. •swollen
b. •bruised or red
c. •painful
d. •difficult to move
e. •out of place

What to Do

If you think your child has a dislocation, seek emergency medical care or call 911. Until care is received, do the following:

a. •Leave the joint alone. Attempting to move or jam a dislocated bone back in can damage blood vessels, muscles, ligaments, and nerves.
b. •Apply an ice pack. Ice can ease swelling and pain in and around the joint.
c. •Use ibuprofen or acetaminophen for pain.

Think Prevention!

a. •Make sure kids wear the appropriate safety gear during sports activities.
b. •Supervise children when they're playing — a hard fall can happen anywhere, anytime.
c. •Avoid tugging hard on a young child's arm or shoulder, which can cause injury or dislocation.

Sprains & strains

The symptoms of a sprain are almost exactly the same as that of a broken bone. When in doubt, sprains should be treated the same as broken bones. The most common symptoms are:

1. •pain
2. •swelling
3. •bruising
4. •inability to move
5. •inability to bear weight on the joint

It is not necessary to have all of the symptoms of a sprain in order for the joint to be injured.

Difficulty: Easy

Time Required: May take up to 48 hours

Here's How:
1. Stay Safe. If you are not the victim, practice universal precautions and wear personal protective equipment if available.

2. Do not call 911 for a sprain. NIAMS suggests visiting a doctor for a sprained joint if:•it has severe pain

a. •victim unable to put any weight on it
b. •it looks different than uninjured joint (swelling doesn't count)
c. •victim can't move it
d. •victim can't walk more than four steps on it
e. •there is numbness in any part of it
f. •redness or red streaks spread out from the injury.
g. •it has been sprained several times before
h. •there is pain, swelling, or redness over a bony part of your foot

How to bandage a sprain

If someone’s sprained a joint, like an ankle, knee or elbow, you can use a bandage to support the limb.

To make sure you give the right kind of support, bend the joint slightly and then wrap the bandage in a figure-of-eight. You need to wrap it either side of the injury too, to give enough support for the whole area.

(For this example we're going to describe how to wrap an ankle, but you can use the same method to bandage an elbow or knee).

Watch St. John Ambulance video - how to bandage a sprain

What you need to do

a. To bandage someone's ankle, use a roller bandage

b. First, you need to hold the ankle in a comfortable position, with the joint slightly bent

c. Start by putting the end (tail) of the bandage on the inside of their ankle. Pass the bandage over and around to the outside of the ankle, and go round one and-a-half times, so that the tail end of the bandage is firmly covered and won't come loose

d. Then make a figure-of-eight around the joint, wrapping the bandage diagonally above and then below the joint

e. Keep going with the figure-of-eight, but each time, only cover about two thirds of the previous layer, so that with each new layer you're covering a third of new skin

f. Once you've done this several times, wrap the bandage straight around the ankle a couple of times, and then fasten the end using a safety pin, sticky tape or by tucking it in

g. As soon as you've finished, check their toes for circulation, by pressing their big toe nail for five seconds until it goes pale. If the colour doesn't come back within two seconds after you stop pressing, the bandage is too tight so you'll need to loosen it and do it again. Their ankle could keep swelling after you've bandaged it, so keep checking their circulation every ten minutes.

SHOCK and Frist Aid Treatment and Care

Shock results from poor circulation of blood and oxygen to the vital organs. Shock is very serious and life threatening. The person may not know that they are in shock.

Causes:
• Dilated blood vessels, bleeding, severe dehydration, all leading to a drop in blood pressure, which results in poor circulation. These can be caused by severe emotional trauma, physical injury, illness, etc.

Warning signs:
• Unusual behavior (e.g. very calm or very anxious), lack of pain to an injury, rapid breathing, rapid but weak pulse, bluish skin (cyanosis), unconsciousness.

Helping:
• Activate the ambulance right away. Assist the person to lie on their side to improve circulation, treat any injuries, help them take any medication for an illness.

Once someone goes into shock it is like a domino effect. The body tried to compensate by increasing the heart rate. But his leads to a fatigued heart, and blood loss if there is an injury. As a result the heart needs more blood so it speeds up even more. The best way to help is to treat the cause of the shock.

FAINTING

It usually occurs because of a temporary decrease of blood flow to the brain, which can be caused by not eating properly, standing up too fast, or low blood pressure.

Warning signs:
• The casualty feels faint, or collapses.

Helping: • If they feel faint have them lie down which will help with circulation. If they faint they will usually wake up in a few seconds. Encourage the person to stay lying down for a few minutes until they feel better. If they do not wake up within one minute, or they became injured during the fall then activate the ambulance, and treat any injuries.

Notes: • If someone has fainted, even if they feel fine afterwards, they should still go see their doctor to rule out any major problem.

Recovery Position (semi-prone)

The recovery position can be used with anyone that is unconscious but breathing, or is not feeling well, or is dizzy. It is a comfortable position that keeps the airway open and allows for easy circulation throughout the body. Use a blanket to keep them warm.

Heat Exhaustion & Heat Stroke

Sweat evaporates from the skin to cool the body. If this personal cooling system does not work right or fails to work, heat exhaustion or a heat stroke can occur.

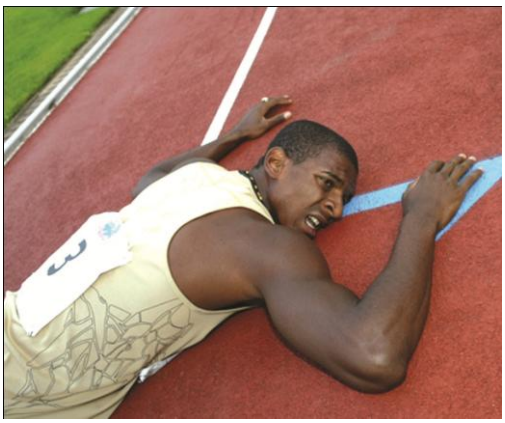
Heat exhaustion is a warning that the body is getting too hot. With a heat stroke, body organs start to overheat. They will stop working if they get hot enough. If it is not treated, a heat stroke can result in death. Sweat cools the body.

Signs & Symptoms

For a Heat Stroke

These signs and symptoms can occur suddenly with little warning:

a. Very high temperature (104ºF or higher).
b. Hot, dry, red skin. No sweating.
c. Deep breathing and fast pulse. Then shallow breathing and weak pulse.
d. Confusion. Hallucinations.
e. Convulsions.
f. Loss of consciousness.



For Heat Exhaustion

a. Normal, low, or only slightly elevated body temperature.
b. Cool, clammy, pale skin. Sweating.
c. Dry mouth. Thirst.
d. Fatigue. Weakness. Feeling dizzy.
e. Headache.
f. Nausea. Vomiting can occur.
g. Muscle cramps.
h. Weak or rapid pulse.

Causes

Anything that keeps the body's natural cooling system from working right can lead to heat exhaustion and heat stroke. This includes:

a. Extreme heat and humidity.
b. Being in places without fans or air conditioners during hot, humid weather.
c. Not being able to get to public air-conditioned places. Waiting for a bus or other type of public transportation in hot, humid weather.
d. Overdressing.
e. Changes in the skin due to aging.
f. Poor circulation. Heart, lung, and/or kidney disease.
g. Not being able to sweat due to medicines, such as water pills and some used for mental illnesses.
h. Alcohol or drug use.
i. Any illness that causes weakness, fever, vomiting, or diarrhea.

Treatment

A heat stroke is a medical emergency. Heat exhaustion may respond to self-care measures. If not, medical care is needed.

Are these signs of heat exhaustion present?

a. Dryness on the inside of the mouth.
b. Fatigue. Weakness. Listlessness.
c. Muscle cramps.
d. Feeling lightheaded or faint.

First Aid for a Heat Stroke

 Call 9-1-1!

Before Emergency Care Arrives

a. Move the person to a cool place indoors or under a shady tree. Place the feet higher than the head to avoid shock.
b. Remove clothing. Either wrap the person in a cold, wet sheet; sponge the person with towels or sheets that are soaked in cold water; or spray the person with cool water. Fan the person.
c. Put ice packs or cold compresses on the neck, under the armpits, and on the groin area.
d. Once the person's temperature gets to 101ºF, place him or her in the Recovery Position. Do not lower the temperature further.
e. Don't give fever reducing medicine.
f. Don't use rubbing alcohol.

First Aid for Heat Exhaustion

a. Move to a cool place indoors or in the shade. Lie down.
b. Loosen clothing.
c. Drink fluids, such as cool or cold water. Add 1/2 teaspoon of salt to 1 quart of water. Sip this. Or, drink sport drinks, such as Gatorade, etc.
d. Have salty foods, such as saltine crackers, if you tolerate them.
e. Massage and stretch cramped muscles.

Prevention

a. Drink lots of liquids, especially if your urine is dark yellow. Drink water, sport drinks, such as Gatorade, etc.
b. Do not stay in or leave anyone in a closed, parked car during hot weather.
c. Don't have drinks with alcohol or caffeine.
d. Use caution when you are in the sun. At the first sign of heat exhaustion, get out of the sun. If you can, avoid midday heat. Do not do vigorous activity during the hottest part of the day (11:00 a.m. to 4:00 p.m.).
e. Wear light, loose-fitting clothing, such as cotton, so sweat can evaporate. Wear a wide-brimmed hat with vents. Use an umbrella for shade.
f. If you feel very hot, try to cool off. Open a window. Use a fan. Go to an air-conditioned place.
g. Check with your doctor about sun exposure if you take:
h. Water pills.
i. Mood-altering medicines.
j. Some antibiotics, such as tetracycline.

First Aid for Burns and scalds

Burns and scalds are damage to the skin caused by heat. A burn is usually caused by dry heat, like fire, a hot iron, or the sun. A scald is caused by wet heat, like steam or a hot cup of tea.

You need to be extra careful when treating burns. The longer the burning goes on, the more severe the injury will be, and the longer it may take to heal. So you need to cool the burn as soon as possible.

If someone has a severe burn or scald they are likely to suffer from shock, because of the fluid loss, so they will need urgent hospital treatment.

Watch a youtube video - burns and scalds

What to look for

If you think someone has a burn or scald, there are five key things to look for:

1. Red skin
2. Swelling
3. Blisters may form on the skin later on
4. The skin may peel
5. The skin may be white or scorched

What you need to do

Stop the burning getting any worse, by moving the casualty away from the source of heat.

Start cooling the burn as quickly as possible. Run it under cool water for at least ten minutes or until the pain feels better. (Don't use ice, creams or gels – they can damage tissues and increase risk of infection).

Assess how bad the burn is. It is serious if it is:

a. larger than the size of the casualty's hand
b. on the face, hands or feet, or
c. a deep burn

If it is serious, call 911 or 919 for emergency medical help. Remove any jewellery or clothing near the burn (unless it is stuck to it). Cover the burned area with kitchen cling film or another clean, non-fluffy material, like a clean plastic bag. This will protect from infection. If necessary, treat for shock (shock is a life-threatening condition, not to be confused with emotional shock). If you are unsure if the burn is serious then tell the person to see a doctor.

Cuts and Bruises and First Aid Care

Cuts and grazes are common injuries that can usually be treated at home. A cut is when the skin is fully broken, and a graze is when only the top layers of skin are scraped off.

Usually, all you need to do is clean the cut or graze to reduce infection and apply pressure and raise the injury to stop the bleeding. The wound should heal by itself in a few days.

Watch St. John Ambulance video - Cuts and grazes

What to look for - Cuts and grazes

If the bleeding doesn't stop, or if there's a foreign object in the cut, or you think it might be infected, then you should tell them to see a health care professional.

What to do - Cuts and grazes

1. Clean the wound by rinsing it under running water or using alcohol-free wipes.
2. Pat it dry using a gauze swab and cover it with sterile gauze. If you don't have these, then use a clean, non-fluffy cloth.
3. Raise and support the part of the body that's injured. If it's a hand or arm, raise it above the head. If it's a lower limb, lay them down and raise the cut area above the level of the heart. This will help stop the bleeding.
4. Remove the gauze covering the wound and apply a sterile dressing.
5. If you think there's any risk of infection then suggest they see a health care professional.

Choking adults and First Aid Care

Choking is when your airway gets blocked and you can't breathe properly. When someone chokes, the airway can either be partly or fully blocked. If it's a mild blockage, they should be able to clear it themselves by coughing. If it's a severe blockage, they won't be able to cough so without anyone's help they'll lose consciousness.

But if they do lose consciousness, their throat muscles could relax and open the airway enough for you to give rescue breaths – be prepared to give rescue breaths and chest compressions.

Watch St. John Ambulance video - Choking adults

Choking adult – what to look for

If you think someone is choking, ask them: 'Are you choking?' to check they're not suffering from something else. Can they speak, cry, cough or breathe?

If they can, they should be able to clear their throat on their own by coughing, so encourage them to cough.

If they can't cough or make any noise, it's serious.

Choking adult – what you need to do

Help clear their throat with these three steps.

Step 1 of 4: Cough it out

- Encourage them to cough. If this doesn't clear the obstruction, support their upper body with one hand and help them lean forward

Step 2 of 4: Slap it out

1. If coughing doesn’t work, help the casualty bend forward.
2. Use the heel of your hand to give up to five sharp back blows between their shoulder blades.
3. Check their mouth to see if there’s anything in there and, if there is, get them to pick it out.

Step 3 of 4: Squeeze it out

1. If back blows don’t work, give up to five abdominal thrusts.
2. Stand behind them.
3. Link your hands between their tummy button and the bottom of their chest, with your lower hand clenched in a fist.
4. Pull sharply inwards and upwards.

If they’re still choking, repeat steps 2 and 3 – back blows and abdominal thrusts – up to three times or until you’ve dislodged what’s in there and they can breathe again.

Step 4 of 4: Call for help

If they’re still choking after you’ve repeated these steps three times, call 911 or 919 for medical help.

Once you’ve called, continue steps 2 and 3 – back blows and abdominal thrusts – until what’s in there has cleared, help arrives or they become unconscious.

If they lose consciousness at any stage, open their airway and check their breathing.

If they’re not breathing, start chest compressions and rescue breaths (CPR - cardiopulmonary resuscitation) to try to release whatever’s stuck in there. Follow the instructions for treating someone who’s unconscious and not breathing.

Taking pulse and breathing rates First Aid Techniques

CPR – First Aid Care for an Unconscious breathing adult

Unconsciousness can last for a few seconds (e.g. fainting) or for a long time. It's often brought on by serious illness or injury (e.g. a head injury), or by taking alcohol or other drugs. Find out what to do if an adult is unconscious and breathing.

Watch St. John Ambulance videos - Unconscious and breathing adult

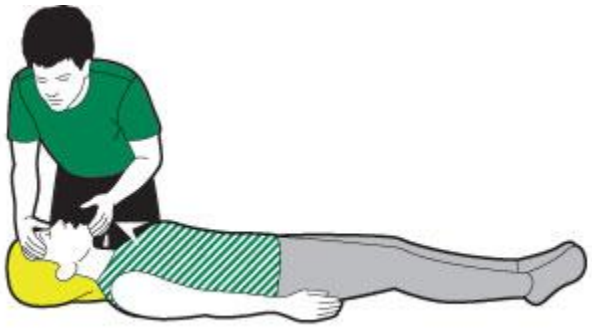
What to look for - Unconscious and breathing adult

When someone looks like they're asleep but they're unable to respond to noise or body contact, it's likely they're unconscious.

What you need to do - Unconscious and breathing adult

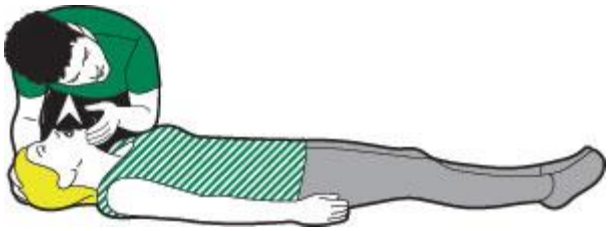
Step 1 of 5: Open the airway

1. Place one hand on the casualty's forehead and gently tilt their head back. As you do this, the mouth will fall open slightly.
2. Place the fingertips of your other hand on the point of the casualty's chin and lift the chin.



Step 2 of 5: Check breathing

Look, listen and feel for normal breathing – chest movement, sounds and breaths on your cheek. Do this for no more than ten seconds.



Step 3 of 5: Put them in the recovery position

- This will keep their airway open.
- Kneel down next to them on the floor.
- The next three steps are for if you find the casualty lying on their back. If you find them lying on their side or their front you may not need all three.

1. Place their arm nearest you at a right angle to their body, with their palm facing upwards.

2. Take their other arm and place it across their chest so the back of their hand is against their cheek nearest you, and hold it there. With your other hand, lift their far knee and pull it up until their foot is flat on the floor.

3. Now you're ready to roll them onto their side. Carefully pull on their bent knee and roll them towards you. Once you've done this, the top arm should be supporting the head and the bent leg should be on the floor to stop them from rolling over too far.

Step 4 of 5: If you suspect spinal injury

- If you think the casualty could have a spinal injury, you must keep their neck as still as possible. Instead of tilting their neck, use the jaw thrust technique: place your hands on either side of their face and with your fingertips gently lift the jaw to open the airway, avoiding any movement of their neck.

Step 5 of 5: Call for help

- Once you've put them safely into the recovery position, call 911 or 919 for medical help.
- Until help arrives, keep checking the casualty's breathing.
- If they stop breathing at any point, call 911 or 919 straight away and get ready to give them CPR (cardiopulmonary resuscitation – a combination of chest pressure and rescue breaths).

Epilepsy - Seizures (fits) – in adults and First Aid Care

A seizure can be caused by something interrupting the electrical activity in the brain. This leads the muscles in the body to contract uncontrollably and usually causes the person to lose consciousness. It's also known as a convulsion or fit. In adults, seizures are the most common symptom of epilepsy, but they can be caused by other things, such as a head injury, alcohol poisoning or someone with diabetes having a 'hypo' when their blood glucose is too low.

Epilepsy is a condition which affects the brain and causes repeated seizures, which are often sudden and dramatic.

Watch St. John Ambulance video - seizures

What to look for – seizures With any kind of seizure it is really important to keep checking:

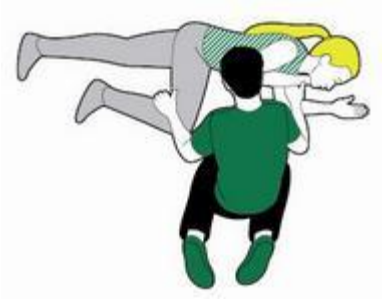
a. their level of response and pulse
b. and that the person is breathing.

It is also important to protect them from harming themselves during the fit

If you think someone is having a seizure, there are six key things to look for:

1. Sudden loss of consciousness
2. Rigid body with an arching back
3. Noisy difficult breathing
4. Convulsions (jerky uncontrolled movements)
5. Loss of bladder and bowel control
6. Afterwards they may be confused, tired and fall into a deep sleep

What you need to do - seizures



1. Don’t restrain or move them.
2. Protect them from hurting themselves. Clear away any potentially dangerous objects, like hot drinks or sharp objects.
3. Make a note of the time when the seizure started and how long it lasts.
4. Protect their head by placing something soft underneath it, like a towel, and loosen any clothing around their neck.
5. Once the seizure has stopped, they may fall into a deep sleep – if they do, open their airway and check their breathing.
6. If they’re breathing, put them in the recovery position.

If they stop breathing at any point, prepare to treat someone who is unconscious and not breathing.

1. Keep checking their breathing, pulse and level of response.
2. Call 911 or 919 for medical help if:
3. •it’s the casualty's first seizure, or the cause is unknown
4. •they’re having repeated seizures
5. •the seizure lasts more than five minutes
6. •they’re unconscious for more than ten minutes.

Asthma attack and First Aid Care

In an asthma attack, the muscles of the air passages in the lungs go into spasm. This makes the airways narrower, making it difficult to breathe.

Sometimes something specific can trigger an attack, such as an allergy, a cold, or cigarette smoke. At other times, someone may have a sudden attack with no obvious trigger.

People with asthma usually deal with their own attacks by using a blue reliever inhaler at the first sign of an attack. But if someone doesn't have an inhaler, or the attack is severe, you may need to help.

Watch St. John Ambulance video - Asthma attacks

If you think someone is having an asthma attack, these are the five key things to look for:

1. Difficulty breathing or speaking
2. Wheezing
3. Coughing
4. Distress
5. Grey-blue tinge to the lips, earlobes and nailbeds (known as cyanosis).

What you need to do - Asthma attacks

a. First, reassure them and ask them to breathe slowly and deeply which will help them control their breathing.
b. Then help them use their reliever inhaler straight away. This should relieve the attack.
c. Next, sit them down in a comfortable position.
d. If it doesn't get better within a few minutes, it may be a severe attack. Get them to take one or two puffs of their inhaler every two minutes, until they've had 10 puffs.
e. If the attack is severe and they are getting worse or becoming exhausted, or if this is their first attack, then call 911/919 for an ambulance.
f. Help them to keep using their inhaler if they need to. Keep checking their breathing, pulse and level of response.
g. If they lose consciousness at any point, open their airway, check their breathing and prepare to treat someone who's become unconscious.

Diabetic emergency and First Aid CAre

Diabetes is a lifelong medical condition where the body cannot produce enough insulin. Insulin is a chemical made by the pancreas (a gland behind the stomach), which regulates the blood sugar (glucose) level in the body.

Normally our bodies automatically keep the right blood sugar levels, but for someone with diabetes their body can't. Instead, they have to control the blood suger level themselves by monitoring what they eat, and taking insulin injections or pills.

There are two types of diabetes: Type1, or insulin-dependent diabetes, and Type 2, also known as non-insulin-dependent diabetes.

Sometimes people who have diabetes may have a diabetic emergency, where their blood sugar becomes either too high or too low. Both conditions are potentially serious and may need treatment in hospital.

Watch St. John Ambulance video - diabetic emergency

Hyperglycaemia

Too little insulin can cause high blood sugar (hyperglycaemia). If it’s not treated and gets worse, the person can gradually fall unconscious (into a diabetic coma). So it's important to get them to see a doctor in case they need emergency treatment.

Hypoglycaemia

Too much insulin can cause low blood sugar or hypoglycaemia (hypo). This often happens when someone with diabetes misses a meal or does too much exercise. It can also happen after someone has had an epileptic seizure or has been binge drinking.

If someone knows they are diabetic, they may recognize the start of a hypo attack, but without help they may quickly become weak and unresponsive.

What to look for - Diabetic emergency

If you think someone is having a diabetic emergency, you need to check against the symptoms listed below to decide if their blood sugar is too high or too low.

High blood sugar (hyperglycaemia)

a. Warm, dry skin
b. Rapid pulse and breathing
c. Fruity sweet breath
d. Really thirsty
e. Drowsiness, leading to unconsciousness if not treated

Low blood sugar (hypoglycaemia)

a. Weakness, faintness or hunger
b. Confusion and irrational behaviour
c. Sweating with cold, clammy skin
d. Rapid pulse
e. Trembling

f. Deteriorating level of response
g. Medical warning bracelet or necklace and glucose gel or sweets
h. Medication such as an insulin pen or tablets and a glucose testing kit

What you need to do – for high blood sugar (hyperglycaemia)

1. Call 911 or 919 straight away for medical help and say that you suspect hyperglycaemia.

2. While you wait for help to arrive, keep checking their breathing, pulse and level of response.

3. If they lose consciousness at any point, open their airway, check their breathing and prepare to treat someone who's become unconscious.

4. What you need to do – for low blood sugar (hypoglycaemia)

5. Help them sit down. If they have their own glucose gel, help them take it. If not, you need to give them something sugary like fruit juice, a fizzy drink, two teaspoons of sugar, or sugary sweets.

6. If they improve quickly, give them more sugary food or drink and let them rest. If they have their glucose testing kit with them, help them use it to check their glucose level. Stay with them until they feel completely better.

7. If they do not improve quickly, look for any other causes and then call 911 or 919 for medical help.

8. While waiting, keep checking their responsiveness, breathing and pulse.

9. What you need to do – if you're unsure whether their blood sugar is high or low

10. If you're not sure whether someone has high or low blood sugar, give them something sugary anyway, as this will quickly relieve low blood sugar and is unlikely to do harm in cases of high blood sugar

11. If they don't improve quickly, call 911 or 919 for medical help.

12. f they lose consciousness at any point, open their airway, check their breathing and prepare to treat someone who's become unconscious.

Drug poisoning and First Aid Care

Poisons are substances that can cause temporary or permanent damage if too much is absorbed by the body. Poisons can be swallowed, inhaled, injected or absorbed through the skin.

Someone can get drug poisoning from taking an overdose of prescribed drugs, over the counter drugs, or illegal drugs.

But the effects will be different depending on the type of drug and how the person has taken it, such as by swallowing, inhaling or injecting.

What to look for - Drug poisoning

If you think someone may have drug poisoning, these are 10 common things to look for:
1.Stomach pain, nausea and vomiting
2.Sleepiness leading to unconsciousness
3.Confusion and deliriousness
4.Excitable hyperactive behaviour
5.Sweating
6.Shaking hands
7.Hallucinations – they may claim to 'hear voices' or 'see things'
8.Unusually slow or fast pulse
9.Unusually small or large pupils
10.Needle marks which may be infected

What you need to do - Drug poisoning

a. Call 911 or 111 for medical help.
b. If they're conscious, help them into a comfortable position and ask them what they've taken.
c. Gather as much information as you can. While you wait for help to arrive, look for any packaging or containers that will help identify the drugs.
d. Keep checking their breathing, pulse and level of response.
e. If they lose consciousness at any point, open their airway, check their breathing and prepare to treat someone who's become unconscious.
f. Never try to make them vomit, but if they vomit naturally then put some of this into a bag or container and give it to the ambulance – this may help them identify the drug.

Food poisoning and First Aid Care

Food poisoning is caused by eating contaminated food. In most cases the food hasn't been cooked properly and is contaminated by bacteria such as salmonella or Escherichia coli (E. coli), which are found mainly in meat.

Someone may feel the effects of food poisoning within a few hours, and will often be sick or have diarrhoea. However, in some cases it can take up to three days.

The effects of food poisoning can make someone feel extremely ill. The most important thing is for you to keep encouraging the person to drink water so they don't get dehydrated. Most people will get better without needing treatment.

What to look for - Food poisoning

If you think someone may have food poisoning, these are the five key things to look for:
1.Feeling sick
2.Vomiting, sometimes bloodstained
3.Stomach cramps
4.Diarrhoea
5.Headache or fever

What you need to do - Food poisoning

a. If you notice any of these symptoms, tell the person to lie down and rest.
b. Give them plenty of water and a bowl to use in case they are sick.
c. Encourage them to drink as much water as they can, even if they can only manage regular small sips. If they have diarrhoea, it's even more important that they drink water to replace lost fluids.
d. Giving them an oral rehydration solution is good to way to replace fluids lost through diarrhoea and vomiting. This solution can replace salt and other minerals which they have lost. You can buy it in a pharmacy as a sachet which you dissolve in water.
e. If the person gets worse, then advise them to call their doctor or call 911 or 919 for emergency medical help.

Managing an accident scene - The Primary Survey

The Primary Survey is a quick way for you to find out if someone has any injuries or conditions which are life-threatening. If you follow each step methodically, you can identify each life-threatening condition and deal with it in order of priority.
Use the letters **DR. ABC** to remember the steps: **D**anger, **R**esponse, **A**irway, **B**reathing and **C**irculation.
You'll need to go through the Primary Survey every time you help someone, and make sure you don't get distracted by anything else. Only move onto the Secondary Survey, if you've already done the Primary Survey and succeeded in dealing with any life-threatening conditions.
Watch our video

Danger:

If someone needs help, before you go up to them check – is it safe?
• **No:** If you can see or hear any danger nearby, for you or them, like broken glass or oncoming traffic, then make the situation safe before you get any closer
• **Yes:** If you can't see or hear any danger then it is safe to go up to them.

Response:

Do they respond when you ask them: 'Are you alright?' or if you say: 'Open your eyes!'
• **No:** If they don't respond, then gently shake their shoulders, or with a child - tap their shoulder, and with a baby - tap their foot. If they still don't respond, then you can

presume they're unconscious and move on to the next stage – **Airway**. Someone who's unconscious should always take priority so you should treat them first and as quickly as possible.

• **Yes:** If they respond by making eye contact with you or some gesture then you know that they're conscious and you can move on to the next stage – **Airway**.

Airway:

Is their airway open and clear?

No:

o Conscious: If they're conscious, treat them for conditions that may be blocking their airway, such as choking. Only move on to the next stage – **Breathing** – once their airway is open and clear.

o Unconscious: If they're unconscious, tilt their head and lift their chin to open their airway. Only move on to the next stage – **Breathing** – once their airway is open and clear.

• **Yes:** If their airway is open and clear, move on to the next stage – **Breathing.**

Breathing:

Are they breathing normally? You need to look, listen and feel to check they're breathing.

• **No:**

o Conscious: If they're conscious, treat them for whatever is stopping them breathing, for example, an obstructed airway. Then go to the next stage – **Circulation**

o Unconscious: If they're unconscious and not breathing, call 999/112 for an ambulance, or get someone else to call if possible, and start giving chest compressions and rescue breaths CPR – cardiopulmonary resuscitation. If this happens you probably won't move on to the next stage as the casualty needs resuscitation.

• **Yes:** If they are breathing normally, move on to the next stage – circulation.

Circulation:

Are there any signs of severe bleeding?

• **Yes:** If they're bleeding severely, control the bleeding with your gloved fingers, dressing or clothing, call 999/112 for an ambulance and treat them to reduce the risk of them going into shock.

• **No:** If they aren't bleeding, and you're sure you have dealt with any life-threatening conditions, then you can move on to the Secondary Survey, to check for any other injuries or illnesses.

The Secondary Survey

Only move onto the Secondary Survey if you've already done the Primary Survey and succeeded in dealing with any life-threatening conditions.

Then you can start questioning the casualty about what's happened and carefully check someone for any other injuries or illnesses. If you can, jot down everything you find out and give all this information to the emergency services or whoever takes responsibility for the child, like a parent.

You need to find out:

• **History:** Question them about what happened leading up to them injuring themselves or feeling unwell? Ask those around them too and write everything down if they can.

• **Symptoms:** What symptoms do they tell you they have?

• **Signs:** Check them over from head to toe. What signs do you find on their body?

History

Event history

Ask them to describe exactly what happened leading up to them feeling unwell or injuring themselves.

You can ask other people near the scene too and also look for clues. For example, if they've had a car accident the impact on the car will help you work out what type of injury they could have.

Medical history

Then, ask them to tell you their medical history. Use the word **AMPLE** to remember all the things you need to ask them:

Allergy – do they have any allergies?
Medication – are they taking any regular or prescribed medication?
Previous medical history – did they already have any conditions?
Last meal – when did they last eat something?
Event history – what happened?

Symptoms

Ask them to give you as much detail as possible about how they feel. Listen carefully to what they say and make notes, if possible.

Here are they key questions to ask them:

1. •Can they feel any pain?
2. •Can they describe the pain, e.g. is it constant or irregular, sharp or dull?
3. •What makes the pain better or worse?
4. •When did the pain start?

Signs

Check the casualty over from head to toe, using all your senses – look, listen, feel and smell.

You may have to loosen, open, cut away or remove clothing. Ask their permission to do this and make sure you're sensitive and discreet.

Make a note of any minor injuries as you go. Only return to these when you have finished checking the whole body, to make sure you don't miss any more serious injuries.

Head to toe examination

Breathing and pulse: How fast and strong is their breathing and pulse?

Bleeding: Check the body from head-to-toe for any bleeding.

Head and neck: Is there any bleeding, swelling, sensitivity or a dent in the bone, which could mean a fracture?

Ear: Do they respond when you talk to them? Is there any blood or clear fluid coming from either ear? If so, this could mean a serious head injury.

Eyes: Are they open? What size are their pupils (the black bit)? If they're different sizes this could mean a head injury.

Nose: Is there any blood or clear fluid coming from the nostrils? This could mean a serious head injury.

Mouth: Check their mouth for anything which could block their airway. Look for mouth injuries or burns in their mouth and anything unusual in the line of their teeth.

Skin: Note the colour and temperature of their skin. Pale, cold, clammy skin suggests shock. A flushed, hot face suggests fever or heatstroke. A blue tinge suggests lack of oxygen from an obstructed airway, poor circulation, or asthma.
Neck: Loosen any clothing around their neck to look for signs like a medical warning medallion or a hole in their windpipe. Run your fingers down their spine without moving it to check for any swelling, sensitivity or deformity.
Chest: Check if the chest rises easily and evenly on each side as they breathe. Feel the ribcage to check for any deformity or sensitivity. Note if breathing is difficult for them or painful in any way.
Collar bone, arms and fingers: Feel all the way along the collar bones to the fingers for any swelling, sensitivity or deformity. Check they can move their elbows, wrists and fingers.
Arms and fingers: Check they don't have any unusual feeling in their arms or fingers. If their fingertips are pale or greyish-blue this could suggest their blood isn't circulating properly. Also look for any needle marks on the forearms, which suggest drug use. See if they have a medical warning bracelet.
Spine: If they've lost any movement or sensation in their legs or arms. Don't move them to check their spine as they may have a spinal injury. Otherwise, gently put your hand under their back and check for any swelling or soreness
Abdomen: Gently feel their abdomen to check for any signs of internal bleeding, like stiffness or soreness, on each side.
Hips and pelvis: Feel both hips and the pelvis for signs of a fracture. Check their clothing for any signs of incontinence, which may suggest a spinal injury or bladder injury, or bleeding from body openings, which may suggest a pelvic fracture.
Legs: Check the legs for any bleeding, swelling, deformity or soreness. Ask them to raise one leg and then the other, and to move their ankles and knees.
Toes: Check their movement and feeling in their toes. Compare both feet and note the colour of the skin: greyish-blue skin could suggest a problem with their circulation or an injury due to cold, like hypothermia.

Difficult first aid situations

When it comes to first aid, assessing the situation properly is crucial. Call for help early on. Incidents involving traffic, fire, electricity or water can put your own life at risk. Be sure it is safe to approach.
Important questions to ask yourself
Safety

- What are the dangers and are you or the casualty still in any danger?
- Have you got any protective clothing or equipment on?
- Is it safe for you to go up to them?

Scene

- What has caused the accident or situation?
- How many casualties are there?

Situation

- What happened?
- How many people are involved and how old are they?
- What do you think the main injuries could be?

Traffic incidents

How to make the area safe

Call for help – 999 or 112.
Park safely.
Set up warning triangles 45m away in each direction.
Make vehicles safe by turning off the ignition.
Stop upright vehicles from moving by applying a handbrake, putting in gear or putting blocks in front of the wheels.
Look out for physical dangers like oncoming traffic.
Tell the emergency services if any power lines have been damaged, fuel has been spilt or if any vehicles have hazard signs showing they contain harmful substances.

How to assess the casualties

Assume that anyone who's been in a road traffic accident could have a neck or spinal injury.
If possible, treat them in the position you find them in, supporting their head and neck all the time and wait for the emergency services to come.
Search the area to make sure you don't miss anyone who have may been thrown or who has wandered off.
Ask bystanders to help.
If someone's trapped inside or under a vehicle, you'll need to wait for the fire service to get them out.

Fires

How to leave a burning building

If you see or suspect a fire in a building, set off the first fire alarm you see.
Call 999 or 112.
Try to help others out of the building but don't put yourself at risk.
Close doors behind you to help stop the fire from spreading.
Use the fire exits and look for assembly points outside.
Don't use lifts.

What to do if someone's clothing is on fire

If someone's clothing is on fire, remember – **Stop**, **Drop** and **Roll**.
Stop them from panicking or running or going outside because any movement or breeze will fan the flames.
Drop them to the ground and wrap them tightly in a fire blanket or heavy material like a coat, curtain, woollen blanket or rug.
Roll them along the ground to smother the flames until they go out – then treat any burns by cooling them as soon as possible.
Call 999 or 112 for emergency help.

Electrical incidents

Common injuries from electrical incidents

Cardiac arrest – if someone experiences an electric current through their body it may stun them and stop their breathing and heartbeat.
Burns – an electric current can give someone burns where it enters and exits the body.
Fractures and spinal injuries – a direct current (DC) can cause a large muscular contraction that often throws someone and can result in injuries like fractures and spinal injuries.

Electrically charged – an alternating current (AC) causes muscular spasms which can lock their grasp so that they can't let go. This means they are electrically charged so you mustn't touch them or you'll risk electrocution too. Instead you need to break their contact with the source of electricity.

How to break contact with electricity

Don't touch the person. Call for help.

If you can, stop the source of electricity by:

- turning it off
- pulling out the plug, or
- switching off the current at the mains.

If you can't stop the source of electricity, move the casualty away from it **without touching them directly**. Don't use anything metal as this will conduct the electricity.

- Stand on material like a wooden box, a plastic mat or a book.
- Use something wooden like a pole, broom or stool – **nothing metal** – to push their limbs away from the source.
- Or loop some rope around their ankles or under their arms – **making absolutely sure you don't touch them** – and pull them away from the source.

Once you're sure the casualty is clear of the electric current, carry out the primary survey, treat their injuries in order of priority and call 999 or 112 for medical help.

Water incidents

Common conditions caused by water incidents include

Cardiac arrest – if someone's suddenly falls into cold water it can make their heart stop, known as cardiac arrest.

Hypothermia – being in cold water can cause hypothermia.

Shock – being in cold water can make the conditions of shock worse.

Drowning – if someone inhales water this can block the airway causing them to drown.

Heart problems – the effort of swimming can also put a strain on the heart.

How to rescue someone from water

Call for help – 999 or 112.

Getting the casualty out of the water

Stay on dry land yourself and throw them a life belt if one is available, or hold out a stick, a branch or rope for them to grab and then pull them out of the water.

If they can't pull themselves out because they're unconscious, and it's safe for you to go in the water, wade or swim to the casualty and tow them to the bank, keeping them as upright as you can.

If you can't get the casualty out of the water safely, wait for the ambulance.

When the casualty is out of the water

If they're unconscious, open their airway and check for breathing.

If they are not breathing, begin resuscitation (CPR).

If they're conscious, try to shield them from the wind and treat them for drowning and then for hypothermia.

Take or send them to hospital even if they seem to be better. If you are worried about how serious the casualty's condition is then call 999 or 112 for medical help, if you haven't previously done so.

Environmental Health

Ecology is the study of plants and animals interaction with each other and with their environment.

Biotic Group - Plants and animals are the biological or living environment.



Abiotic Group – Stream, soil and air are the non- living things are make up the physical environment.

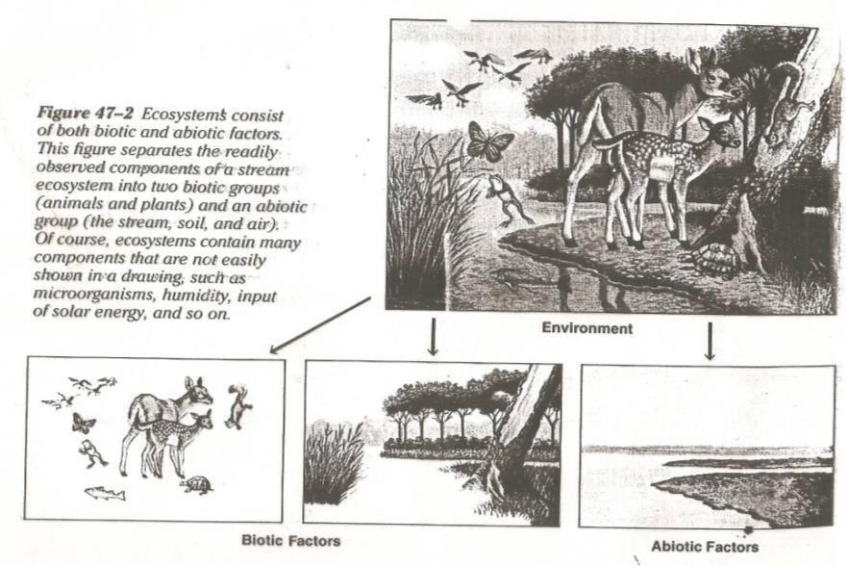


Figure 47–2 Ecosystems consist of both biotic and abiotic factors. This figure separates the readily observed components of a stream ecosystem into two biotic groups (animals and plants) and an abiotic group (the stream, soil, and air). Of course, ecosystems contain many components that are not easily shown in a drawing, such as microorganisms, humidity, input of solar energy, and so on.

Our environment is always changing. Sometimes natural disasters such as hurricanes, floods, earthquakes and volcanoes cause drastic changes in our environment. Other major changes are caused by human beings themselves.

BIOSPHERE – All the living organisms on the earth make up the biosphere.
ECOSPHERE – All the living organisms, and the region or place where they live.

Types of Pollution

Pollution is the process of making land, water, air or other parts of the environment dirty and unsafe or unsuitable to use. This can be done through the introduction of a contaminant into a natural environment, but the contaminant doesn't need to be tangible. Things as simple as light, sound and temperature can be considered pollutants when introduced artificially into an environment.

Toxic pollution affects more than 200 million people worldwide, according to Pure Earth, a non-profit environmental organization. In some of the world's worst polluted

places, babies are born with birth defects, children have lost 30 to 40 IQ points, and life expectancy may be as low as 45 years because of cancers and other diseases.

Land pollution

Land can become polluted by household garbage and by industrial waste. In 2010, Americans produced about 250 million tons (226.8 million kilograms) of garbage, consisting of product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint and batteries. That's about 4.3 pounds (1.95 kg) of waste per person per day, according to the Environmental Protection Agency (EPA). A little over half of the waste — 54 percent — is gathered in landfills. Only about 34 percent is recycled, which is about double the amount recycled in 1980, according to the American Society of Civil Engineers. The garbage data for The Bahamas is unknown.

Food is a big contributor to landfill waste. Up to 40 percent of food produced in the United States is trashed each year, according to the Natural Resources Defense Council.

Commercial or industrial waste is a significant portion of solid waste. Much of it is classified as non-hazardous, such as construction material (wood, concrete, bricks, glass, etc.) and medical waste (bandages, surgical gloves, surgical instruments, discarded needles, etc.). Hazardous waste is any liquid, solid or sludge waste that contain properties that are dangerous of potentially harmful to human health or the environment. Industries generate hazardous waste from mining, petroleum refining, pesticide manufacturing and other chemical production. Households generate hazardous waste as well, including paints and solvents, motor oil, fluorescent lights, aerosol cans, and ammunition.

Water and Sea pollution

Water pollution happens when chemicals or dangerous foreign substances are introduced to water, including chemicals, sewage, pesticides and fertilizers from agricultural runoff, or metals like lead or mercury. According to the EPA, 44 percent of assessed stream miles, 64 percent of lakes and 30 percent of bay and estuarine areas are not clean enough for fishing and swimming. The EPA also states that the most common contaminants in the United States are bacteria, mercury, phosphorus and nitrogen. These come from the most common sources of contaminants, which include agricultural runoff, air deposition, water diversions and channelization of streams.

Water pollution isn't just a problem for the United States. According to the United Nations, 783 million people do not have access to clean water and around 2.5 billion do not have access to adequate sanitation. Adequate sanitation helps to keep sewage and other contaminants from entering the water supply.

According to National Oceanic and Atmospheric Administration (NOAA), 80 percent of the pollution in marine environments comes from the land through sources such as runoff. Water pollution can severely affect marine life.

Warming water can also be harmful. The artificial warming of water is called thermal pollution. It can happen when a factory or power plant that is using water to cool its operations ends up discharging hot water. This makes the water hold less oxygen, which can kill fish and wildlife. The sudden change of temperature in the body of water can also kill fish. According to the University of Georgia, it is estimated that around half of the water withdrawn from water systems in the United States each year is used for cooling electric power plants.

Nutrient pollution, also called eutrophication, is another type of water pollution. It is when nutrients, such as nitrogen, are added into bodies of water. The nutrient works like fertilizer and makes algae grow at excessive rates, according to NOAA. The algae blocks light from other plants. The plants die and their decomposition leads to less oxygen in the water. Less oxygen in the water kills aquatic animals.

Air pollution

The air we breathe has a very exact chemical composition; 99 percent of it is made up of nitrogen, oxygen, water vapor and inert gases. Air pollution occurs when things that aren't normally there are added to the air. A common type of air pollution happens when people release particles into the air from burning fuels. This pollution looks like soot, containing millions of tiny particles, floating in the air.

Another common type of air pollution is dangerous gases, such as sulfur dioxide, carbon monoxide, nitrogen oxides and chemical vapors. These can take part in further chemical reactions once they are in the atmosphere, creating acid rain and smog. Other sources of air pollution can come from within buildings, such as secondhand smoke.

Finally, air pollution can take the form of greenhouse gases, such as carbon dioxide or sulfur dioxide, which are warming the planet through the greenhouse effect. According to the EPA, the greenhouse effect is when gases absorb the infrared radiation that is released from the Earth, preventing the heat from escaping. This is a natural process that keeps our atmosphere warm. If too many gasses are introduced into the atmosphere, though, more heat is trapped and this can make the planet artificially warm, according to Columbia University.

Air pollution kills more than 2 million people each year, according to a study published in the journal Environmental Research Letters. The effects of air pollution on human health can vary widely depending on the pollutant, according to Hugh Sealy, professor and director of the environmental and occupational health track at the Department of Public Health and Preventive Medicine, St. George's University, St. George's, Grenada. If the pollutant is highly toxic the effects on health can be widespread and severe. For example, the release of methyl isocyanate gas at Union Carbide plant in Bhopal in 1984 killed over 2,000 people, and over 200,000 suffered respiratory problems. An irritant (e.g. particulates less than 10 micrometers) may cause respiratory illnesses, cardiovascular disease and increases in asthma. "The very young, the old and those with vulnerable immune systems are most at risk from

air pollution. The air pollutant may be carcinogenic (e.g. some volatile organic compounds) or biologically active (e.g. some viruses) or radioactive (e.g. radon). Other air pollutants like carbon dioxide have an indirect impact on human health through climate change," Sealy told Live Science.

Noise pollution

Even though humans can't see or smell noise pollution, it still affects the environment. Noise pollution happens when the sound coming from planes, industry or other sources reaches harmful levels. Research has shown direct links between noise and health, including stress-related illnesses, high blood pressure, speech interference and hearing loss. For example, a study by the WHO Noise Environmental Burden on Disease working group found that noise pollution may contribute to hundreds of thousands of deaths per year by increasing the rates of coronary heart disease. Under the Clean Air Act, the EPA can regulate machine and plane noise.

Underwater noise pollution coming from ships has been shown to upset whales' navigation systems and kill other species that depend on the natural underwater world. Noise also makes wild species communicate louder, which can shorten their lifespan.

Light pollution

Most people can't imagine living without the modern convenience of electric lights. For the natural world, though, lights have changed the way that days and nights work. Some consequences of light pollution are:

a. Some birds sing at unnatural hours in the presence of artificial light.
b. Scientists have determined that long artificial days can affect migration schedules, as they allow for longer feeding times.
c. Streetlights can confuse newly hatched sea turtles that rely on starlight reflecting off the waves to guide them from the beach to the ocean. They often head in the wrong direction.
d. Light pollution, called sky glow, also makes it difficult for astronomers, both professional and amateur, to properly see the stars.
e. Plant's flowering and developmental patterns can be entirely disrupted by artificial light.
f. According to a study by the American Geophysical Union, light pollution could also be making smog worse by destroying nitrate radicals that helps the dispersion of smog.

Turning on so many lights may not be necessary. Research published by International Journal of Science and Research estimates that over-illumination wastes about 2 million barrels of oil per day and lighting is responsible for one-fourth of all energy consumption worldwide.

Other pollution facts:

a. Americans generate 30 billion foam cups, 220 million tires, and 1.8 billion disposable diapers every year, according to the Green Schools Alliance.
b. According to the WHO, ambient air pollution contributes to 6.7 percent of all deaths worldwide.
c. The Mississippi River drains the land of nearly 40 percent of the continental United Sates. It also carries an estimated 1.5 million metric tons of nitrogen pollution into the Gulf of Mexico each year, resulting in a dead zone each summer about the size of New Jersey.
d. Pollution in China can change weather patterns in the United States. It takes just five days for the jet stream to carry heavy air pollution from China to the United States, where it stops clouds from producing rain and snow.
e. About 7 million premature deaths annually are linked to air pollution, according to WHO. That is one in eight deaths worldwide.
f. About 56 percent of the trash in the United States is put in landfills. Half of landfill space consists of paper. Recycling just 1 ton (907.18 kg) of paper can save 3 cubic feet (0.08 cubic meter) of space, according to the EPA.

Benefits of clean air, clean environment, trees

Clean Air is critical for easy comfortable breathing for human beings. Clean air benefits the body as sufficient oxygen is able to enter the lungs and allow the exchange of Oxygen into the air sacs and for Carbon Dioxide to be released from the air sacs.

Clean Air is necessary for successfully achieving all the vital body functions including: breathing, nutrition, growth, reproduction, irritability and excretion.

Clean Environment is needed to allow the trees, plants and all organisms to receive the right amount of air from the atmosphere and the space needed to grow.

Trees play a significant role in the continuity of life as it absorbs the Carbon Dioxide from the atmosphere and releases Oxygen for all other animals to intake.

Congress established much of the basic structure of the **Clean Air Act** in 1970, and made major revisions in 1977 and 1990. Dense, visible smog in many of the nation's cities and industrial centers helped to prompt passage of the 1970 legislation at the height of the national environmental movement. The subsequent revisions were designed to improve its effectiveness and to target newly recognized air pollution problems such as acid rain and damage to the stratospheric ozone layer.

This page provides a brief introduction to the Clean Air Act, links to more detailed information on the law's requirements, and links to information on its history.

Control of common pollutants

To protect public health and welfare nationwide, the Clean Air Act requires EPA to establish national ambient air quality standards for certain common and widespread pollutants based on the latest science. EPA has set air quality standards for six common "criteria pollutants": particulate matter (also known as particle pollution), ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead.

States are required to adopt enforceable plans to achieve and maintain air quality meeting the air quality standards. State plans also must control emissions that drift across state lines and harm air quality in downwind states.

Other key provisions are designed to minimize pollution increases from growing numbers of motor vehicles, and from new or expanded industrial plants. The law calls for new stationary sources (e.g., power plants and factories) to use the best available technology, and allows less stringent standards for existing sources.

Other air pollution problems targeted by Congress

The Act also contains specific provisions to address:

1. •Hazardous or toxic air pollutants that pose health risks such as cancer or environmental threats such as bioaccumulation of heavy metals
2. •Acid rain that damages aquatic life, forests and property
3. •Chemical emissions that deplete the stratospheric ozone layer, which protects us from skin cancer and eye damage
4. •Regional haze that impairs visibility in national parks and other recreational areas

Pollution problems emerging after enactment

In addition to creating programs to solve identified pollution problems, Congress drafted the Act with general authorities that can be used to address pollution problems that emerge over time, such as greenhouse gases that cause climate change.

Sorting and disposal of household waste

Rubbish must be sorted at source in order for it to be recycled. Some types of rubbish are collected at your house. But you can also dispose of it at collection points and container parks. Companies maintain contacts with specialised, regional government institutions to manage their commercial and industrial waste.

Sorting rubbish Recycling materials and items

The following categories of rubbish can be sorted:

1. **•Glass**: empty bottles and jars without cap or lid. In most municipalities, clear glass and coloured glass must be separated. New glass containers are made

from the recycled glass. Warning: ceramics, tempered glass, pyrex or fireproof glass, mirrors, window panes and lightbulbs must not be included in the glass waste, but disposed of with bulky waste at the container park.

2. •**Paper and cardboard: newspapers, magazines, boxes** and similar must be sufficiently clean to be recycled. Warning: paper tissues, kitchen roll, stickers, juice boxes, carbon paper and wallpaper, dirty or grease paper and cellophane paper are not recyclable as paper and should be kept separately and disposed of in the regulation bag for non-sorted waste.

3. •**PMD waste: packaging made of Plastic or Metal and Drink** cartons are used for recycling purposes to make new packaging, textile fibres, etc. Warning: butter wrappers, plastic pots (eg. yoghurt pots), packaging for hazardous and poisonous products, plastic bags and aluminium foil must not be included with the PMD waste. Put these in the regulation bag for non-sorted rubbish.

4. •**GFT and organic waste: Greens (vegetables), Fruit and Tuinafval (garden waste**), trimmings, grass and leaves are compostable. This waste can be collected at your home. It is also easy to compost it yourself or to take it to the container park. Warning: timber used for construction, charcoal and mussel shells are not suitable for composting.

Small hazardous waste or small chemical waste: syringes, fluorescent lamps, detergents, cosmetics, paint and varnish, used oil, pesticides and similar are harmful to the health and the environment. They need to be collected separately.

Batteries should be deposited in the many BEBAT collection boxes in supermarkets, petrol stations, etc. Car batteries can be brought to the container park or to your garage mechanic (In Brussels).

• You can bring old and **expired medications** to your local chemist.

•B**uilding waste and rubble s**hould be brought to the container park.
Be careful when disposing of waste containing asbestos. Asbestos cement should also be disposed of separately in the container park. The container for building waste and rubble must not be contaminated with asbestos cement.

•**Reusable textiles: clothing, Shoes, bed linen** and similar are picked up at your home or collected at the container park, in textile containers or kringloopcentra.

•**Discarded electrical and electronic appliances:** refrigerators, televisions, computers, washing machines and similar can be handed in for free at the container park.

Location of wells and septic tanks, protection of the water table and wells

Becoming an Environmental Steward.

Environment and citizenship

The protection and amelioration of the environment is in everyone's interest. For this reason, the 'Aarhus Convention' offers the public and the associations representing it the right to be involved in environmental matters.
The convention is built on three pillars:

1. •access to information
2. •public involvement in decision-making
3. •access to justice

Moreover, the convention specifically deals with two major issues involving transparency:

1. •the GMO issue (genetically modified organisms)
2. •information on pollutant release and transfer

The **Environmental Stewards (ES)** Program is a program of **Conservation Legacy** (previously Southwest Conservation Corps).

Environmental Stewards offers land and water management agencies and non-profit organizations opportunities to accomplish specific projects and provides individual placements for young people “Stewards” interested in gaining experience in natural and cultural resource management.

With support from ES Program staff, Stewards are placed with state and federal programs and non-profits (host sites) in 10-week to year-long positions through-out the United States. Please view the following pages if you are either interested in partnering with Conservation Legacy to become a host site, or if you are interested in becoming a Steward.

The Environmental Stewards program started in 2010 and in the last three years has placed 226 Stewards in 26 states and the Commonwealth of Puerto Rico. Stewards participate in a variety activities working alongside non-profits and state and federal agencies to make a difference in their communities.

Section One Cells

1. Which of these body cells produce antibodies?
   A) Ovum cells B) Red blood cells C) Sperm cells D) White blood cells

2. Which of these body cells are usually produced by bone marrow?
   A) Egg cells and sperm cells
   B) Muscles cells and nerve cells
   C) Red blood cells and white blood cells
   D) Skin cells and hair cells

3. The diagram below shows the level of organization of the human body, form the simplest to the most complex.

Cells → P → Q → system

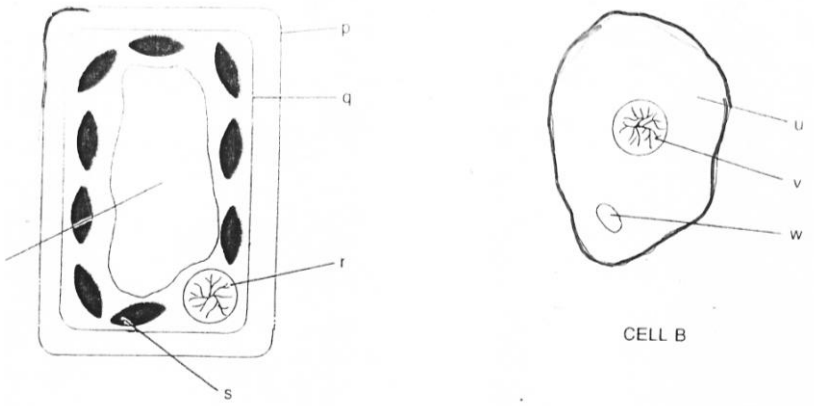
What do letters **P** and **Q** represent?
A) P is an atom and Q is a tissue B) P is an organ and Q is a tissue
C) P is a tissue and Q is an organ D) P is a tissue and Q is a molecule

4. The diagram represents a typical animal cell. Which part of the cell is selectively permeable?

5. The diagram below shows two different kinds of human cells.
   Which statement below describes the relationship between these two cells?

A) P may cause Q to contract B) P is produced by Q
C) P transports oxygen to Q D) P is used to repair Q

6. The diagrams below represent the structure of a typical animal and plant cell. Study the diagrams carefully and answer the questions which follow.
   Label both cells



Cell A

(a) Which three structures are common to both cells?

(b) State two differences between cell A and cell B.

(i)

(ii)

(C) Plant cells contain chlorophyll. During which process is the chlorophyll used?

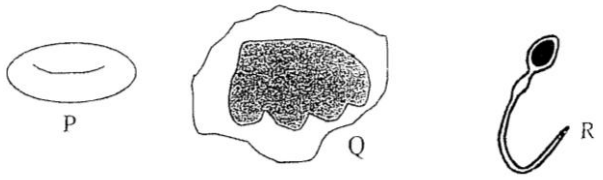
(D) What is the function of structure R and P?

R

P

1. Which of these statements about cells is true?
   A) All of the cells in the human body have a nucleus.
   B) All of the cells in the human body have a cell membrane.
   C) All of the cells in the human body have a cell wall.
   D) All of the cells in the human body have hemoglobin.

2. The diagrams below show some specialized cells in the human body.



P Q R

3. Which row in the table below gives the correct functions for all three of the cells?

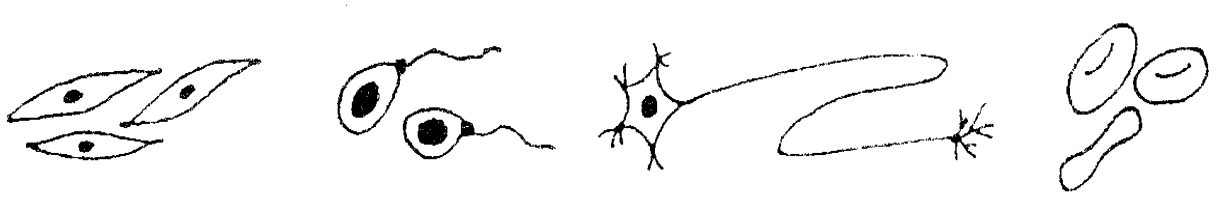
	Cell P	Cell Q	Cell R
A	Absorbs oxygen	Fertilizes and ovum	Kills germs
B	Kills germs	Absorbs oxygen	Fertilizes and ovum
C	Fertilizes and ovum	Absorbs oxygen	Kills germs
D	Absorbs oxygen	Kills germs	Fertilizes and ovum

4. Which of these body cells transmit impulses throughout the body?
   A) Egg and sperm cells
   B) Motor and sensory nerve cells
   C) Skeletal and smooth muscle cells
   D) White blood cells and red blood cells

5. Which of these diagrams show the correct order of the levels of organization of the human body?

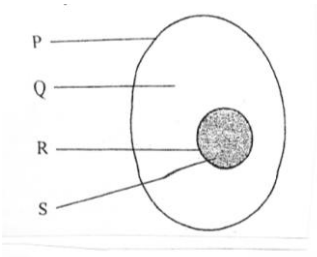
A) Cells→organs→tissues→systems
B) Cells→tissues→systems→organs
C) Cells→tissues→organs→systems
D) Cells→systems→organs→tissues

6. Which cells shown below contain the chemical called hemoglobin?

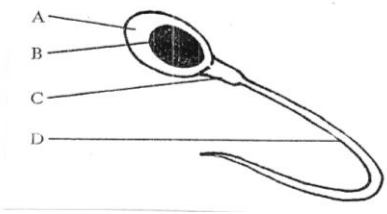


A B C D

7. This diagram represents a simple animal cell. Which lines point to membranes?
   A) P and Q B) P and R C) Q and S D) Q and R



8. Which of these body cells transmit impulses throughout the body?
   A) Eggs cells and sperm cells
   B) Muscle cells
   C) Nerve cells
   D) Sperm cells



9. In this diagram of a human sperm cell, which letter points to the part where an X chromosome would be found?
10. Gametes are specialized cells produced by
    A) Bone marrow B) Lymph glands
    C) Nerve tissue D) Reproductive organs

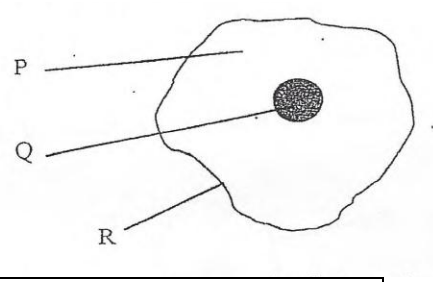
11. The diagram below shows the levels of organization of the human body, from the simplest to most complex.

Cells→ [P] →organs→ [Q]

What do letter P and Q represent?

A) P is molecule, Q is system
B) P is system, Q is tissue
C) P id system, Q is system
D) P is tissue, Q is molecule

12. The diagram below represents a human check cell.



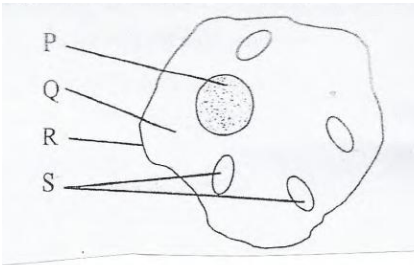
Which row in the table below correctly names the three parts of the check cell?

	P	Q	R
A	Cytoplasm	Cell membrane	nucleus
B	Cell membrane	Cytoplasm	nucleus
C	cytoplasm	Nucleus	Cell membrane
D	nucleus	Cell membrane	Cytoplasm

13. The diagram shows a simple human cell.

Which letter points to the part where chromosomes, genes and DNA would be found?

14. All the cells of your body produce energy to work and live. Which body systems are most necessary for your cells to get the materials to make energy?

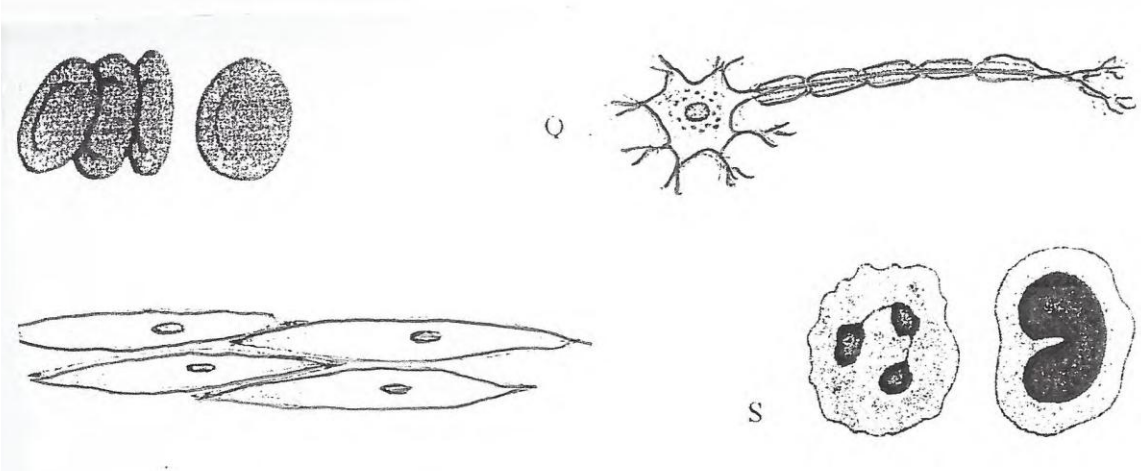


A) Digestive system
B) Digestive and respiratory system
C) Digestive, respiratory and circulatory systems
D) Digestive, respiratory, circulatory and skeletal systems

15. Which of these body cells do not normally have a nucleus?

A) Ovum cells B) Red blood cells C) Sperm cells D) White blood cells

16. A) Name the **four** cells in the diagram.



P_____ Q_____

R_____ S_____

B) (i) What is the function of the cells shown in P?

_____

_____

(ii) State **two** ways that these cells are suited for their function.

(1)_____

_____

(2)_____

_____[3]

(C) What is a tissue?

_____

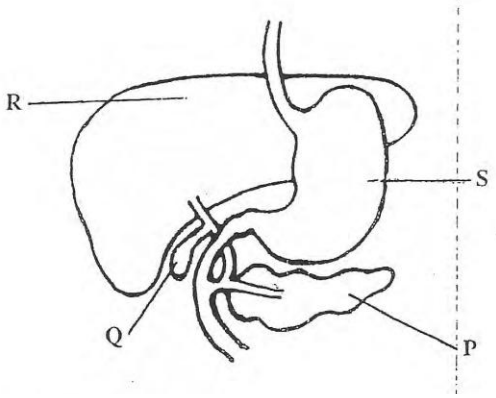
_____[1]

(D) Cells P and S belong to the same body system. Which system do cells P and S both belong to?

_____

_____[1]

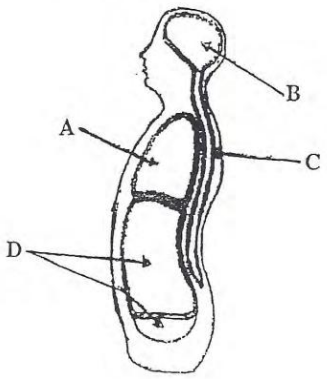
1. The diagram below show organs found in the human body. Use this diagram to answer questions33 and 34.



2. What is the name of the organ labeled Q?
   A) Gall bladder
   B) Intestine
   C) Liver
   D) Stomach

3. Which organ controls the amount of glucose (sugar) in the blood?
   A) P B) Q C) R D) S

4. Using the diagram below to answer the following questions.
   Which body cavity is labeled A?
   A) Abdominal
   B) Cranial
   C) Nasal
   D) Thoracic

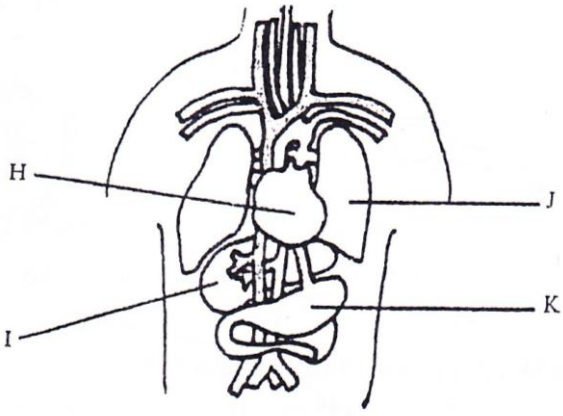


5. Label the two human body systems below. Name a function they have in common._____

Complete the table by filling in the blank spaces with the name of the system and the function for the organs W and Z.

organ	System	Function of system
W		
Z		

6. The diagram represents organs from several body systems.



(A) Name the body system to which the organs labeled H,I,J and K belong.

H _____

I _____

J _____

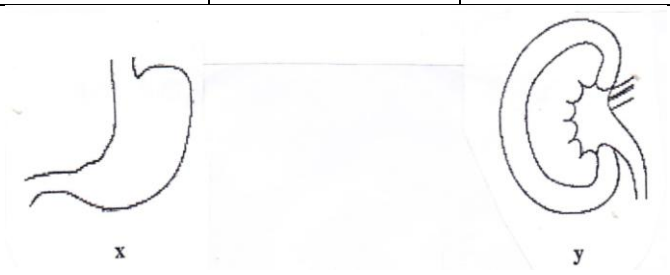
K _____

(B) (i) Name the system which transports different substances throughout the human body.

[1]

(C) Complete the chart to show the human body is organized.

	Tissues			Human Organism



(i) Name the organs labeled X and Y and give their systems they belong to.

X _____

Y _____

40. The diagram below represents the position of the cavities in the human body.

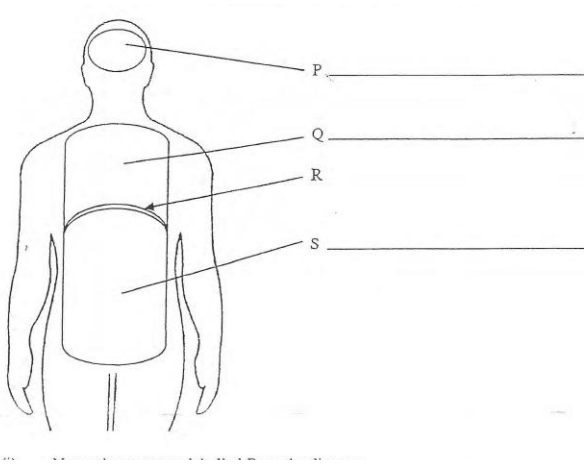
(A) Write the names of the cavities, labeled P,Q and S on the lines below.

(b) (i) Name the structures labeled R on the diagram.

_____

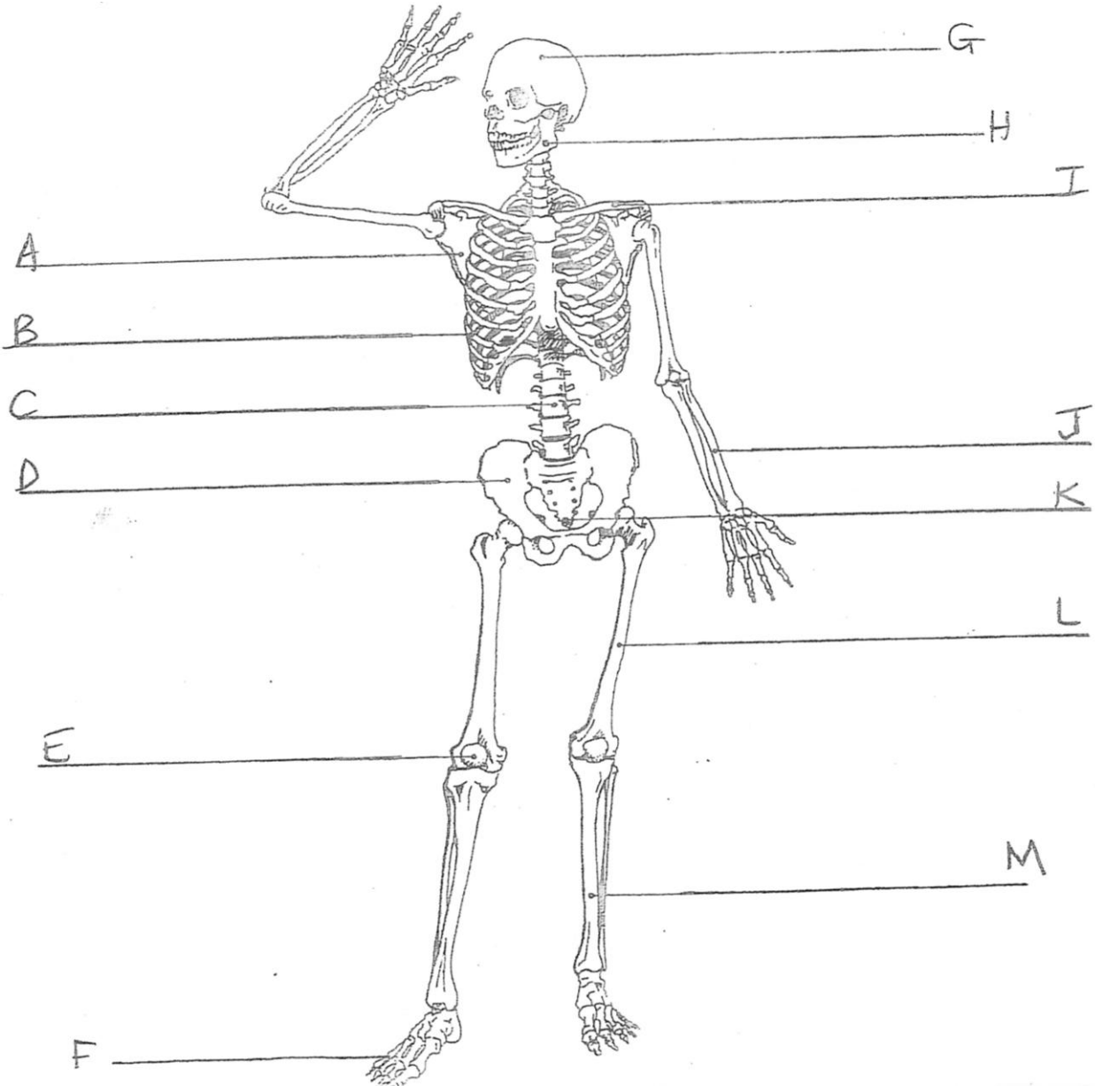
(ii) What kind of tissue is structure R made of?

_____



The Skeletal System

1. Label your body's framework with the common name of each bone.

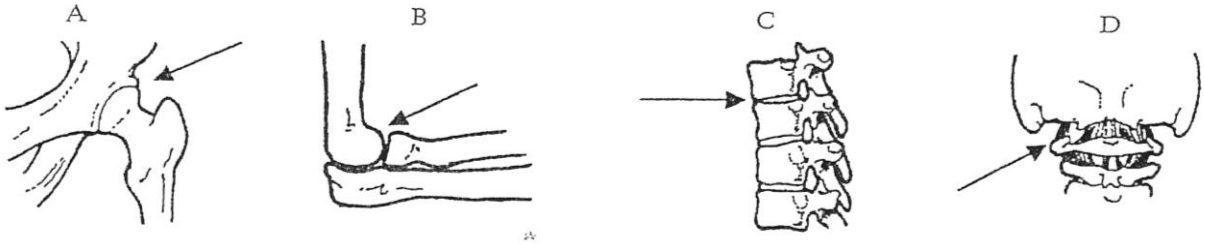


2. In the drawing of the hand, what would be the total number of the metacarpal bones?

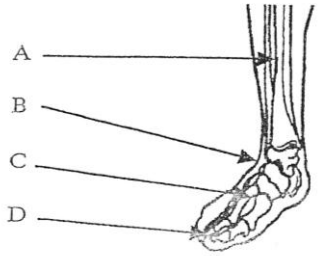
A) 3
B) 5
C) 10
D) 14

3. What bone in the human skeleton has a ball- and- socket joint at the end and a hinge joint at the other end of it?
   A) The clavicle
   B) The femur
   C) The sternum
   D) The tibia

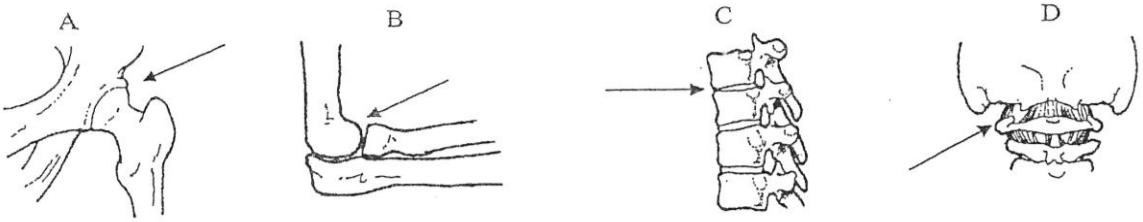
4. In which one of these diagrams is the arrow pointing to a gliding joint?



5. The diagram below shows bones found in the human foot. Which letter points to the metatarsals?



6. In which one of these diagrams is the arrow pointing to a ball-and-socket joint?



7. Michael was exercising and he sprained his ankle. Which structures in his ankle did he injure?
   A) Bones B) Ligaments C) Muscles D) Tendons

8. The humerus, ulna and radius are all bones of the human skeleton. In what part of the body are these bones found?

Antagonistic Muscles

1. Which two systems work together to make the body move?

2. List four main superficial muscles of a human and state where they are found?

3. How many muscles does the human body have? _____

4. Describe the structure and the function of the following:
   i. Tendons: _____
   ii. Ligaments: _____
   ii. Nerve muscles junction: _____

5. What are antagonistic muscles? _____

6. Explain what happens to the triceps and biceps muscles when the arm is bent

Muscles	State or position	shape	kind
i. Triceps			
ii. Biceps			

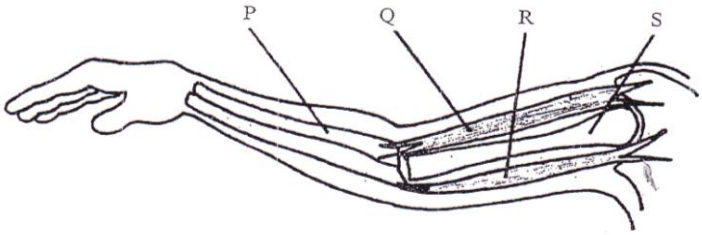
7. What is a joint? _____
   Flexor _____
   Extensor _____

8. List the five types of joints found in the following body parts:
   i. Skull _____
   ii. Neck _____
   iii. Shoulder & thigh _____
   iv. Knee & elbow _____
   v. Backbone _____

9. Describe the function of the following:
   i. Synovial fluid:
   ii. Cartilage:
   iii. Knee cap/patella _____

10. What kind of muscle is found in the lining of the esophagus?

A) Antagonistic, intercostals muscles
B) Cardiac, sphincter muscles
C) Involuntary, smooth muscles
D) Voluntary, skeletal muscles



11. What letters on the diagram point to the bones?

A) Letters P and Q B) Letters Q and R
C) Letters R and S D) Letters S and P

12. What labeled structure has a hinge joint at one end of it and a ball-and-socket joint at the other end of it?

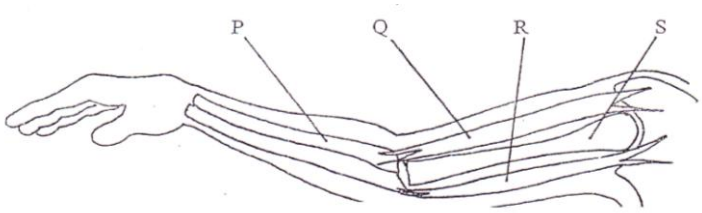
A) Structure P B) Structure Q C) Structure R D) Structure S

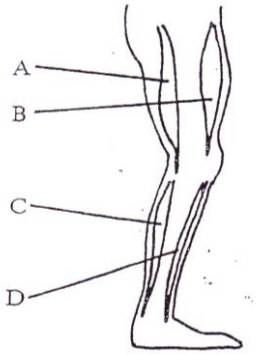
13. Which row in the table below correctly explains what must happen if the arm is bent at the elbow?

A	P must stretch	S must shorten
B	Q must contract	R must relax
C	P must contract	S must relax
D	Q must stretch	R must shorten

14. Which lines on the diagram of the arm below are pointing to the muscles?

A) Lines P and Q B) Lines Q and R
C) Lines R and S D) Lines S and P





15. Which muscle in this diagram will bend the leg when it contracts?

16. Which of the following is attached to the bones by tendons?

A) Cartilage B) Ligament C) Muscle D) Skin

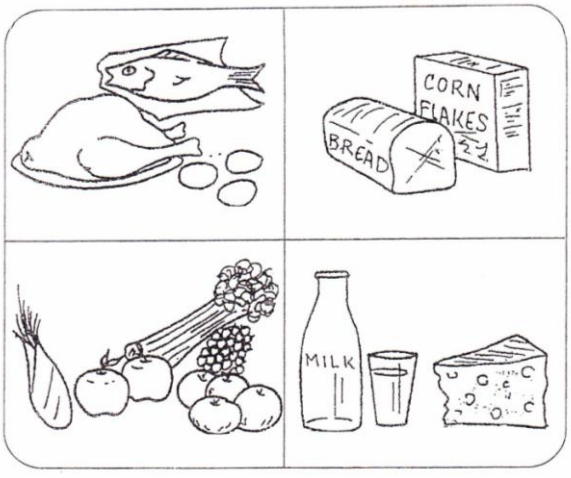
Food and Nutrition

Instructions: Fill in the blanks with the correct answers

1. The lack of a certain vitamin may lead to a _____ disease.
2. A _____ diet supplies the body with the proper amount of the right foods.
3. Food is measured in energy values called_____.
4. There are_____ basic food groups.
5. All living things need_____ for survival.
6. _____ is also called the "sunshine vitamin".
7. A lack id vitamin A causes_____.
8. Milk is a good source of what minerals?_____.
9. What is our primary source of sodium?_____
10. Why does the body need vitamin E?_____ _____
11. Name (4) four foods rich in vitamin C._____
12. Why are carbohydrates (sugars and starches) needed by the body?_____ _____
13. List three (3) simple eating habbits._____ _____
14. Approximately 70% of a person's body weight is made up of water. If a boy weighs 50 kilograms, what would be the approximate weight of the water in his body?

A) 20 kilograms
B) 35 kilograms
C) 42 kilograms
D) 50 kilograms

15. The chart shows the main food groups. Use this chart to help you answer the questions that follow.



(a) Name three food groups.
(i) _____
(ii) _____
(iii) _____

(b) Identify the food groups which provide the body with this vitamin and this mineral.
(i) Vitamin C _____
(ii) Iodine _____

(c) (i) Name the food group that will provide vegetarian's diet with the nutrient protein?

_____

(ii) Explain how the body uses the nutrient protein.

_____

_____

(d) Which food group should a pregnant woman eat to ensure that her baby is born with strong health bones?

_____

(e) Name TWO other food nutrients.

_____

Short answers
177. What are vitamins? _____
178. What causes a deficiency disease? _____
179. What is the best way to obtain vitamins? _____
180. Years ago, sailors who made long sea voyages often suffered from diseases from a disease called scurvy. Doctors discovered that sailors did not get scurvy if they had lime juice, lemon juice or orange juice to drink. What vitamin can prevent scurvy?
181. People who live where they do not get enough sunshine need to eat enough food that contains a special vitamin. What is this vitamin? _____

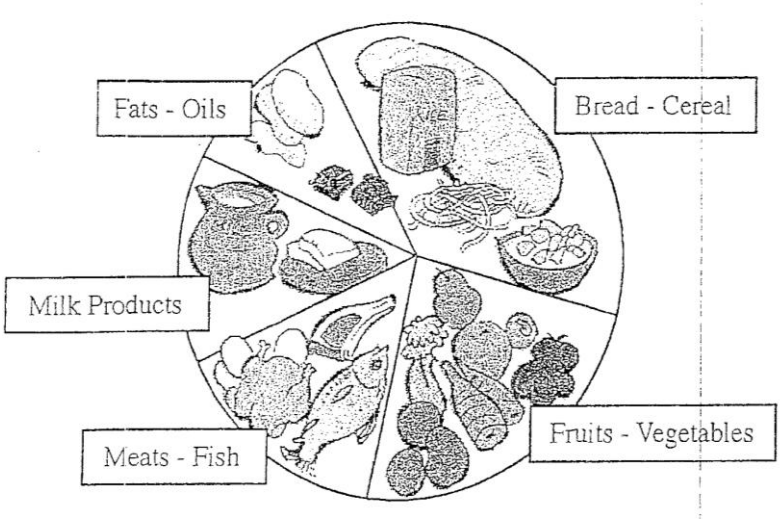
_____

182. What vitamin promotes good vision? _____

183. What vitamin is necessary for the use of starches and sugars by the body?

_____

216. This diagram shows the main food groups.



(a) Define the term "balanced diet".

_____

(b) Which food group would be the best source for:
(i) Carbohydrates _____
(ii) Proteins _____
(iii) Vitamins _____

(c) Anemia is a deficiency disease cause by a lack of a specific nutrient in a person's diet. Name the nutrient that is lacking and give one common symptom of anemia.

(i) Nutrient that is lacking _____
(ii) Common symptom _____

(d) This table gives the energy value for some common foods.

Food	Energy (KJ per 100 g)
Milk	268
Cabbage	64
Sausage	1225
Chicken	540

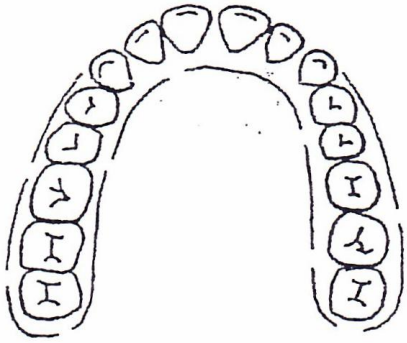
How much energy is in:
(i) 50 g of milk _____
(ii) 200 g of sausage _____
(iii) 150 g of cabbage _____

217. Which row in the table below gives the correct information about the elements found in the four nutrients? The ✓ indicates that the element is found in the nutrient.

	Nutrient	Carbon	Hydrogen	Oxygen	Nitrogen
A	Carbohydrate	✓	✓		✓
B	Protein		✓	✓	✓
C	Fat	✓	✓	✓	
D	Water		✓		✓

The Teeth

255. This diagram shows the arrangement of permanent teeth in the upper jaw.



(a) On the diagram, label one incisor tooth, one canine tooth, one premolar tooth and one molar tooth.

(b) What are two important functions of the teeth?

(i) _____

_____

(ii) _____

_____

(c) Two minerals in our diet are essential for strong, healthy teeth.
Name one of these minerals. _____

(d) This table gives information about the human, permanent set of teeth. Fill in the missing parts if the table.

Type of tooth	Number in upper jaw	Number in lower jaw
Incisor	4	4
	2	2
	4	4
Molar	6	6

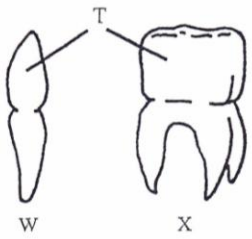
(e) Why is it recommended that people go to a dentist for regular dental examinations?

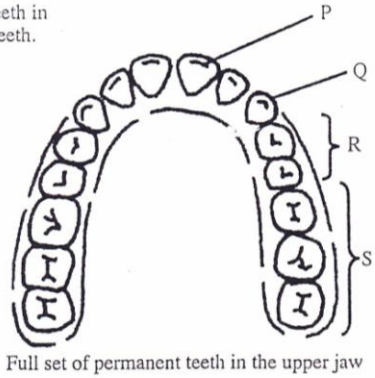
_____

_____

256. This diagram shows the full set of permanent teeth in the human upper jaw, along with two types of teeth.

This diagram shows the full set of permanent teeth in the human upper jaw, along with two types of teeth.



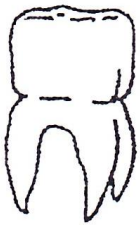


Full set of permanent teeth in the upper jaw

(a) (i) Name two types of teeth shown
Tooth W _____
Tooth X_____

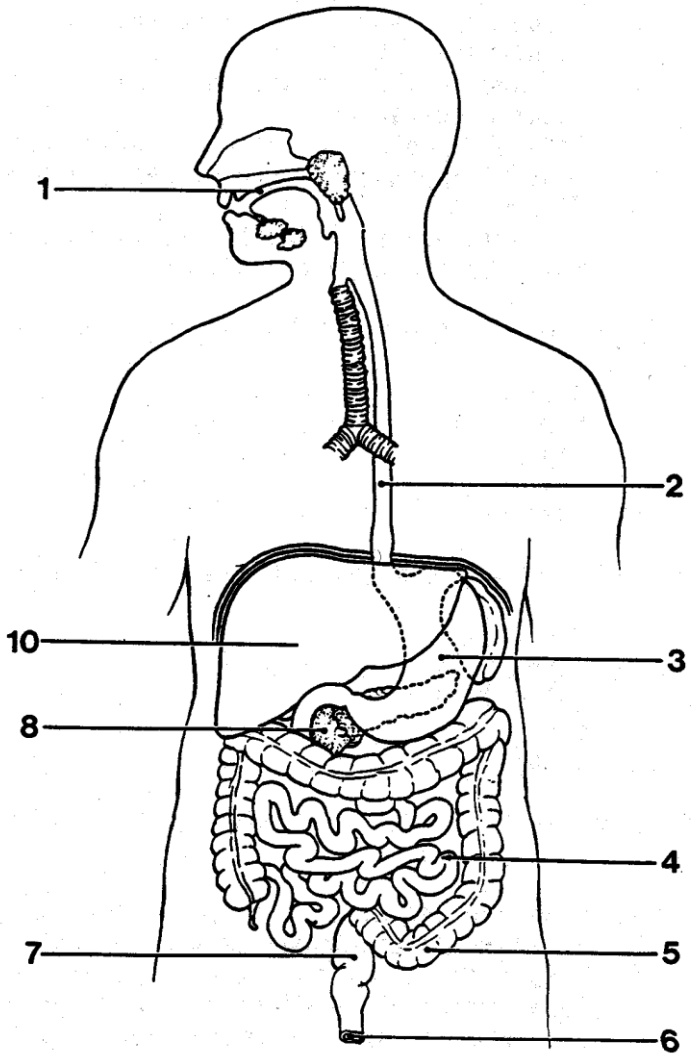
(ii) The upper part of these teeth (T) is covered with hard, white mineral.
What is this called? _____

283. Complete the table below in the types of human teeth.

Name of tooth	Diagram of shape of tooth	Total number in milk set	Total number in permanent set	Main function
Incisor				
Canine				
Premolar				
Molar				

The Digestive System and Enzymes

1. The diagram below shows the human digestive system. (a) Label the diagram



(b) Define, ingestion, digestion, absorption and assimilation and egestion.

PROCESS	DESCRIPTION
Ingestion	
Digestion	
Absorption	
Assimilation	
Egestion	

Enzymes

Worksheet

What are enzymes? _____

Why are enzymes said to be biological catalysts?

_____

Why can one enzyme catalyze many reactions?

_____

What is a substrate? _____

Where are enzymes made? _____

Explain the lock and key hypothesis.

_____

State what the active site is.

_____

List two properties of enzymes

_____

_____

_____

Why are enzymes specific in their functions?

_____

_____

Give an example of an enzyme and its rule.

_____

_____

Why are enzymes important?

_____

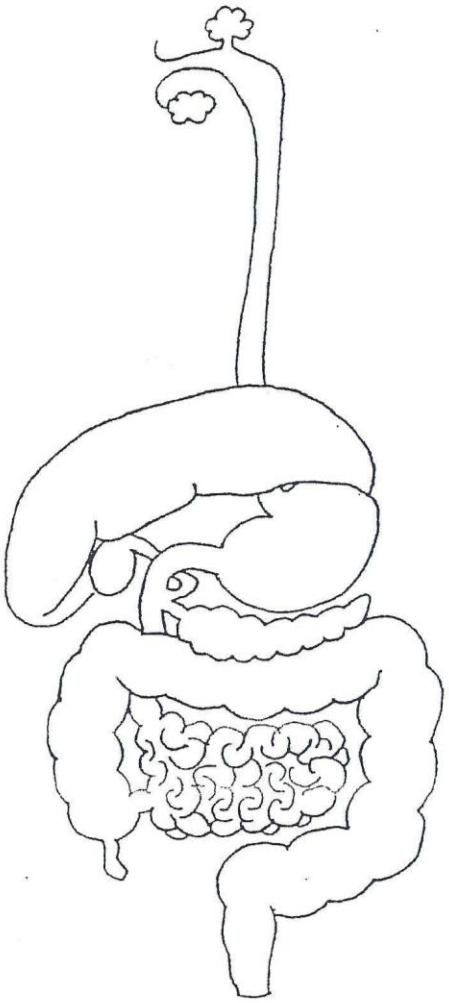
_____

How are enzymes useful in industries?

_____

_____

This diagram represents the human digestive system.



(a) On the diagram, label the stomach, the liver and the pancreas. [3]

(b) (i) Where does the process of chemical digestion begin?

_____

(ii) Where does the process of chemical digestion end?

_____ [2]

(c) (i) What is the function of bile? (ii) Where is it produced? (iii) Where is it stored before it is used?

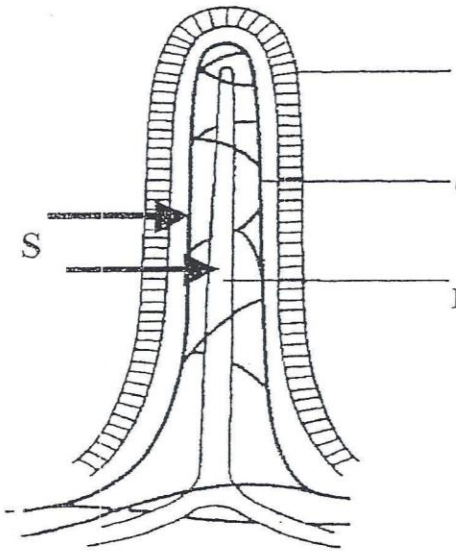
(i) _____

(ii) _____

(iii) _____ [3]

(d) (i) Name one digestive enzyme and (ii) describe what it does (i.e. what food it acts upon and what it changes that food to).

This diagram shows a structure that is found in the human alimentary canal.



(a) What is the name of this structure? _____ [1]

(b) In what part of the alimentary canal is this structure found? _____ [1]

(c) Write the names of the parts of the diagram labelled P, Q and R on the lines above. [3]

(c) The parts of the diagram labelled Q and R contain different fluids. Name the fluid that is found in:

(i) Q _____

(ii) R _____ [2]

(d) Name two substances that are absorbed by the fluid in Q from the area labelled S on the diagram.

(i) _____

(ii) _____ [2]

(e) Name one substance that is absorbed by the fluid in R from the area labelled S on the diagram.

_____ [1]

TOTAL [10]

What organ in the body breaks down excess proteins; it manufactures bile; it stores vitamins a glycogen?

A the kidney

B the liver

C the pancreas

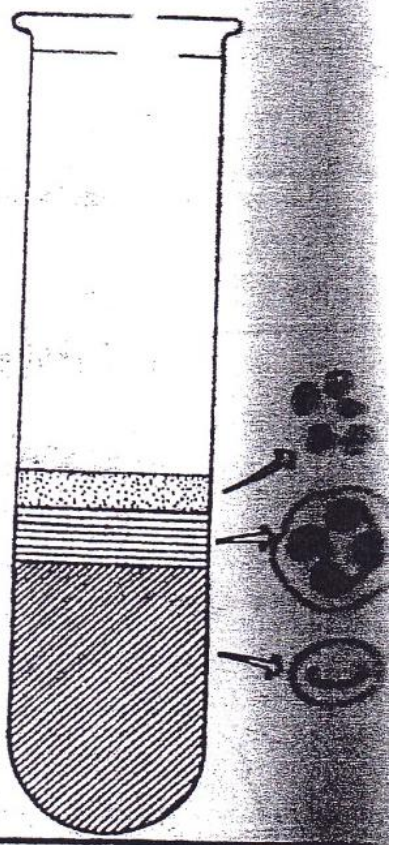
D the skin

108

The Blood

Label the following parts on the diagram at the right.

a. white blood cell
b. red blood cell
c. platelet



Answer the questions below.

1. What is the role of platelets? _____

_____

_____

2. What are sickle cells? _____

_____

_____

3. Why are they important? _____

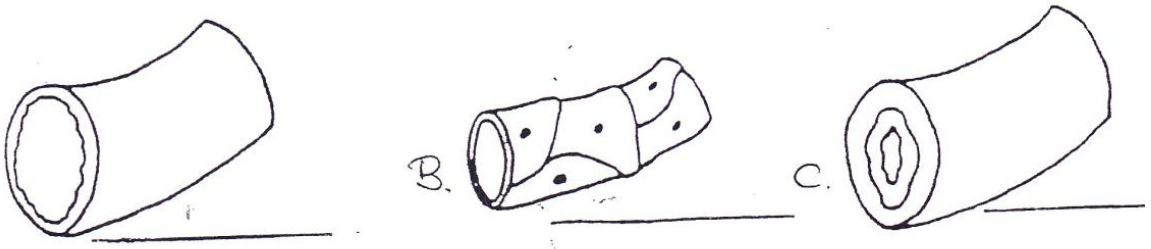
_____

_____

Match the description in the left column with the correct term in the right column.

a. iron-containing molecule in red blood cells	_____	plasma
b. white blood cells which produce antibodies	_____	platelets
c. liquid part of the blood	_____	lymphocytes
d. returns tissue fluid to the blood	_____	antigens
e. cell fragments involved in clotting	_____	fibrin
f. foreign molecules in the body	_____	hemoglobin
g. cancer of the bone marrow	_____	antibodies
h. condition in which the blood cannot carry sufficient oxygen	_____	anemia
i. strands of protein involved in clotting	_____	leukemia
j. react with antigens and inactivates them	_____	lymphatic system

Label the types of blood vessels



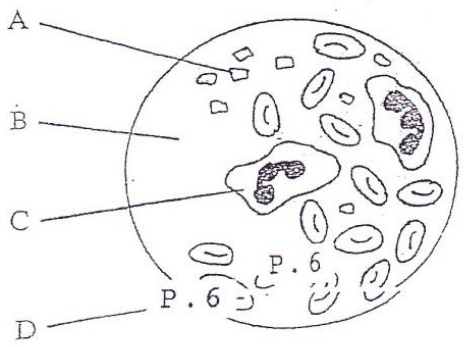
A **Underline the correct answers.**

1. Blood travels in (a. circuits b. vessels).
2. The circulatory system includes (a. three b. ten c. five) main parts.
3. The heart (a. is a muscle b. is a pump c. needs rest).
4. The heart has (a. chambers b. blood vessels c. valves).
5. Capillaries are small (a. blood vessels b. blood cells c. valves).
6. Blood must be carried to the (a. bones b. muscles c. skin).
7. Veins carry blood (a. to the heart b. from the heart).
8. Blood vessels are (a. tubes b. bones c. cartilage).
9. Capillaries are (a. the most numerous vessels b. the largest vessels).

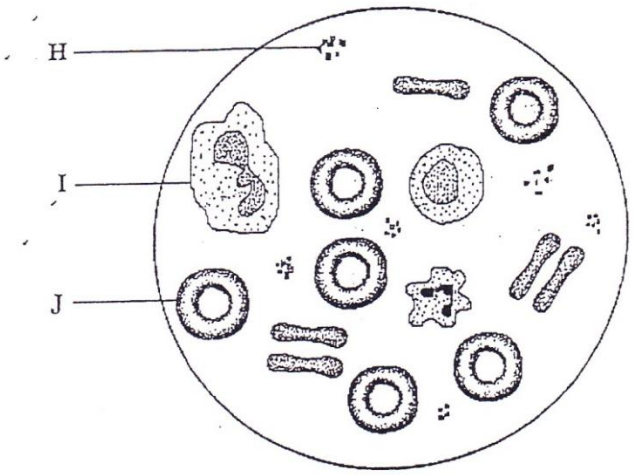
B **True or False**

T 1. The arteries have walls.
___ 2. The heart has four chambers.
___ 3. Valves only let blood out of the heart.
___ 4. The blood that comes back to the heart contains carbon dioxide.
___ 5. The veins carry the blood back to the heart.
___ 6. Some arteries are larger than others.
___ 7. Capillaries have single cell walls.
___ 8. The veins have valves to keep the blood flowing one way.
___ 9. The kidneys filter the blood of wastes.
___ 10. The heart cannot work all the time without pause.
___ 11. The heart is the strongest muscle in the body.

This diagram represents a drop of human blood, seen through a microscope. What part of human blood is able to manufacture antibodies that can kill germs?



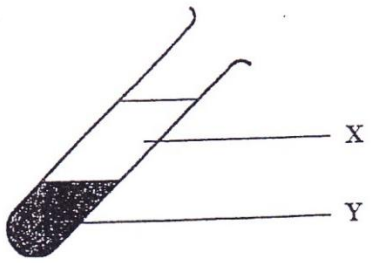
The diagram shows a sample of human blood seen through a microscope.



(a) Name the components **H**, **I** and **J** and give **ONE** function for each. [6]

	name	function
H		
I		
J		

(b) The test tube contains a blood sample that has been separated into its two main parts **X** and **Y**.



(i) Identify part X. _____ [1]

(ii) Briefly explain the difference between X and Y.

_____

_____ [1]

(c) Diabetes is a common disease afflicting many Bahamians.

Name the compound which accumulates in the blood of a person who is diabetic.

_____ [1]

Total marks [10]

Human Circulatory System

Starting from and ending with the right atrium, trace the flow of blood through the heart and body by numbering the following in the correct order.

___ right atrium	___ aorta	___ left ventricle
___ left atrium	___ lungs	___ body cells
___ pulmonary artery	___ right ventricle	___ pulmonary veins
___ vena cava		

Starting from and ending with the heart, trace the blood flow through the human circulatory system by numbering the following in the correct order.

___ heart	___ arterioles	___ arteries
___ veins	___ capillaries	___ venules

What term best fits each of the following descriptions?

1. vessels which carry blood away from the heart _____
2. vessels which carry blood toward the heart _____
3. tiny blood vessels with walls that are only one cell thick _____
4. thick wall that divides the heart into two sides _____
5. upper chambers of the heart that receive blood _____
6. lower chambers of the heart that pump blood out of the heart _____
7. valve between right atrium and right ventricle _____
8. valve between left atrium and left ventricle _____
9. valves found between the ventricles and blood vessels _____
10. membrane around the heart _____
11. the only artery in the body rich in carbon dioxide _____
12. the only vein in the body rich in oxygen _____

(c) Is the pressure higher at P or S? Give a reason for your answer.

Higher pressure at _____

Reason _____

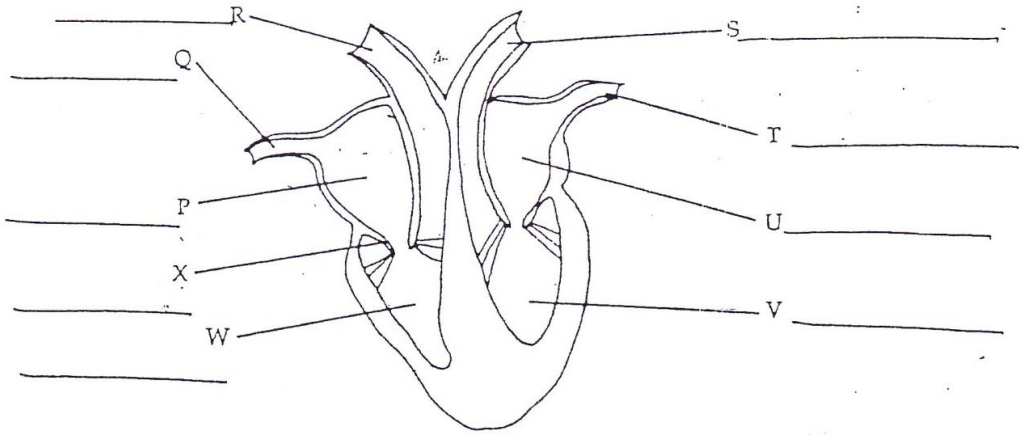
_____ [2]

(d) Explain how one structural feature of a capillary helps the blood to carry out one of its functions.

_____

_____ [2]

3. The diagram represents the human heart, shown in longitudinal section and seen from the front.



(a) Name the parts of the diagram that are labelled with these letters:

(b) Which letters point to the heart chambers that normally contain deoxygenated blood?

_____ [2]

(c) Why is the wall of S thicker than the wall of Q?

_____

_____ [2]

(d) Why is the athlete's heart beat rate lower than a non-athlete's heart beat rate when both are at rest?

_____ [1]

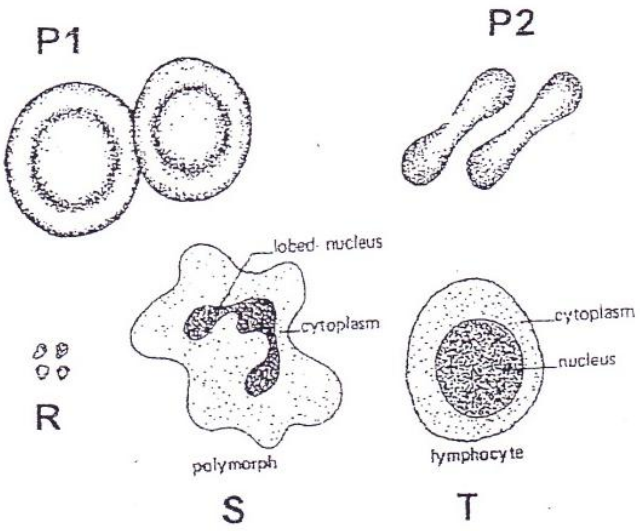
(e) When does the structure labelled X close?

_____ [1]

(f) At rest, the human heart pumps about 5 litres of blood per minute. How many litres of blood are pumped:

(i) in one hour? _____ [1]

A. Look at the diagrams below and match the letters to the description



(a) contains the pigment hemoglobin _____

(b) fragment of a cell not a whole cell _____

(c) helps in the clotting of blood at the site of a wound _____

(d) is a biconcave disc _____

(e) kills bacteria by engulfing them _____

(f) leukemia is type of cancer where this type multiplies greatly _____

(g) most numerous of the cells in the blood _____

(h) phagocyte _____

(i) picks up oxygen from the lungs _____

(j) platelets _____

(k) pus is made up of dead bacteria and this _____

(l) sends antibodies out to kill germs _____

(m) shortage of these cells leads to anemia _____

(n) side view of red blood cells _____

(o) the plasma and this cell picks up carbon dioxide from cells _____

B. Plasma – Fill in the blanks

(i) Plasma is 92%_____

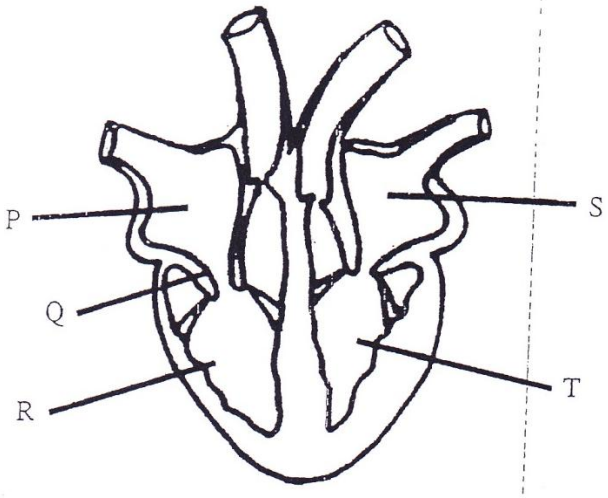
(ii) _____ is a plasma protein that assists in blood clotting.

(iii) Plasma is the liquid part of blood, it is pale_____ in color.

(iv) Substances dissolved in plasma include salts, glucose and _____

(v) _____ is an excretory waste transported by plasma.

The diagram below shows the human heart, cut in half and seen from the front.



(a) Name the parts on the diagram labelled **P** and **T**.

P _____ **T** _____ [2]

(b) What is the function of the part labelled **Q**?

_____

_____ [1]

(c) (i) Where does the blood in **S** come from? _____

(ii) Describe **ONE** way that the blood in **S** is different from the blood in **P**.

_____

_____ [2]

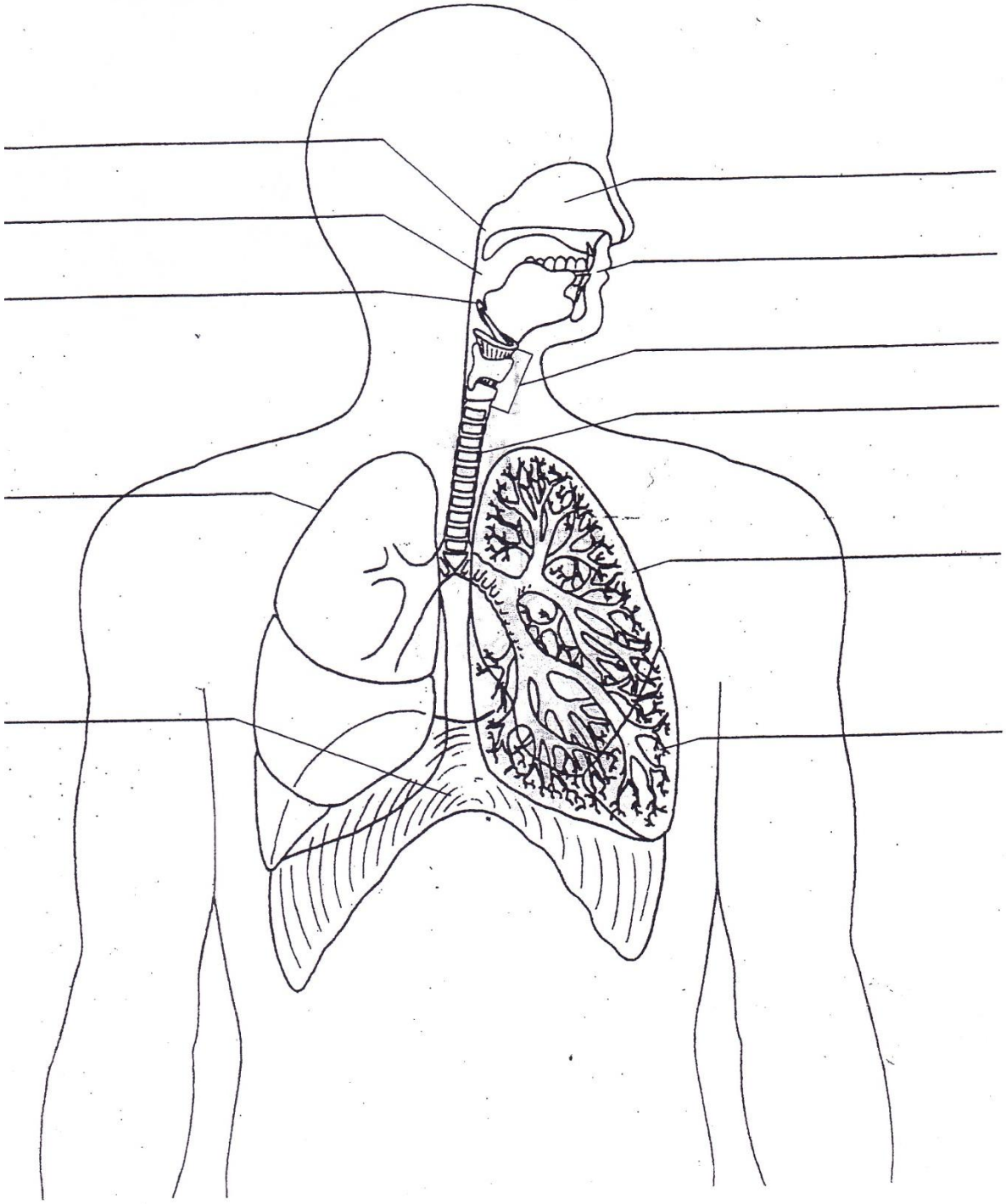
(d) Complete the passage below by writing in the missing words.

The heart is part of the _____ system. It is made of special involuntary, _____ muscle. The heart pumps blood around the body. Blood vessels that carry blood away from the heart, to the body, are called _____. Blood vessels that carry blood from the body, back to the heart, are called _____. [4]

(e) If a person's average heart rate is 68 beats per minute, what would be the average heart rate in one hour? _____ [1]

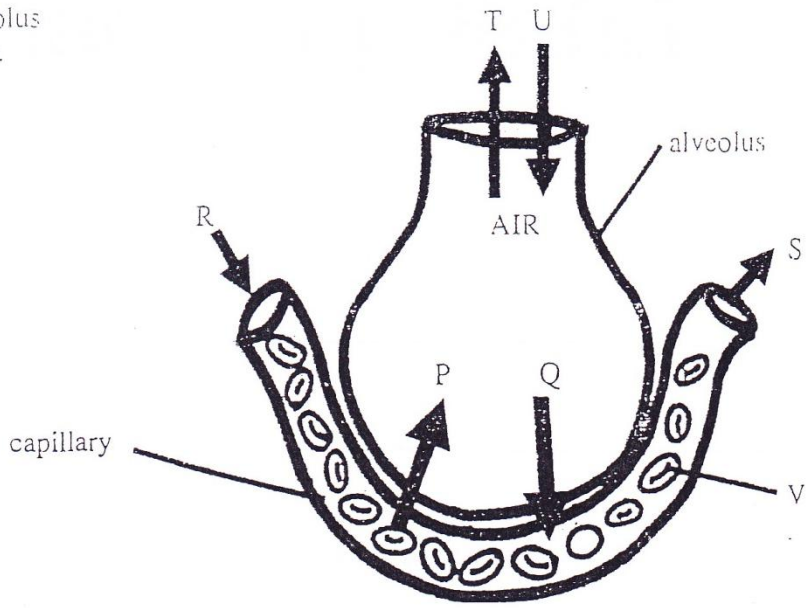
Total marks [10]

Labeling the Respiratory System



P . 47

6. The diagram represents an alveolus surrounded by a blood capillary.



(a) (i) Name the organ(s) in the body where these structures are found. _____

(ii) Describe **ONE** function of the organ(s) named above. _____

_____ [2]

(b) Give the letter on the diagram that represents each of the following:

(i) deoxygenated blood _____

(ii) oxygenated blood _____

(iii) inhaled air _____ [3]

(c) (i) Name the gas represented by letter P. _____

(ii) Name the gas represented by letter Q. _____ [2]

(d) Name the pigment that is contained in the structure labelled V on the diagram.

_____ [1]

(e) The word equation below represents aerobic respiration.

Write the missing words in the two boxes to correctly complete this equation.

GLUCOSE + [ ] ⟶ WATER + [ ] + ENERGY [2]

Total marks [10]

The Respiratory System

Why is respiration important to living organisms?

_____

_____

What cell organelle is responsible for respiration?

_____

Give two differences between aerobic and anaerobic respiration:

1)

_____

2) _____

Which form is more efficient? Explain why?

_____

_____

_____

What waste product does a human cell produce when respiring aerobically? _____

What do muscle cells produce when respiring anaerobically? _____

What is the difference between breathing and respiration?

_____

_____

_____

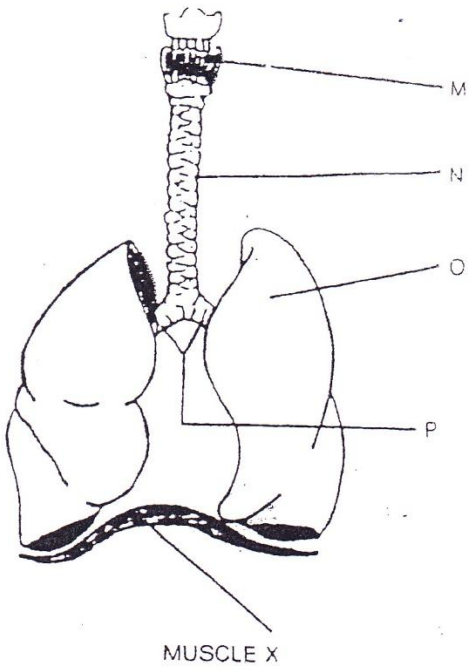
What does the structure of a capillary make easy? _____

Why is having a large amount of alveoli in the lungs beneficial?

_____

_____

3 The drawing at the right represents the major parts of the human respiratory system. Use this drawing to help you answer all of the questions below.



a. Write the names for the parts of the drawing labelled:

M _____

N _____

O _____

P _____

b. What are alveoli and where are they found?

_____

_____

_____

c. The equation below represents the process of respiration in which energy is produced in living cells. Two important materials involved in this process have been left out of the equation.
Write the names of these two important materials into the blank boxes in order to correctly complete the equation.

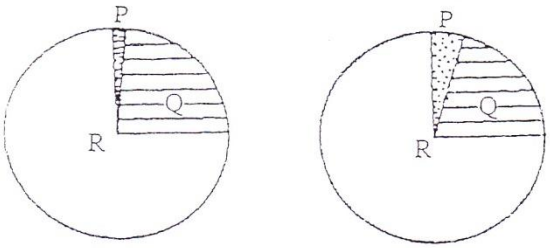
SUGAR + [ ] → [ ] + WATER + ENERGY

d What is the name of the muscle indicated by line X on the drawing?

_____

Briefly explain the action of this muscle when a person inhales (or breathes in).

8. These pie diagrams show the percentage of three gases in inspired and expired air.



inspired air expired air

Which gas does P represent?

A carbon dioxide
B nitrogen
C oxygen
D water vapour

What body structures contain bronchial tubes and alveoli?

A blood vessels
B kidneys
C lungs
D lymph glands

What things do you notice happening to your body as your exercise? _____

_____

_____

What muscle causes air to move in and out of your lungs? _____

_____

What happens when the muscle at the bottom of your chest cavity contracts? _____

_____

_____

What gas do you breathe in that is important to your body? What gas do you breathe out? _____

_____

What happens to oxygen that gets into the blood? _____

_____

List three examples of things you did yesterday that exercised your respiratory system.

_____

_____

_____

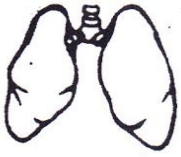
EXCRETORY SYSTEM

12–4 Organs of Excretion

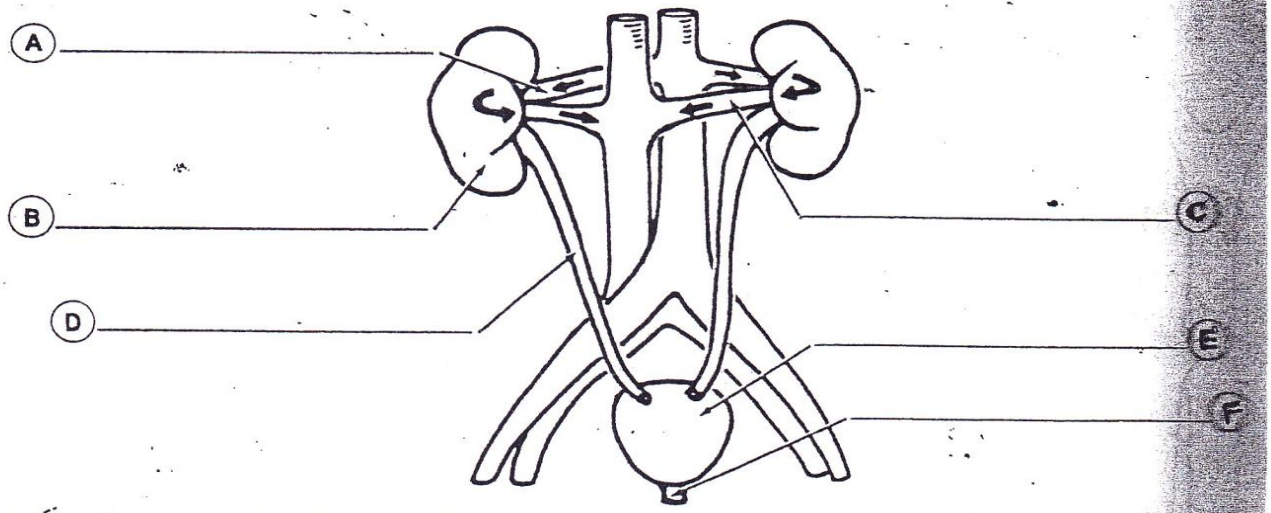
In your textbook, read about the excretory system (Section 12:8 through 12:12).

1. Complete the chart below by writing the following phrases under the correct organ of excretion pictured.

Body filter
Has sweat glands
Helps cool body
Removes CO_2
Removes urea
Protective cover
Removes water and salts mostly
Removes water in breath

2. Label the parts on the diagram below using these labels. Ureter, Urethra, Kidney, Bladder, Blood vessel from kidney, Blood vessel to kidney



3. Beside each of the phrases below, write the letter from the above diagram that shows the correct location.

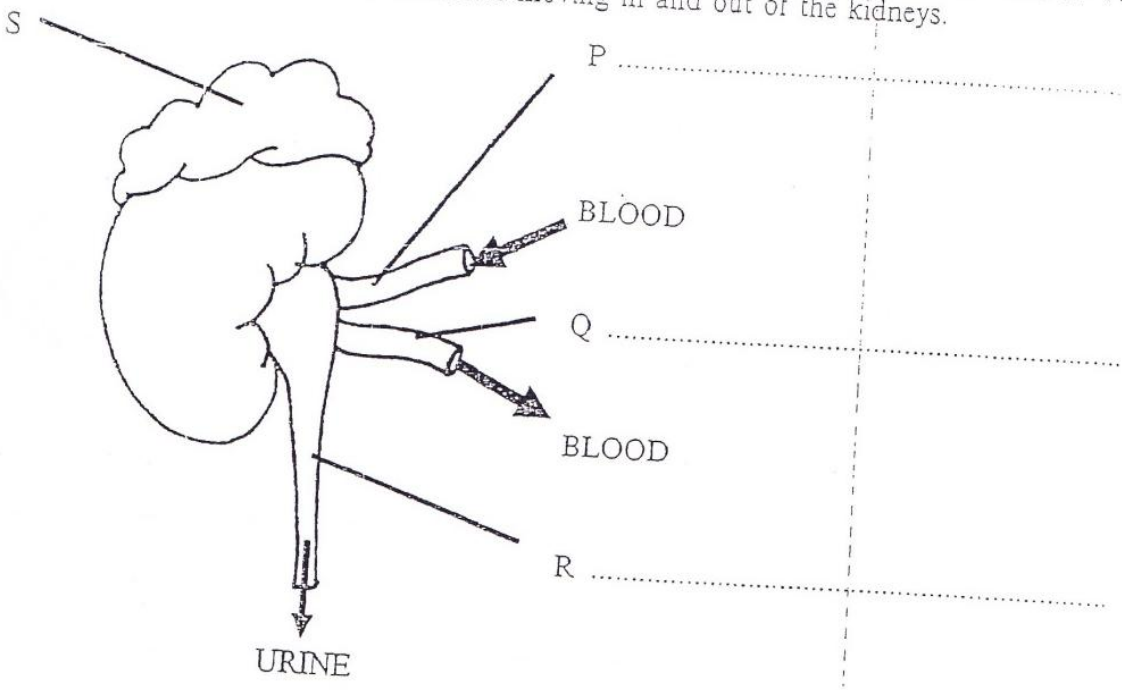
a. Where urea is filtered from the blood _____

b. Where wastes are stored for a short time _____

c. Transport wastes from kidney to bladder _____

d. Brings wastes to kidneys _____

2. This diagram represents a human kidney and some of the structures associated with it. The arrows represent the direction of materials moving in and out of the kidneys.



(a) Write the names of the structures on the diagram labelled P, Q and R. [3]

(b) (i) What important body organ is attached to the lower end of the tube labelled R on the diagram? _____

(ii) What is the function of this organ? _____

_____ [2]

(c) Name the three substances that the urine of a healthy person is normally made of.

(i) _____

(ii) _____

(iii) _____ [3]

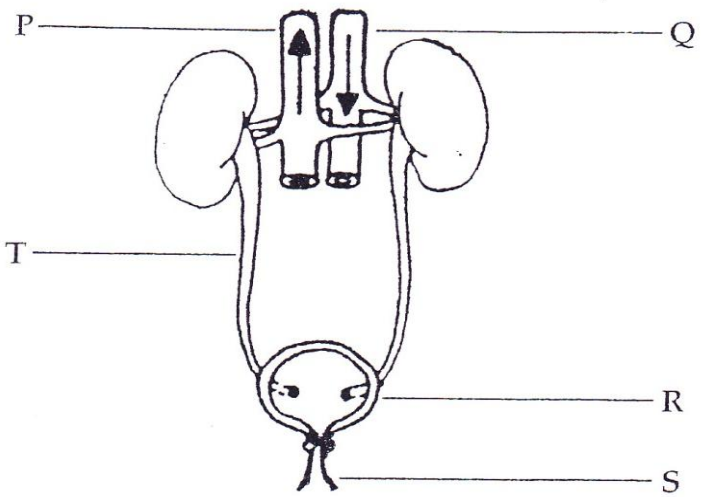
(d) What major blood vessel does the blood in vessel P come from? _____ [1]

(e) The structure labelled S sits on top of the kidney, but it is actually part of the endocrine system.

What is the name of the structure labelled S? _____ [1]

TOTAL [10]

The diagram represents the urinary system with the arrows illustrating the flow of blood.



(a) State **TWO** differences between the contents of the blood found in **P** and in **Q**.

_____

_____ [2]

(b) Name the parts of the diagram that are labelled:

R _____

S _____

T _____ [3]

(c) Which organ, other than the kidneys, is involved in excretion and what is the waste product excreted by it?

organ _____

waste _____ [2]

(d) Why does urine have a dark yellow appearance on a hot day?

_____

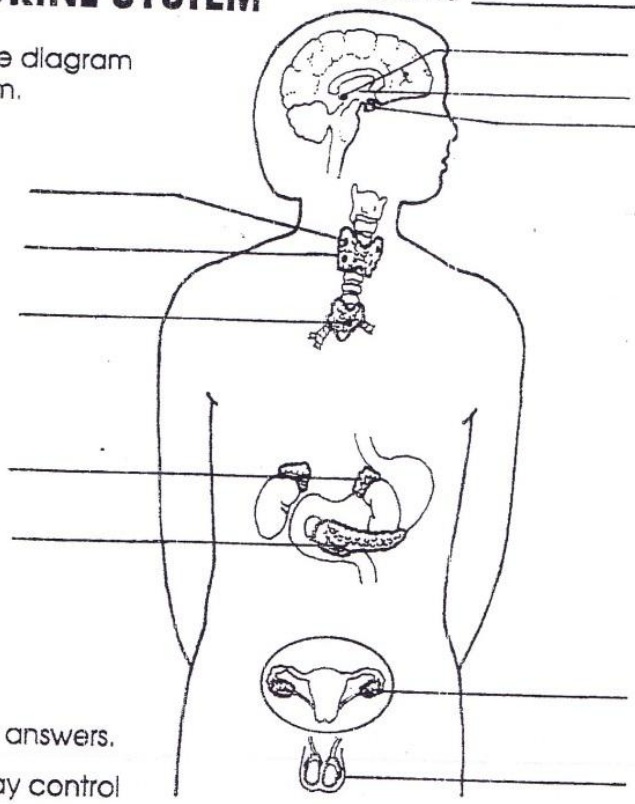
_____ [2]

THE HUMAN ENDOCRINE SYSTEM

Name _____

Label the following parts on the diagram of the human endocrine system.

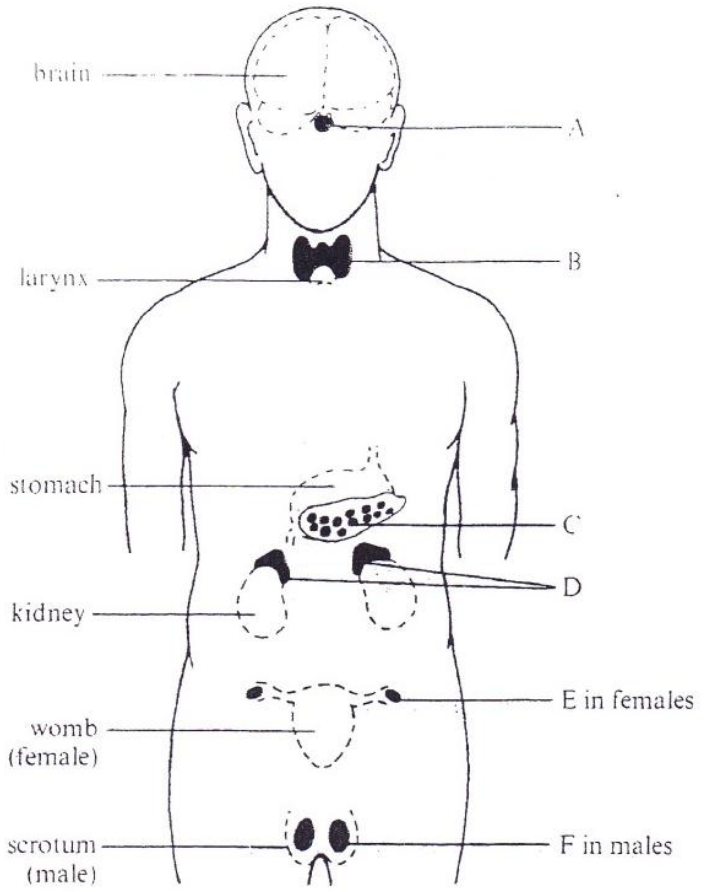
a. pineal
b. hypothalamus
c. pituitary
d. thyroid
e. parathyroids
f. thymus
g. adrenal
h. pancreas
i. ovary (female)
j. testis (male)



Fill in the blanks with the correct answers.

1. _____ gland may control biorhythms in some animals and control the onset of puberty in humans.
2. _____ gland stimulates metabolic rate and is essential to normal growth and development.
3. _____ gland stimulates growth and stimulates secretion of hormones from other glands.
4. _____ in females stimulates development of secondary sex characteristics, stimulates growth of sex organs at puberty, and prompts monthly preparation of uterus for pregnancy.
5. _____ is the major area where the nervous and endocrine systems interact.
6. _____ controls blood glucose levels and determines the fate of glycogen.
7. _____ gland initiates stress responses, increases heart rate, blood pressure, and metabolic rate, dilates blood vessels, mobilizes fat and raises blood sugar levels.
8. _____ gland promotes production and maturation of white blood cells.
9. _____ in males stimulates development of secondary sex characteristics, stimulates growth spurt at puberty, stimulates spermatogenesis.
10. _____ gland increases blood calcium level, stimulates calcium reabsorption and activates vitamin D. 90

This diagram shows the location of ductless glands in the human body. The glands are labeled A through F.



(a) Name the system that these ductless glands belong to. _____ [1]

(b) Complete this table by naming the gland and naming the hormone that it secretes.

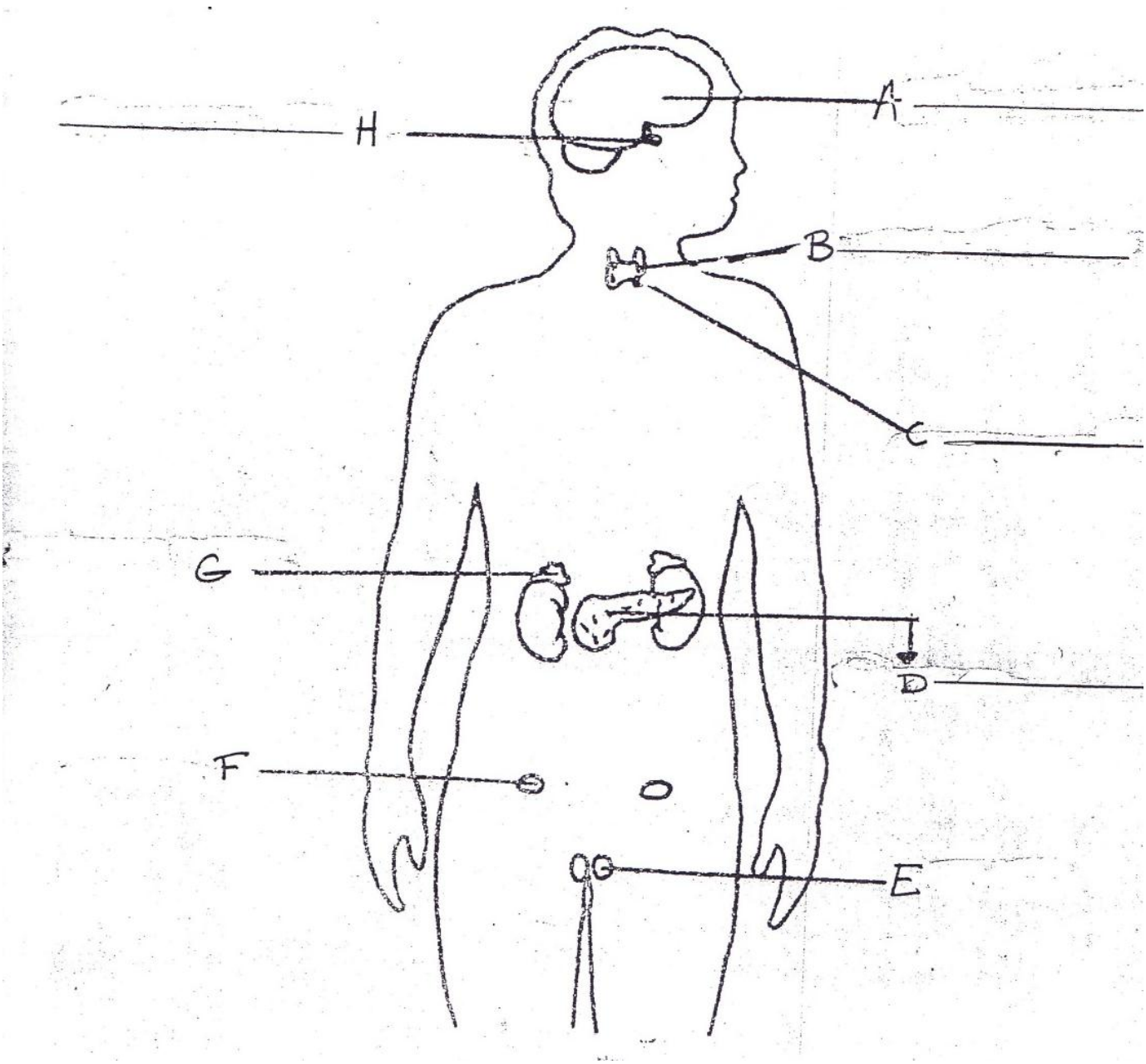
GLAND	NAME	HORMONE IT SECRETES
B		
D		
F		

[6]

(c) (i) Name the hormone that controls your blood sugar level. _____

(ii) Name the gland that produces this hormone _____ [2]

(d) How are hormones transported around the body?



	Name of Structure		Name of Structure
A		E	
B		F	
C		G	
D		H	

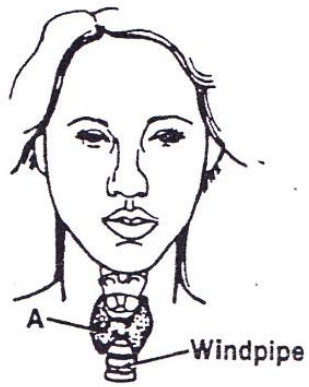
13–4 Endocrine System

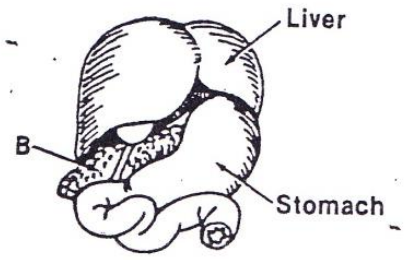
In your textbook, read about the endocrine system (Sections 13:7 through 13:10).

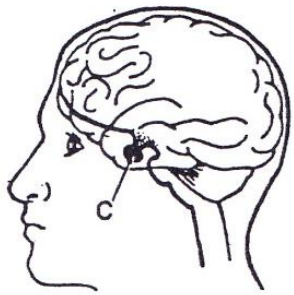
1. Complete the chart below by writing the following phrases in the correct column. Sends messages throughout body, Blood is its pathway, Involves hormones, Made of glands, Cause changes in body parts, Nerves involved

Endocrine system	Nervous system	Both endocrine and nervous systems

2. On the blanks below each picture, write the name of the gland being shown.







A _____ B _____ C _____

3. Match the glands shown in the pictures above with the phrases listed below. Put the letters of the glands on the correct blanks.

_____ Makes thyroxine

_____ Controls growth

_____ Makes insulin

_____ Controls how fast cells use food

_____ Makes hormones that affect kidneys and sex organs

4. Put a T in front of each statement below that is true. Put an F in front of each statement that is false.

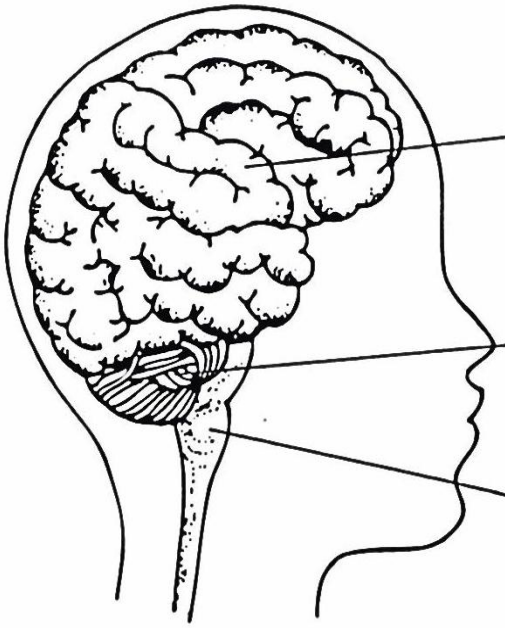
_____ A person will grow very tall if too little growth hormone is made.

_____ A person will gain weight if too much thyroxin is made.

_____ A tadpole will not change into a frog if too little thyroxin is made.

Parts of the Brain

The brain is an important part of the nervous system. The brain of an average adult weighs about three pounds. It is protected by the cranium, or skull. The brain controls everything a person does, from breathing to solving a math problem. The diagram below shows the three main parts of the brain.



The largest part of the brain is the **cerebrum**. The cerebrum allows us to speak, remember things and solve problems. This part also helps us hear, see, taste, smell, and touch.

The **cerebellum** controls balance, posture, and coordination.

The **brain stem** connects the cerebrum with the spinal cord. It controls digestion, heartbeat, breathing, body temperature, and other important body functions.

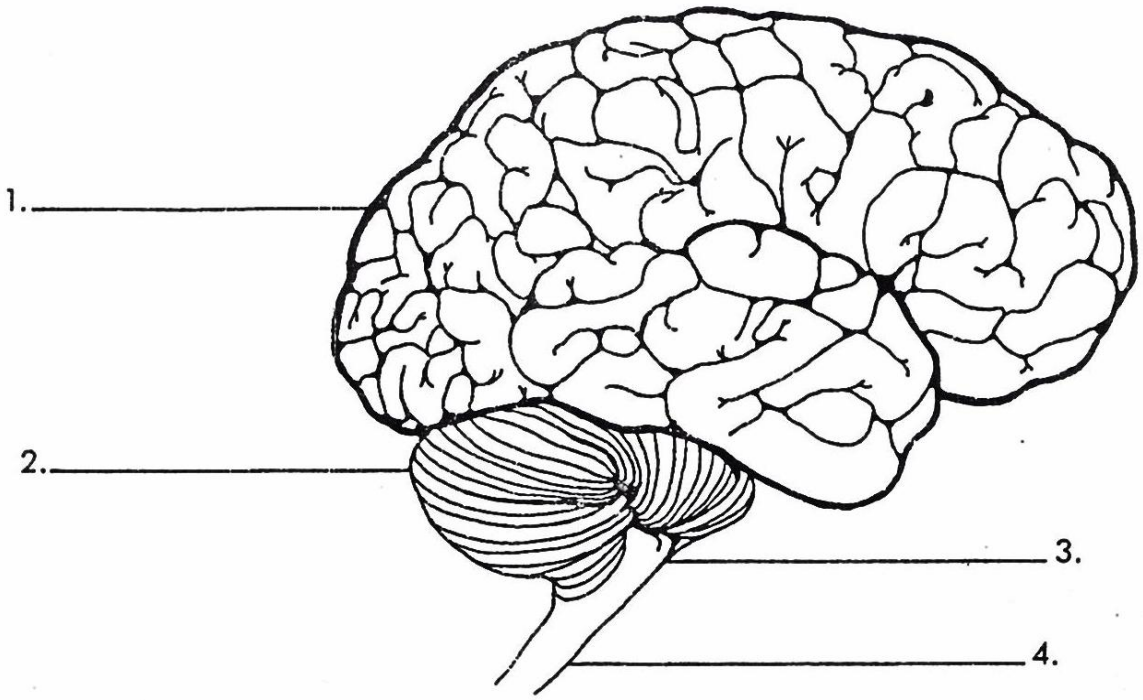
Decide which part of the brain controls each activity below.
Write **cerebrum**, **cerebellum**, or **brain stem**.

1. balancing on a bicycle _____
2. smelling a flower _____
3. causing the heart to pump _____
4. doing an addition problem _____
5. breathing faster while jogging _____
6. walking on a tightrope _____
7. telling Mom that Grandma called _____
8. making the stomach muscles work _____
9. tasting an orange _____

A. Unscramble the names of the parts of the brain.

1. bcllmueeer _____ 3. brucreem _____
2. ludemla _____ 4. docr laispn _____

B. Use the unscrambled names above to label the diagram of the brain below.



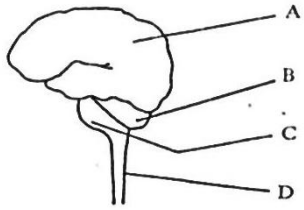
C. Use the terms above to complete the chart below.

Section	Controls
1. _____	1. respiration, circulation, digestion, many of the reflex actions
2. _____	2. passageway for messages between the brain and the rest of the body
3. _____	3. balance and coordination
4. _____	4. senses, memory, some reflexes, voluntary actions, emotions, intelligence

What disease is caused by an inflammation of the membranes that surround the brain and spinal cord?

A anemia
B meningitis
C leukemia
D stroke

1. In the human body, sense organs contain cells that are sensitive to stimuli. Which sense organ contains heat sensitive cells?
   A the ear
   B the nose
   C the skin
   D the eyes
2. In the human body, sense organs contain cells that are sensitive to stimuli. Which sense organ contains rods and cones?
   A the ear B. the nose C. the skin D. the eyes
3. Which of these body cells transmit impulse throughout the body?
   A. Egg cells
   B. Muscle cells
   C. Nerve cells
   D. Sperm Cells
4. Sensory nerve endings for touch, pain and temperature are found in the
   A. Cochlea B. Dermis C. Epidermis D. Retina
5. A gymnast falls of the balance beam, hurts her neck and becomes paralyzed. Which of the following systems has she damaged?
   A. Endocrine system B. Excretory system
   B. Immune system C. Nervous system
6. The diagram represents part of the central nervous system. Which letter is pointing to the cerebrum?



7. Which row in the table correctly matches the part of the nervous system with its function?

	NERVOUS SYSTEM PART	FUNCTION
A	Spinal Cord	Responsible for personality, speech and hearing
B	Cerebrum	Responsible for memory, learning and thought
C	Cerebellum	Controls all involuntary body movements
D	Medulla	Controls all voluntary body movements

8. In the human body, sense organs are connected to the brain by sensory nerves, which sensory organ is connected to the brain by the auditory nerve?
   A. The ear B. The eye C. The nose D. The tongue

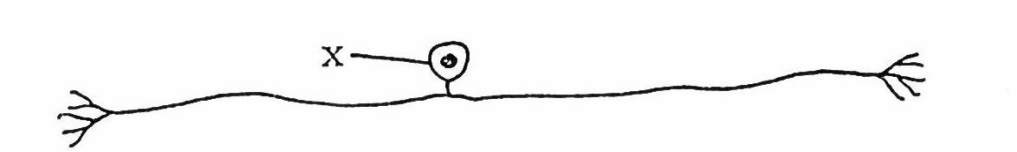
9. A sudden loud noise startles you and causes you to scream. Which statement below is true?
   A. The noise is the stimulus and the scream is the response
   B. The scream is a stimulus and the noise is the response
   C. The noise and the scream are both examples of response
   D. The noise and the scream are both examples of stimuli
10. In which body cavity would you find the cerebrum?
   A. Abdominal cavity
   B. Cranial cavity
   C. Sinus cavity
   D. Thoracic cavity
11. While sewing a button on her sweater, Jane sticks her finger with the needle. When she suddenly pulls her finger away from the needle, she is performing
   A. A conditioned response
   B. A learned reaction
   C. A reflex action
   D. A voluntary movement
12. Which one of these is an example of the kind of human behavior that is called a reflex action?
   A. Biting fingernails B. Eating with a fork
   B. Sneezing C. walking
13. Which one of these activities would be called an involuntary, reflex action?
   A. Putting your hand in your pocket to get some money out
   B. Raising your hand to answer a question in class
   C. Sneezing because you have an allergy
   D. Turning off your cell phone during a church service

14. Which row in the table gives the correct information about actions of the body?

	Body Action	Voluntary	Involuntary	Controlled by Cardiac Muscle
A	Heart beat	Yes	Yes	No
B	Running	Yes	No	Yes
C	Sneezing	No	Yes	No
D	swallowing	yes	yes	Yes

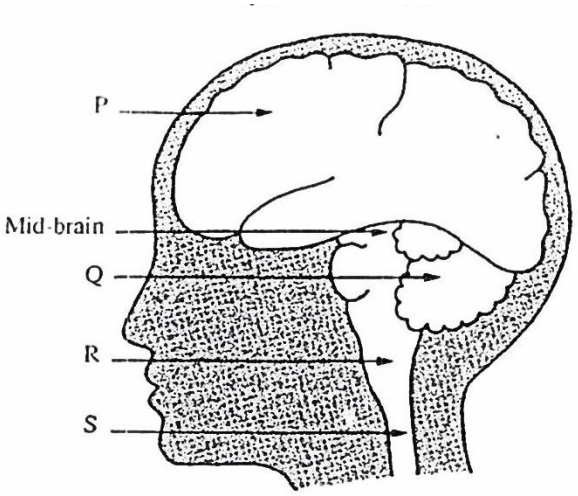
15. While you are reading this question, which of the following statements explains what is happening?
    A. Light is being reflected from the question paper into your eyes
    B. Light is being reflected from your eyes onto the question paper
    C. The question paper is giving off visible light of its own
    D. Your eyes are producing the light needed to see the question on the paper.

16. What kind of cell is shown below and what is letter X pointing to?



    A. It is a sensory nerve cell and X is the cell body
    B. It is a motor nerve cell and X is the axon.
    C. It is a connector nerve cell and X is the synapse
    D. It is an autonomic nerve cell and X is the nerve ending.

1. The diagram below shows the brain and other organs inside the human head.



    (a) Write the names of the parts labeled P,Q,R and S.

    P_____ Q_____

    R _____ S _____

    (b) Name the system of the body to which the brain belongs.

    _____(1)

(c) The brain is directly connected to the sense organs by nerves. Name the sense organs that are connected to the brain by:

(d) (i) the auditory nerve _____(ii) the optic nerve _____ structure R on the diagram controls the body's reflex actions.

(i) What is a reflex action? _____

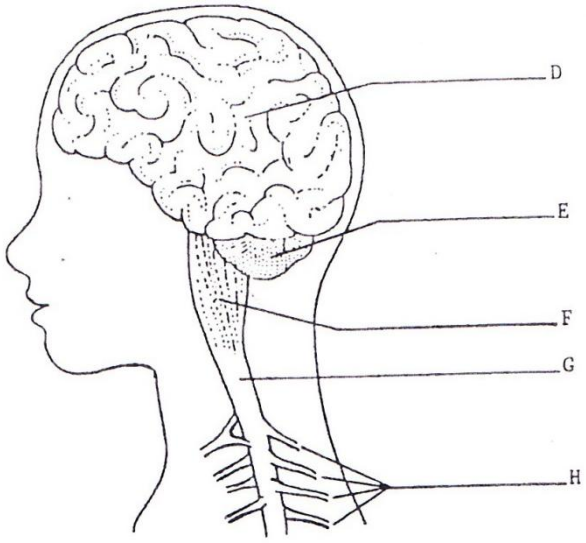
_____

_____

(ii) Give ONE example of a reflex action. _____(2)

(e) What is a neuron? _____(1)

2. The diagram below represents parts of the Nervous system.



(a) Name structures:

D _____ E _____

G _____ H _____

(b) What is the function of E?

_____

(c) If the right side of the brain is damaged, on what side of the body might a person be paralyzed?

_____

(d) (i) What other systems of the body helps to coordinate activities in the body?

_____

(ii) State TWO differences between the actions of the nervous system and your answer to (i).

_____
_____
_____
_____(2)

(e) The TWO structures shown in the drawing are a part of the nervous system. What is the name of this part of the NERVOUS system?

_____(1)

3. Diagram A represents the human brain and diagram B represents a single nerve cell.

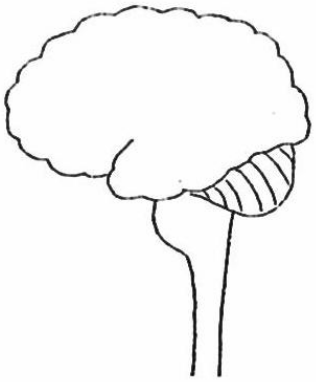


Diagram A

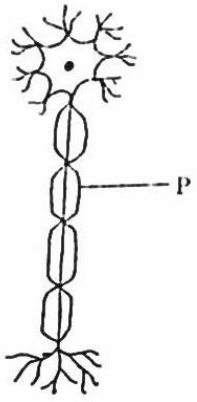


Diagram B

(a) On diagram A, label the cerebrum, the cerebellum and the medulla.

(b) What kind of nerve cell is shown in Diagram B?

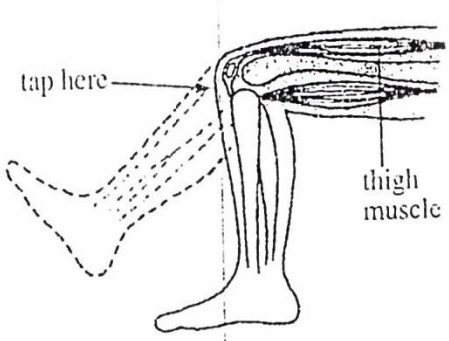
_____(2)

(c) What is the function of the part labeled P on Diagram B?

_____

What do we call this kind of movement?

A conditioned reflex
B learned reaction
C reflex action
D voluntary reaction



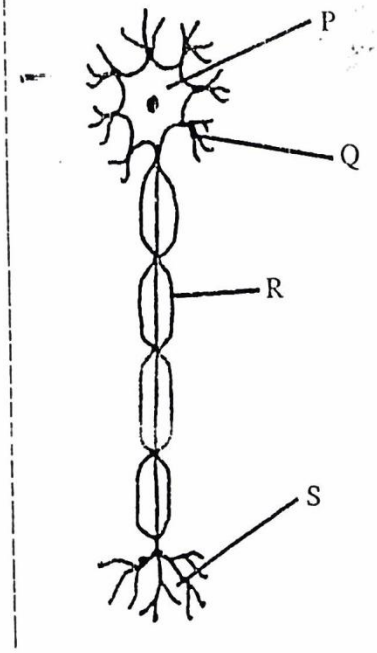
29. What is the normal body temperature of a healthy person?

A 37°F
B 89.4°F
C 98.6°F
D 100°F

30. The diagram at the right shows a neurone (nerve cell).

What do we call the part labelled Q?

A the axon
B the cell body
C the dendrite
D the myelin sheath



31. What type of neurone is the cell at the right?

A connecting neurone
B intermediate neurone
C motor neurone
D sensory neurone

Which of these structures contain light-sensitive receptor cells?

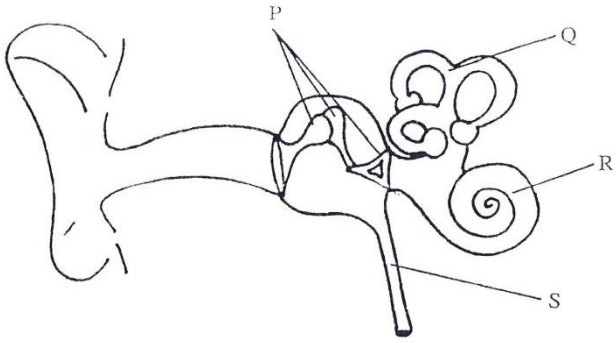
A the auditory nerve
B the epidermis
C the retina
D the taste buds

Which of these flow diagrams correctly shows the path of light rays through the eye?

A Cornea → Lens → Aqueous Humor → Vitreous Humor → Retina
B Cornea → Aqueous Humor → Lens → Vitreous Humor → Retina
C Lens → Cornea → Vitreous Humor → Aqueous Humor → Retina
D Vitreous Humor → Aqueous Humor → Lens → Cornea → Retina

HUMAN EAR

The diagram below represents the main parts of the human ear. Questions which follow refer to this diagram.



1. What is the name of the part of the diagram labeled R
   A. The auditory canal
   B. The cochlea
   C. The Eustachian tube
   D. The semicircular canal

2. Which labeled parts of the ear, normally contains a fluid?
   A. P and Q
   B. Q and R
   C. R and S
   D. S and P

3. What are the names of the parts on the diagram labeled P, R and S?
   A. P is the eardrum, R is the semicircular Canal and S is the inner ear
   B. P is the eardrum, R is the cochlea and S is the Eustachian tube
   C. P is the outer ear, R is the middle ear and S is the inner ear.
   D. P is the hammer, R is the anvil and S is the Stirrup.

4. Which labeled part of the ear diagram is concerned ONLY with balance and equilibrium?
   A. P
   B. Q
   C. R
   D. S
5. What is the name of the part of the diagram labeled S?
   A. The auditory canal
   B. The cochlea
   C. The Eustachian tube
   D. The semicircular canals

6. Which row in the table below correctly matches the part of the human ear with its description?

	EAR PART	DESCRIPTION
A	P	Connects the middle ear with the throat
B	Q	Helps to maintain balance
C	R	Connects the ear with the brain
D	S	Directs sound waves onto the eardrum

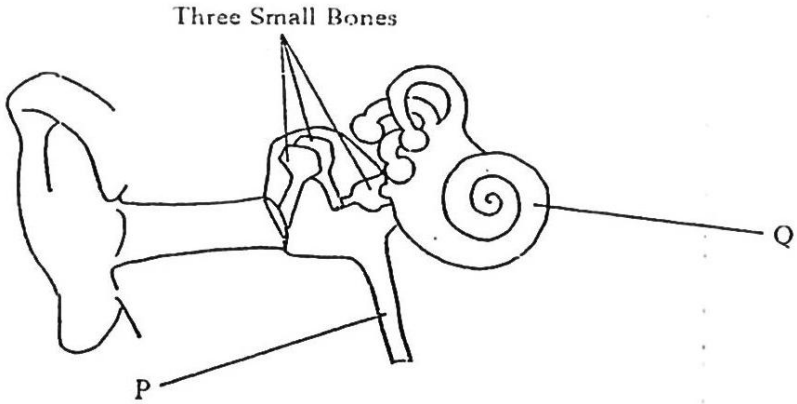
7. Which letter points to the part of the ear that is NOT involved with the sense of hearing?
   A. P B. Q C. R D. S

8. Which labeled part of the ear is NOT made of bone?
   A. P B. Q C. R D. S

9. Which labeled part of the ear equalizes ear pressure in the middle ear?
   A. P B. Q C. R D. S

10. Which of these flow diagrams show the correct order in which sound vibrations travels within the ear?
    A. Eardrum -----> 3 small bones------>cochlea ------->auditory nerve
    B. Eardrum -----> cochlea------>3 small bones ------->auditory nerve
    C. Eardrum -----> auditory nerve------>cochlea ------->3 small bones
    D. Eardrum -----> auditory nerve------>3 small bones ------->cochlea

4. This diagram represents the main parts of the human ear.



   (a) Identify the structures labeled with these letters:
   P _____

   Q_____

   What are TWO important functions of the human ear?
   (i) _____
   (ii) _____(2)

(b) What are the names of the three small bones in the middle ear?

(i) _____ (ii) _____ (iii) _____

(c) If these three small bones were removed from a person's ears, tell what would happen and explain why?

_____

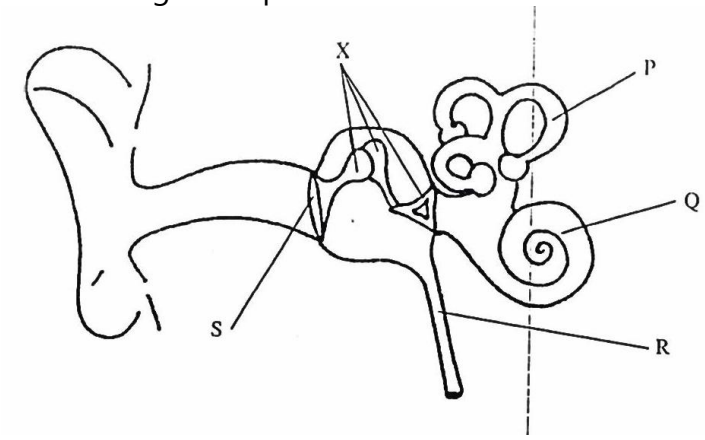
_____

_____(2)

(d) You should not put anything sharp or pointed, like a pencil, or even cotton-tipped stick, in your ear. Why is this so?

_____

The diagram represents structures that make up the human ear.



(a) Write the names of the structures labeled P, Q, R and S.

P_____ Q _____

R _____ S_____

(b) Letter X is pointing to three small bones in the middle ear. Name TWO of the three small bones

(i) _____ (ii) _____ (2)

(c) Name the TWO parts of the ear that normally contain a fluid.

(i) _____ (ii) _____ (2)

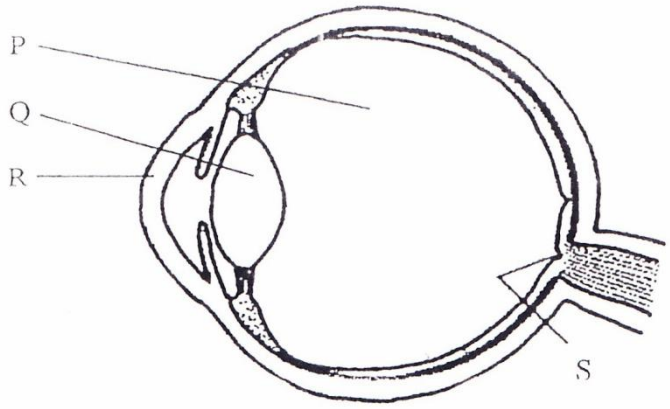
(d) Name the body organ which is connected to the ears by the auditory nerve.

_____(1)

(e) Name the part of the ear which vibrates first as sound waves enter it.

_____(1)

The diagram below represents the main parts of the human eye, cut in half and seen from the side. Questions 1, 2, 3 and 4 refers to this diagram.



1. Which of the following best describes the kind of structure shown in the above diagram?

   A. Organ of excretion
   B. Reproductive organ
   C. Sensory organ
   D. Organ of respiration

2. Which letters point to parts of the diagram which are normally transparent?
   A. P only
   B. P and Q only
   C. P, Q and R only
   D. P,Q,R,S and T

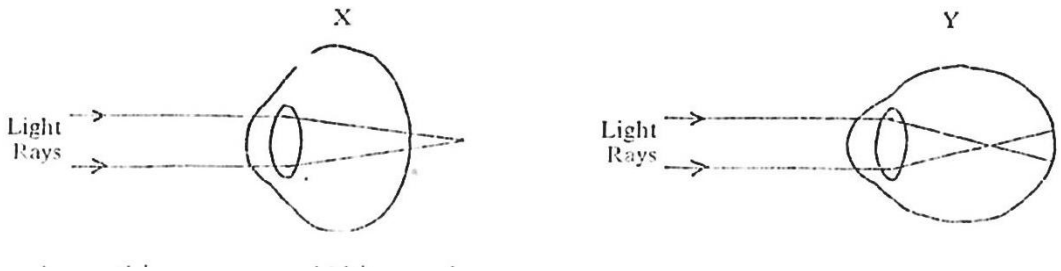
3. Which row in the table below correctly matches the part of the human eye with its description?

	EYE PART	DESCRIPTION
A	P	Prevents light from leaking out of the eye
B	Q	Helps to move the eyeball up and down
C	R	Focuses light rays onto the retina
D	S	Gives the eye its color

4. Cataract is an eye condition that can cause a loss of vision. What labeled part of the diagram is affected by this condition?
   A. P B. Q C. R D. S

5. Which of the following conditions of the eye can be corrected by wearing contact lenses?
   A. Cataracts
   B. Color blindness
   C. Myopia
   D. Pinkeye
6. In which of these body organs would you find the retina?
   A. Brain
   B. Eye
   C. Heart
   D. skin
7. While you are reading this question, which of the following statements explains what is happening?
   A. Light is being reflected from the question paper into your eyes
   B. Light is being reflected from your eyes onto the question paper
   C. The question paper is giving off visible light of its own
   D. Your eyes are producing the light needed to see the question on the paper

8. The diagram below illustrates TWO kinds of eye defects that cause vision problems.

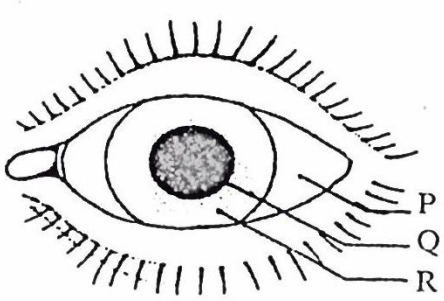


What are these eye defects called?
   A. X is nearsightedness and Y is farsightedness
   B. X is farsightedness and Y is nearsightedness
   C. X is glaucoma and Y is cataracts
   D. X is night blindness and Y is color blindness

9. Which row in the table below correctly matches the part of the human eye with its function?

	Eye Part	Function
A	Cornea	Connects the eye with the brain
B	Lens	Focuses light rays on the retina
C	Pupil	Controls the movement of the eyeball
D	Optic Nerve	Prevents light from entering the eye

10. This diagram represents the eye seen from the front.



What are P, Q and R?

A. P is the cornea, Q is the Retina and R is the lens.
B. P is the choroid, Q is the blind spot and R is the fovea
C. P is the aqueous humor, Q is the vitreous humor and R is the optic nerve
D. P is the sclera, Q is the pupil and R is the retina

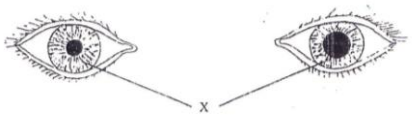
11. What is the function of the vitreous humour?

A. It encloses and protects the heart
B. It lubricates the epidermis of the skin
C. It maintains the shape of the eyeball
D. It regulates body temperature

12. How many colors make up the visible light spectrum?

A. 5 B. 6 C. 7 D. 8

13. (a). (i) The diagram shows TWO views of the front of an eye, one in dim light and one in bright light. On the line below, each diagram state whether the eye is in dim light or bright light.



_____ light _____ light

(ii) Name the structure labeled X in the diagrams.

_____(1)

(iii) What tissue in structure X enables the shape of X to change?

_____(1)

(b). Light entering the eye is focused onto a layer lining the back of the eyeball.

(i) What is the name of this layer?

_____(1)

(ii). When light strikes the cells in this layer, what must happen so that the brain can receive information?

_____

_____

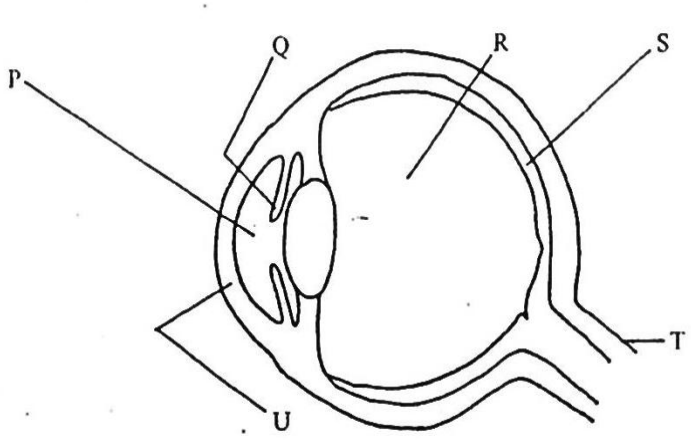
_____

_____

14. (iii). Different kinds of cells in this layer react to dim light and to bright light. Complete the table below to show which kind of cell response to which kind of light and state the nature of image interpreted by the brain as a result. (4)

Light	Cell	Nature of image
Dim		
Bright		

15. The diagram represents the main parts of the human eye.



a. Name the structures labeled with these letters:

Q _____

R _____

T _____

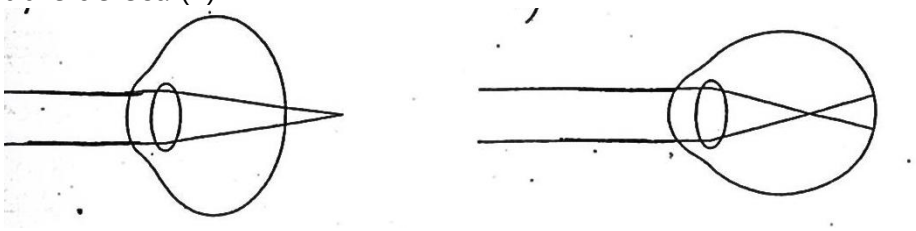
U _____

b. Name the TWO kinds of light sensitive cells that are found in the part of the eye labeled S.

(i) _____ (ii) _____

c. The TWO diagrams below represent the eye defects called MYOPIA (short sight) and hyper-metropia (long sight).

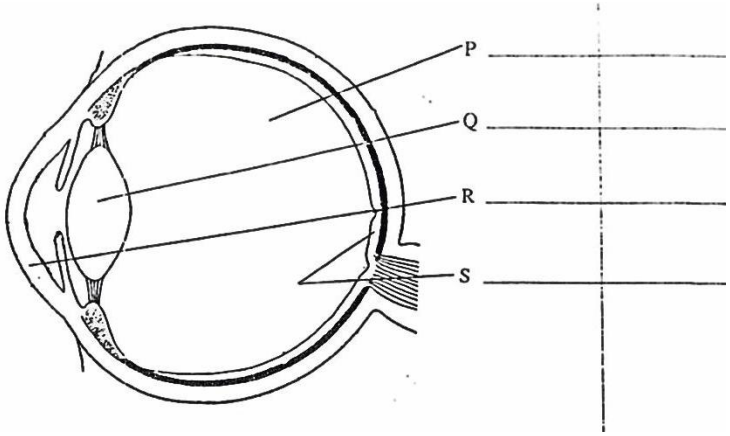
On the line below each diagram, write the name of the eye defect that is illustrated and then draw the shape of the lens in front of each eye that would correct the defect. (4)



Eye Defect _____ Eye Defect _____-

16. The diagram below shows the human eye in cross section.

(a) Write the names of the parts labeled P, Q, R and S.

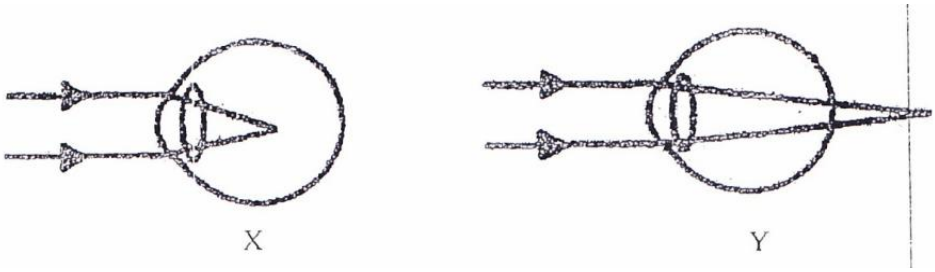


(b) Name the part of the eye that controls the amount of light entering it.

_____(1)

(c) Name the nerve that connects the eye with the brain. _____(1)

(d) Diagrams X and Y below show two eye defects.



Identify the eye defect shown in:
Diagram X _____ Diagram Y _____

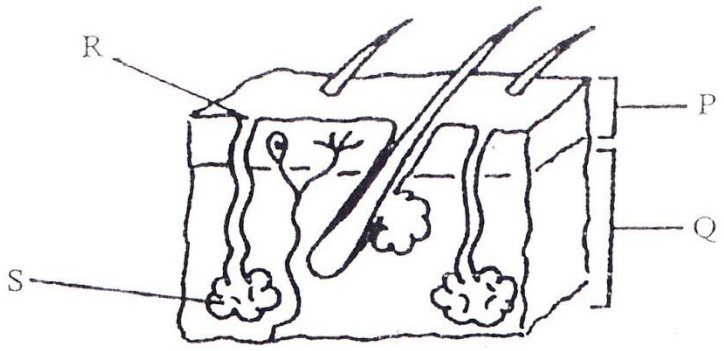
Name the type of lens which would correct the eye defect shown in:

Diagram X _____ Diagram Y _____

HUMAN SKIN - MULTIPLE CHOICE

1. Which organ contains sebaceous glands?
   A. The liver
   B. The Mouth and tongue
   C. The nasal passages
   D. The skin

   This diagram represents a section of human skin. Questions 2 and 3 refer to this diagram.



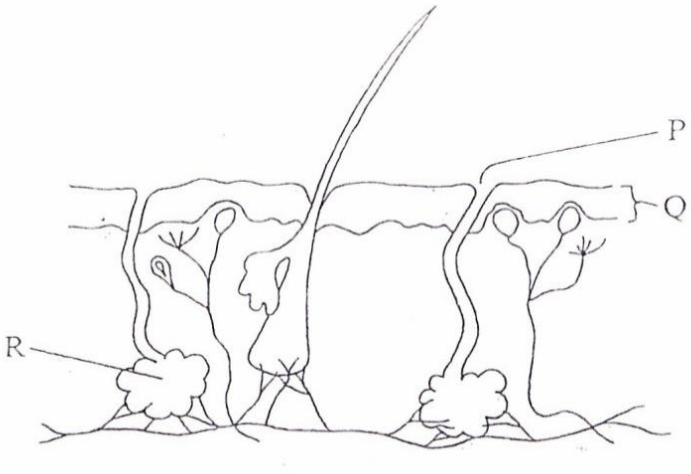
2. Which row in the table below correctly names the parts labeled P, Q, R and S?

	P	Q	R	S
A	Dermis	Epidermis	Follicle Pore	Follicle Gland
B	Epidermis	Dermis	Sweat Pore	Sweat Gland
C	Dermis	Epidermis	Oil Pore	Oil Gland
D	Epidermis	Dermis	Sebaceous Pore	Sebaceous Gland

3. What is the function of the part labeled S in the diagram?
   A. It makes new hairs
   B. It produces melanin
   C. It secretes sweat
   D. It stores Vitamin D

4. It contains sweat glands, fat storage cells and nerve endings for pressure and pain. What is it?
   A. The ears
   B. The nose
   C. The skin
   D. The tongue
5. What is melanin and what does it do?
   A. It's a chemical in the skin; it gives the skin its color.
   B. It's an enzyme in the small intestine; it breaks down fats
   C. It's a hormone in the brain; it regulates the body's growth
   D. It's a protein in the blood; it helps the blood clot.

5. The shows a vertical section of the human skin.



(a) Name the parts of the diagram labeled :

P _____

Q_____

R _____

(b) Name TWO structures that are found in the dermis.

(i) _____ (ii)_____

(c) Explain how sweating affects the body's temperature.

_____
_____
_____

(d) (i) What are sebaceous glands?

_____
_____

(ii) How do these glands keep the hair and skin healthy?

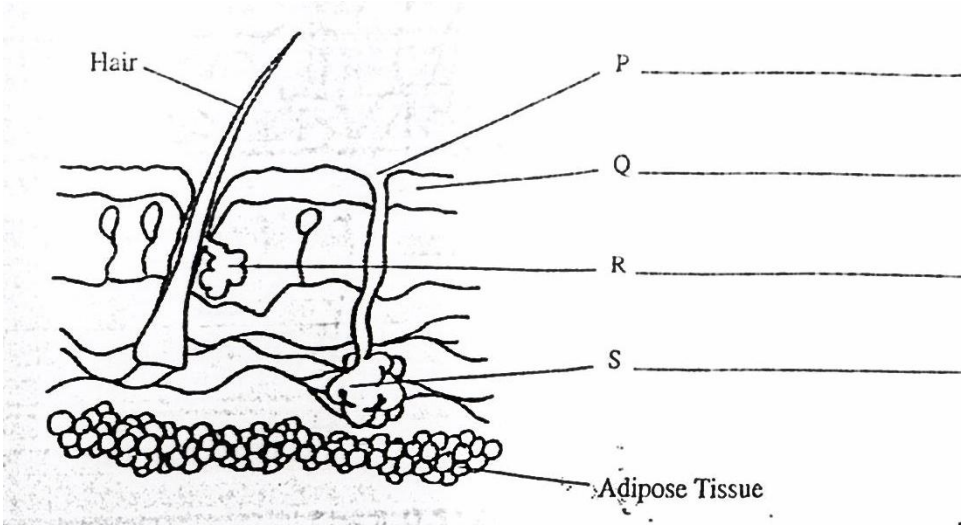
_____
_____
_____(2)

(e) Why is the skin considered to be a sense organ?

_____

The diagram below represents a section of human skin.

(a) Write the names of the parts of the diagram labeled P, Q, R and S.



(b) The structures labeled R and S both produce substances that serve important functions in the skin. Name each substance and describe the function that it performs.

(i) Substance made by R _____

Function it performs _____

(ii) Substance made by S _____

Function it performs _____

(c) The adipose tissue in the skin is made of cells that store an important nutrient and it helps to insulate the body. What do these adipose cells store?

_____

(d) After you cut your hair, it grows again. Explain why your hair grows after being cut.

_____

_____

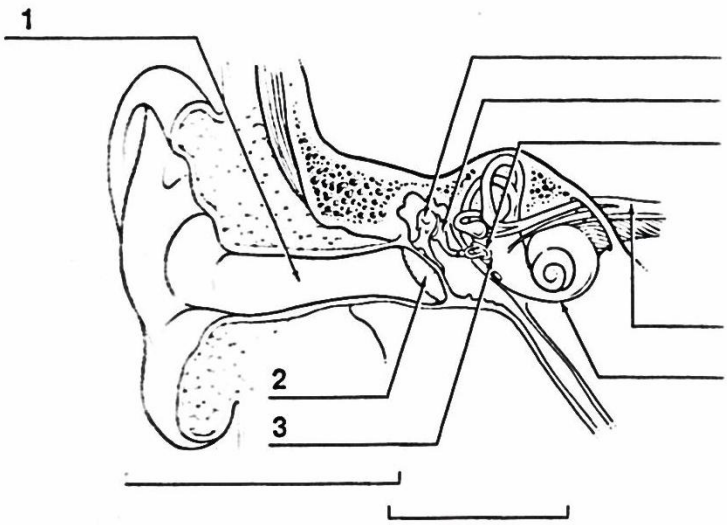
_____(1)

HUMAN SENSE ORGANS II

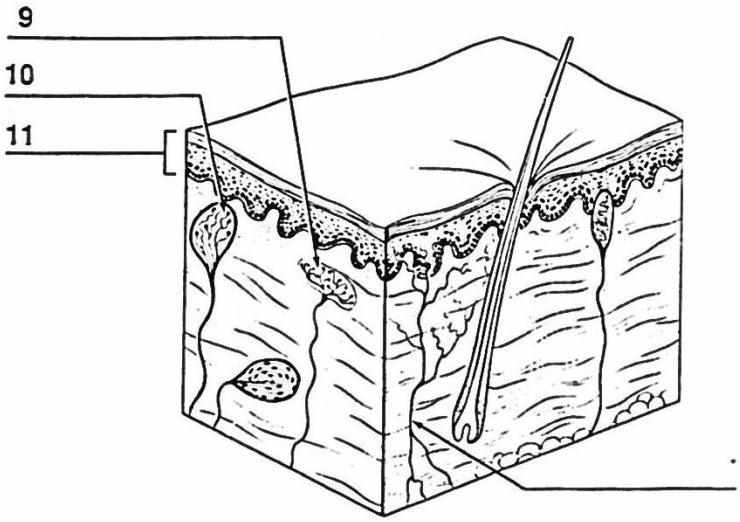
How did you learn to talk? You listened to someone else. You learned the sounds of your family's voices, songs you heard on the radio, words from a favorite story. Your ears are constantly sending information to the brain. They tell you of danger. They let you hear your favorite music. Your eyes give you information about the outside world. Your skin also gives information. Is it cold outside? Your skin will feel it. Is someone standing on your foot or patting your back? You can feel it because your skin is sensitive to pain, pressure, touch, heat, and cold.

In the diagrams on the right, some inner structures of the ear and skin are numbered. On the left is a list of functions and descriptions. In each blank, write the number of the structure that matches the proper function or description.

1. a nerve cell that detects cold _____
2. a narrow tube that leads into the ear _____
3. a nerve cell that responds to a finger prick _____
4. a membrane that sound waves bump against _____
5. a nerve cell which warns you "it's hot" _____
6. the outer layer of skin or epidermis _____
7. the hammer, anvil and stirrup _____
8. a membrane that vibrates with the ear bones _____
9. the "snail shell" _____
10. this structure carries sound messages to the brain _____

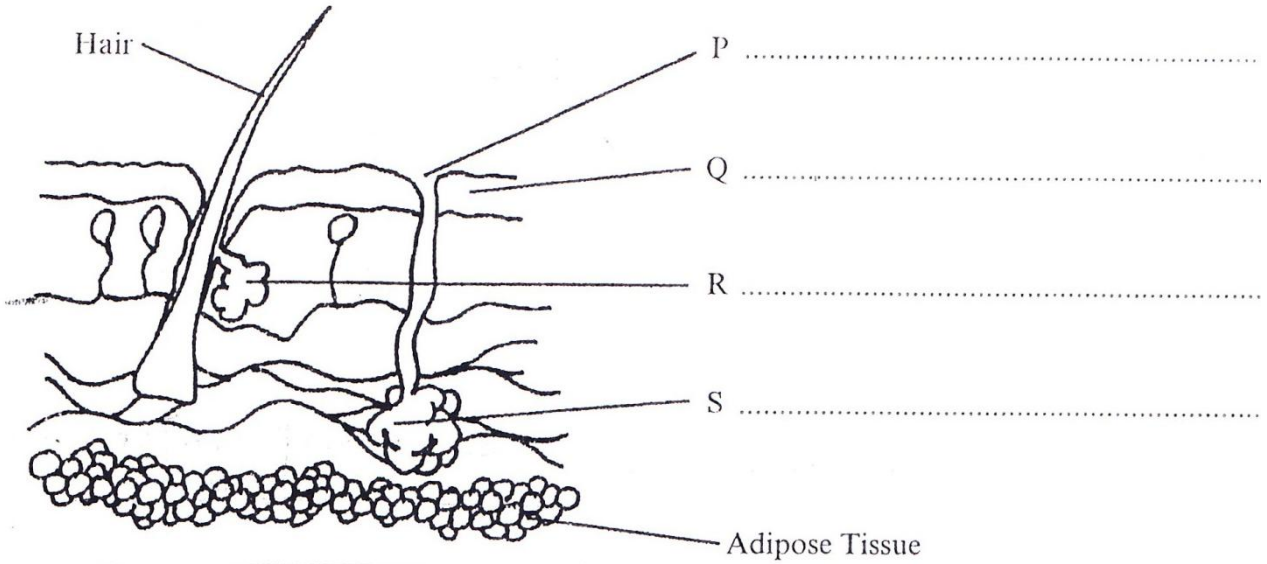


The Ear



The Skin

1. The diagram below represents a section of human skin.
   a. Write the names of the parts of the diagram labeled P Q R and S.



   b. The structures labeled R and S both produce substances that serve important functions in the skin.
   Name each substance and describe the function that it performs.

   (i) Substance made by R _____

   Function it performs _____

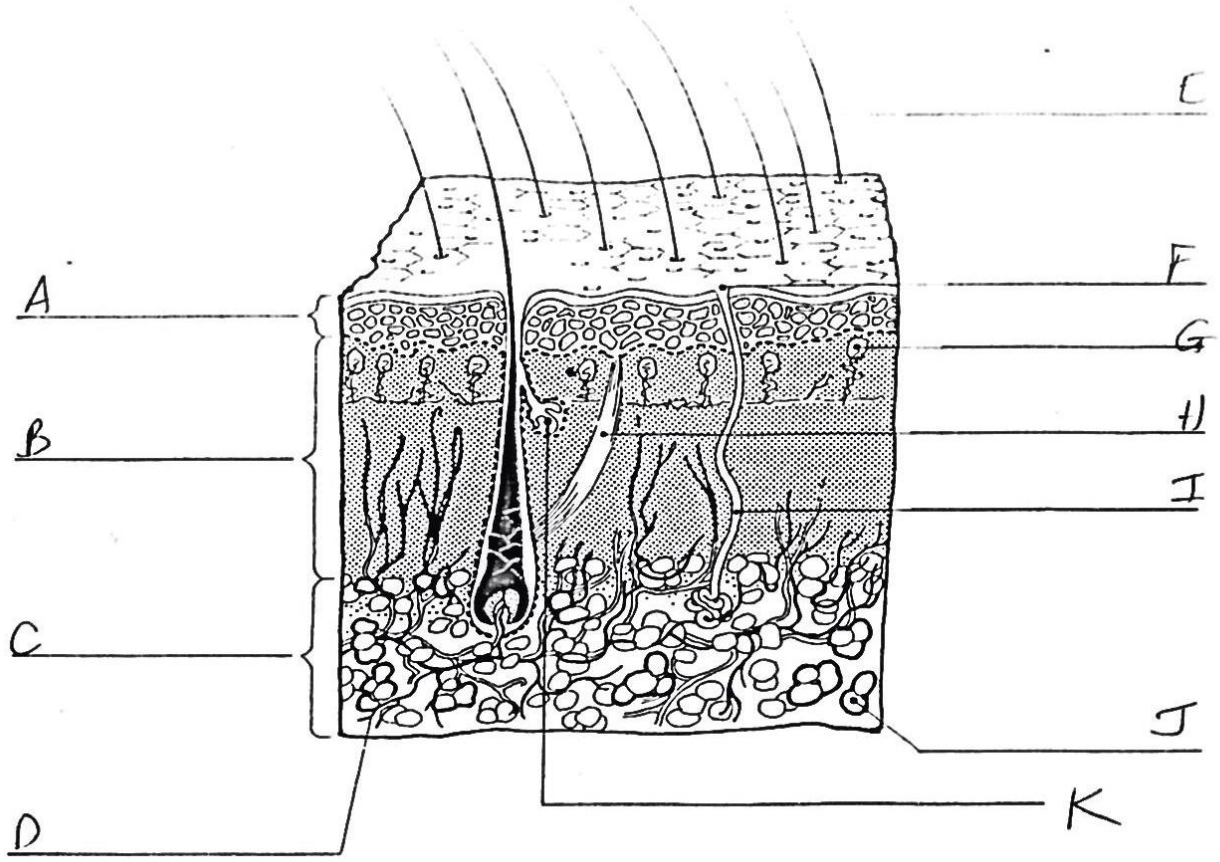
   (ii) Substance made by S _____

   Function it performs _____

   _____ [4]

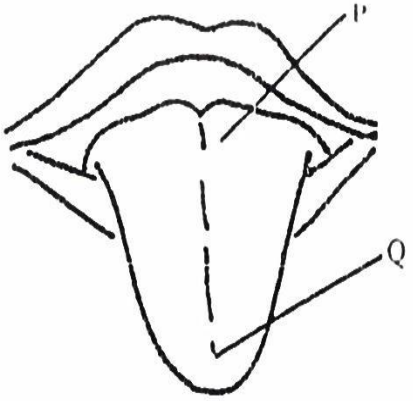
   c. The adipose tissue in the skin is made up of cells that store an important nutrient and it helps to insulate the body. What do these adipose cells store?

   _____ [1]



	Name of Structure		Name of Structure
A		**G**	
B		**H**	
C		**I**	
D		**J**	
E		**K**	
F			

The diagram below represents the human tongue. Two of the tongue taste centres are labelled.



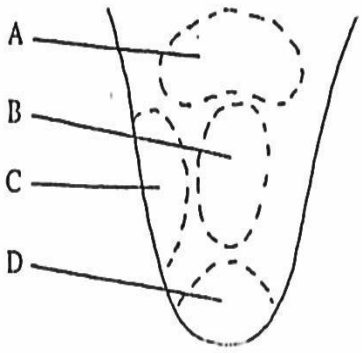
Which row in the table below correctly identifies the type of taste centre found at P and Q?

	Taste centre P	Taste centre Q
A	Bitter	Salty
B	Sweet	Sour
C	Salty	Sour
D	Bitter	Sweet

What body system is responsible for transporting messages or impulses around the body?

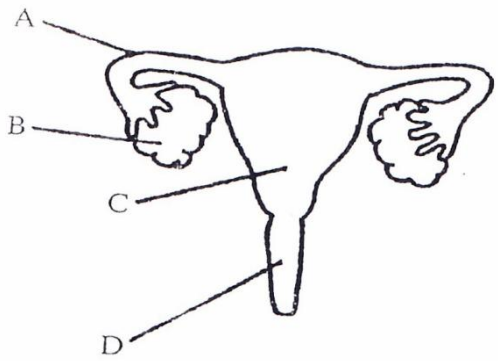
A the circulatory system
B the excretory system
C the immune system
D the nervous system

35. The diagram shows the areas of the tongue responsible for different tastes. Which letter points to the area that is most sensitive to salty tasting foods?



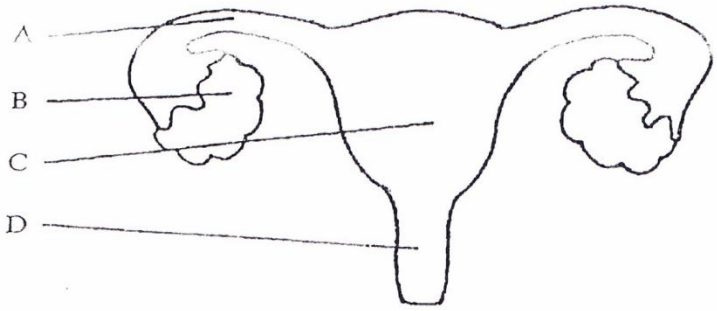
HUMAN REPRODUCTIVE SYSTEM

Use the following diagram to answer questions 1, 2 and 3.

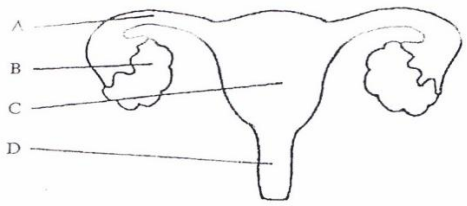


1. In which part of the diagram does implantation occur?
   A
   B
   C
   D

2. Which line points to the part of the diagram below where ova are produced?
   A
   B
   C
   D



3. In which part of the diagram does fertilization usually take place?
   A
   B
   C
   D



4. Where in the female reproductive system are estrogen and progesterone made?
   A. In the ovaries
   B. In the testes
   C. In the uterus
   D. In the vagina

5. What structures in the body produce gametes?
   A. Bones
   B. Lymph
   C. Reproductive organs
   D. Spleen

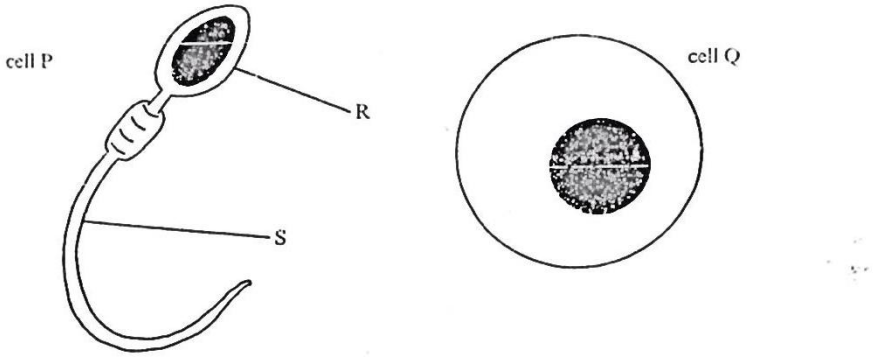
6. What biological process is shown in the diagram on the right?
   A. Copulation
   B. Fertilization
   C. Implantation
   D. ovulation
7. Which of these statements correctly explain the relationship between ovulation and menstruation in healthy woman?
   A. Ovulation and menstruation take place once a week.
   B. Ovulation and menstruation take place once a month
   C. Ovulation takes place once a week and menstruation takes place once a month.
   D. Ovulation takes place once a month and menstruation takes place once a week.
8. In a female, menstruation is a sign that:
   A. Conception has taken place
   B. Puberty has begun
   C. The female is pregnant
   D. The female is unable to have children

9. As part of the normal aging process, females go through a physical change called menopause. What happens as a result of menopause?
   A. Estrogen is secreted in large amounts
   B. Menstruation stops occurring
   C. The cervix closes off the uterus
   D. The ovaries dry up and disappear.

10. Where in the female reproductive system does the baby develop?
   In the ovaries
   In the testes
   In the uterus
   In the vagina

11. This diagram shows human reproductive cells.

This diagram shows human reproductive cells.



(a) Name the TWO cells in the diagram.

Cell P _____ Cell Q _____

(b) TWO structures are labeled R and Son cell P. Name these TWO structures and give their function.

(i) Structure R _____ Function
_____

(ii) Structure S _____ Function _____

(c) Name the body organs that produce cell P and cell Q.
   (i) Cell P is produced by _____
   (ii) Cell Q is produced by _____

(d) In relation to human reproduction, what is fertilization and where does it take place?

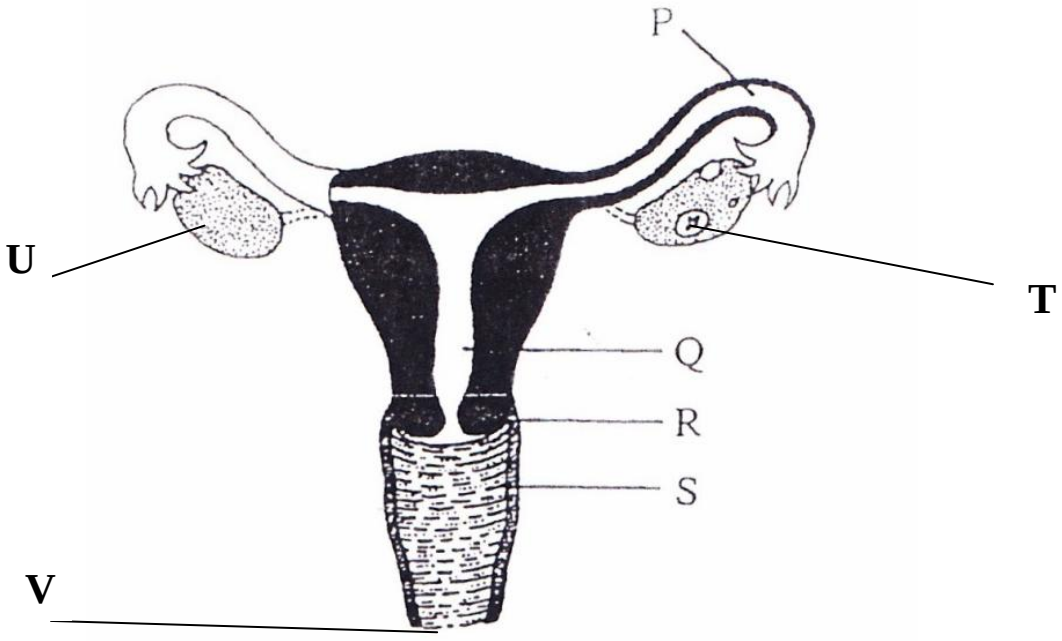
_____

_____

_____ (2)

The diagram show the female reproductive system. Which letter on the diagram points to where fertilization normally takes place?

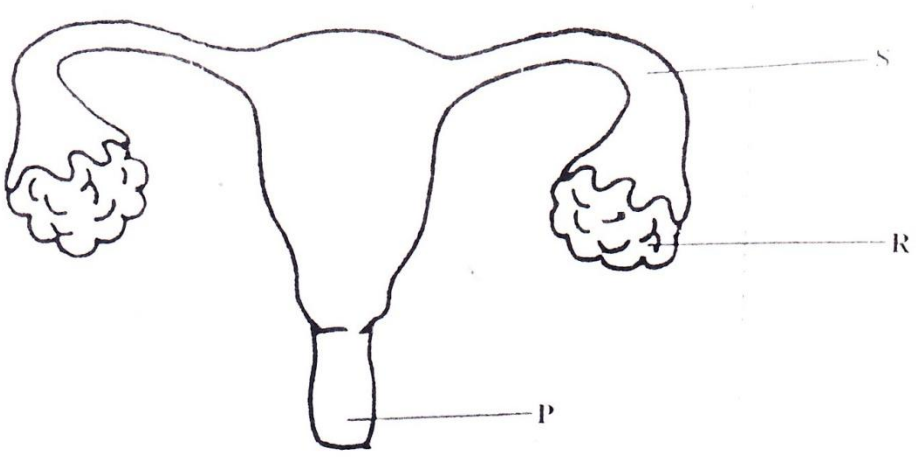
A. P B. Q C. R D. S



Label the diagram above and stat the function of each labelled part.

Part	Function
P	
Q	
R	
S	
T	
U	
V	

12. The diagram represents the female reproductive system.



(a) Name the structures labeled **P, R and S.**

P _____ **R** _____ **S** _____

(b) (i) Puberty is a period of change which takes place in a human's body. List TWO changes that occur in a female's body during this period.

_____

_____(2)

(ii) Name the gland and the hormone which stimulate this process in females.

Name of Gland _____

Name of hormone _____(2)

(c) Normally a female produces one ovum from each ovary, every other month.

How many ova would she produce in ONE year?

_____(1)

(d) The condom is a contraceptive method used to prevent pregnancy.

(i) Explain how the condom prevents pregnancy.

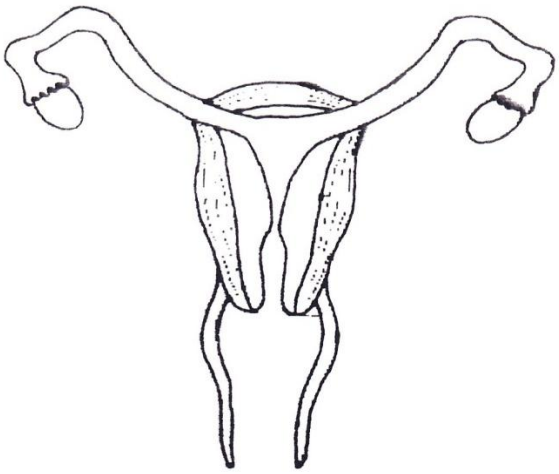
_____

_____

(ii) What is another function of the condom?

_____.

13. This diagram represents the female reproductive system.



(a) On the diagram, label the ovary, oviduct and uterus. (3)

(b) On the diagram, put an X to show where ova(egg cells) are made and put a Z to show where fertilization would normally take place.
(3)

(c) Describe TWO changes that take place in a girl's body at puberty.

(i) _____

_____.

(ii) _____

_____(2)

(d) (i) What is menstruation? _____

_____

_____

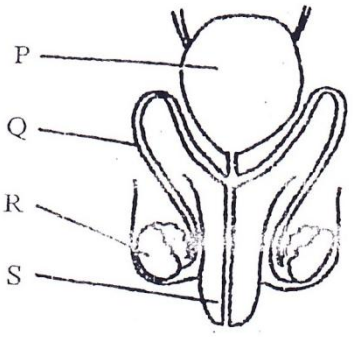
(ii) Why does menstruation happen in females but not in males?

_____

_____

_____(2)

1. The diagram on the right represents some organs of the male body. What do letter P and R represent?



A. P is the bladder; R is the testis
B. P is the scrotum; R is the epididymis
C. P is the urethra; R is the vas deferens
D. P is the prostate gland; R is the ureter.

The diagram below shows some of the parts of the male reproductive system. Questions 2, 3 and 4 refer to this diagram.

2. Which letter points to the part that produces sperm?
   A. P
   B. Q
   C. R
   D. S
3. Which letters on the diagram point to structures that together produce semen.

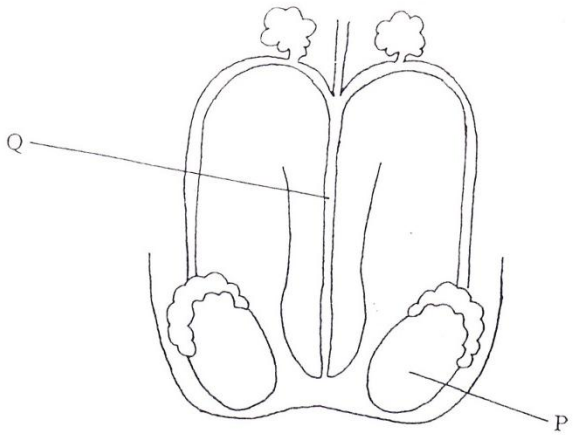
A. P and Q B. Q and R C. R and S D. S and T

4. What is the function of the part labeled S on the diagram?
   A. It produces and stores urine
   B. It produces enzymes and synovial fluid
   C. It produces sperm cells and testosterone
   D. It produces and stores tissue fluid and lymph

5. What kind of cell is shown in the diagram and where is it produced?
   A. It's a hair cell and it's made in a follicle.
   B. It's a muscle cell and it's made in the arms and legs.
   C. It's a sperm cell and it's made in the testes.
   D. It's a white cell and it's made in the bone marrow.

6. Which structure is removed from the male reproductive organ during circumcision?
   A. Foreskin B. Prostate C. Scrotum D. Testes

14. This diagram represents the human male reproductive system.



(a) On the diagram, label the sperm duct, urethra, epididymis, vas deferens, testicle, scrotum.

(b) (i) What is P on the diagram?

_____

(ii) What are TWO functions of P?

_____

_____(3)

(c) If the average adult male produces approximately 300 million sperm cells each day, how many sperm cells would be produced per hour?

_____

_____

_____(1)

(d) What TWO substances pass, at different times, through the part of the diagram labeled Q?

(i) _____

(ii) _____ (2)

(e) If a man has a vasectomy, what would he be unable to do?

_____

What do we call the joining of a female egg cell by a male sperm cell?

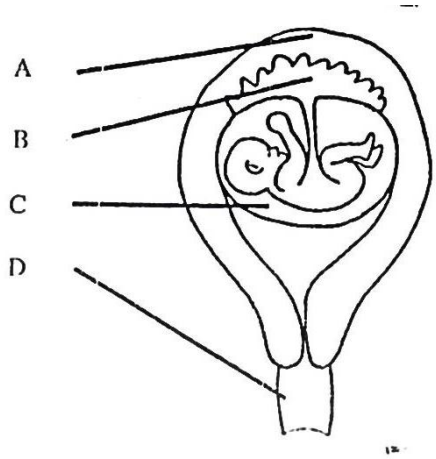
A. Ejaculation
B. Fertilization
C. Intercourse
D. gestation

1. When a woman is pregnant, which way does blood normally pass across the placenta?
   A. From the foetus to the mother
   B. From the mother to the foetus
   C. From the mother to the foetus and from the foetus to the mother
   D. Blood does NOT normally pass across the placenta.
   E.
2. Which TWO substances pass FROM a mother's blood INTO the foetus' blood, in the placents of a pregnant woman?
   A. Blood cells and Carbon dioxide
   B. Carbon dioxide and waste
   C. Food and oxygen
   D. Red and white blood cells

3. Which of the following shows the correct order of events in human reproduction?
   A. Adult →Gametes →Fertilization→Zygote→Implantation→ Foetus→Birth
   B. Fertilization→ Adult Zygote →Gamete→ Foetus→ Implantation→Birth
   C. Gametes→Zygote→Foetus→Fertilization→ Implantation→Adult→Birth
   D. Zygote→Foetus→Implantation→Gametes→Adult→Fertilization→Birth

4. In human reproduction, fertilization of TWO eggs by TWO different sperm cells at about the same time usually results in:
   A. Cloning B. Fraternal Twins C. Identical twins D. Mutations

5. The diagram represents a human foetus before birth. Which letter is pointing to the placenta?



6. In human reproduction, how long before the birth of a child does fertilization normally take place?
   A. 3 months
   B. 6 months
   C. 9 months
   D. 12 months

7. Which system of the body produces cells that contain only 23 chromosomes in the nucleus?
   A. Circulatory system
   B. Endocrine system
   C. Excretory system
   D. Reproductive system

8. When a mother is pregnant, the health of both the expectant mother and the developing baby should be monitored by
   A. Doing less physical activity
   B. Eating more carbohydrates and fats
   C. Making regular visits to the physician
   D. Taking large amounts of vitamins

9. Which of these flow charts correctly shows the main stages of human development, in order, that occur after fertilization?
   A. Fertilization→Baby→Embryo→Child→Fetus→Adolescent →Adult
   B. Fertilization→Child→Adolescent→Fetus→Embyo→Baby →Adult
   C. Fertilization→Embryo→Fetus→Baby→Child→Adolescent →Adult
   D. Fertilization→Fetus→Child→Baby→Embryo→Adult →Adolescent

10. In human reproductive cells, the nucleus normally contains 23 chromosomes. How many chromosomes are there in the nucleus of all other cells in the body?
    A. 46 B. 32 C. 23 D. 20

11. Which row in the table below shows the correct combination of X chromosomes and Y chromosomes in the body cells of males and females?

	Males	Females
A	XX	YY
B	YY	XX
C	XY	XX
D	XX	XY

12. Which in the table below gives the correct order of the stages of human development?

	Occurs First	Occurs Second	Occurs Third	Occurs Last
A	Implantation	Ovulation	Fertilization	Birth

B	Birth	Fertilization	Implantation	Ovulation
C	Ovulation	Fertilization	Implantation	Birth
D	Fertilization	Birth	Ovulation	Implantation

13. Which combination of sperm cell and egg cell would result in a female child?
    A. The sperm has an X chromosome and the egg has a Y chromosome
    B. The sperm has a Y chromosome and the egg has an X chromosome
    C. The sperm and egg both have X chromosome.
    D. The sperm and egg both have Y chromosomes.

14. Which row in the table below gives the correct information about the number of chromosomes in the nucleus of human cells?

	Muscle Cells	Eggs Cells	Sperm Cells
A	23	23	23
B	46	46	46
C	23	46	46
D	46	23	23

15. Mario and Dario are identical twins. Which of these statements about them is correct?

A. They both have half the normal number of chromosomes in their body cells.
B. They both have TWICE the normal number of chromosomes in their body cells.
C. They both have the same number of chromosomes in their body cells.
D. Dario has twice as many chromosomes in his body cells as Mario has.

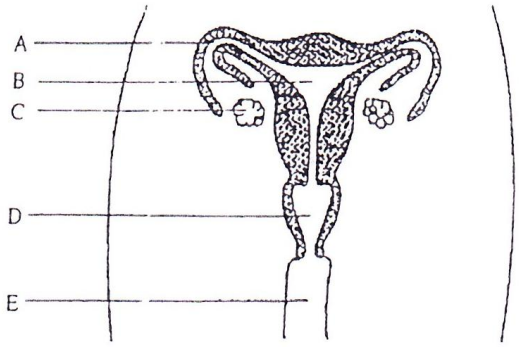
16. Which of the following are ALL sexually transmitted diseases (STD's)?
    A. Asthma, bronchitis and emphysema
    B. Influenza, pneumonia and melanoma
    C. Syphilis, gonorrhea and genital herpes
    D. Tuberculosis, tetanus, rabies

17. Which of the following is NOT a sexually transmitted disease?
    A. Herpes
    B. Gonorrhea
    C. Malaria
    D. Syphilis

18. Which of the following are ALL sexually transmitted diseases?

A. Aids, mumps and smallpox
B. Aids, gonorrhea and syphilis
C. Skin Cancer, lung cancer and leukemia
D. Gonorrhea, rabies and tetanus.

15. The diagram shows a human body system.



(a) Name the body system shown. _____

(b) Identify the LETTER of the structure where:

(i) The ova (eggs) are made. _____

(ii) An ovum (egg) is fertilized. _____

(iii) An embryo develops. _____

The diagram shows a human cell.

(c) Name the cell shown and the organ where it is produced.

Name of cell _____ (1)

Organ where produced _____ (1)

(i) Fertilization can be external or internal. State whether fertilization in humans is external or internal. Human fertilization is _____ (1)

The time taken for the baby to develop is gestation period.

(ii) Give another word that means the same thing as gestation

_____

(iii) State the time for the normal gestation period in humans.

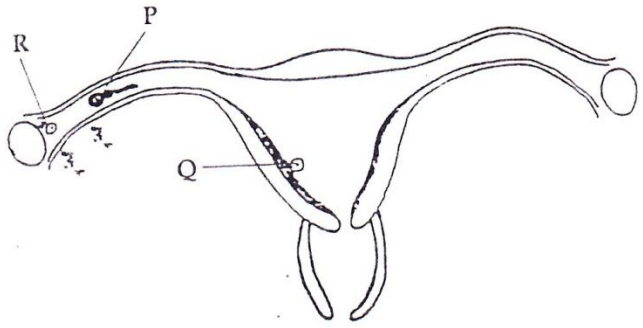
_____

Babies inherit physical characteristics from both parents.

(iv) Name the structure, inside the nucleus, responsible for these inheritable characteristics.

_____(1)

16. The diagram represents part of the human female reproductive system.



(a) (i) Write the term that describes the process occurring at P, Q and R.

P_____ Q _____ R _____

(ii) Place an S on the diagram to show where oestrogen is produced.(4)

(b) What type of cell division occurs in the zygote as it travels down the oviduct?

_____.

(c) (i) Why is it necessary for many sperms to be released during sexual intercourse?

_____
_____

(ii) Explain why only ONE egg is usually released at a time.

_____
_____(2)

(d) If sexual intercourse occurs during the first week of the menstrual cycle, no pregnancy results. Explain Why this is so.

_____
_____
_____
_____(3)

Which row in the table below correctly matches a disease with the part of the body it affects?

	DISEASE	BODY PART AFFECTED
A	Anemia	Skin
B	Hepatitis	Liver
C	Tuberculosis	Blood
D	Pneumonia	Stomach

39. Which of the following are all sexually transmitted diseases (STD's)?

A asthma, bronchitis and emphysema
B influenza, pneumonia and melanoma
C syphilis, gonorrhea and genital herpes
D tuberculosis, tetanus, rabies

40. Which list of diseases are all Sexually Transmitted Diseases (STD's)?

A AIDS, mumps and smallpox
B AIDS, gonorrhoea and syphilis
C anaemia, skin cancer and leukaemia
D gonorrhoea, rabies and tetanus

Which of the following is **not** a sexually transmitted disease?

A herpes
B gonorrhoea
C malaria
D syphilis

Which of the following is an inherited disease?

A Cholera
B Down's syndrome
C German measles
D Rabies

If a police officer pulls over a car which is being driven in a suspicious manner, which of the following would best help the officer determine if the driver has had too much alcohol to drink?

A the age and sex of the driver
B the driver's speech and reaction time
C the driver's height and weight
D the driver's destination

What is the normal body temperature of a healthy person?

A 37 °F
B 89.4 °F
C 98.6 °F
D 100 °F

A police officer stops a driver and tries to determine if the driver has had too much alcohol to drink. Which of the following symptoms would be least helpful in determining if the driver has had too much to drink?

A the driver's age
B a lack of coordination
C a slower reaction rate
D slurred speech

A young girl has rickets and is being treated by a doctor. Which row in the table below gives correct information about this condition?

	Cause of disease	Main symptoms	Treatment
A	Bacterial Infection	Aches and pains in joints	Antibiotic medicines
B	Lack of Vitamin D	Soft bones	Vitamin D pills or injections
C	Lack of iron	Weakness and fatigue	Iron pills or tonics
D	Virus infection	Sore throat and fever	Aspirin and bed rest

Which one of the following is a symptom of the flu (influenza)?

A bleeding from the gums and teeth
B itching on the scalp and hair loss
C sore throat and sneezing
D temporary blindness

Which of the following are all sexually transmitted diseases (STD's)?

A asthma, bronchitis and emphysema
B influenza, pneumonia and melanoma
C syphilis, gonorrhea and genital herpes
D tuberculosis, tetanus, rabies

Which list of diseases can all be classed as STD's (sexually transmitted diseases)?

A AIDS, mumps and smallpox
B AIDS, gonorrhea and syphilis
C skin cancer, lung cancer and leukemia
D gonorrhea, rabies and tetanus

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Lolita Parker Jr..Chemist photo Ruben Santiago-Hudson as Mr. Julian in a “Nova” profile.

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Marilyn Price-Mitchell, PhD, is founder of Roots of Action and author of Tomorrow's Change Makers: Reclaiming the Power of Citizenship for a New Generation. A developmental psychologist, she writes for Psychology Today and Edutopia on positive youth development, K-12 education, and family-school-community partnerships.
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