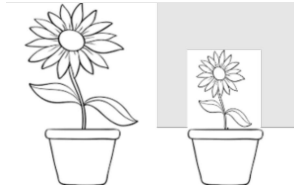


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Grade 5 Middle-of-Year Science Assessment

1. Ms. Santos's class is planning a flower show in the spring. Jorge and Xi Lu planted different flower seeds at the same time, but Jorge noticed that Xi Lu's flowers are growing faster than his own. Jorge wants to try to figure out why his flowers aren't growing as fast as Xi Lu's. Which is the best plan for Jorge to use to figure this out?



- A. Purchase different kinds of flower seeds, soil, and flowerpots. Plant the seeds and observe which flowers grow the tallest. Then make sure to use those seeds the next time.
- B. Ask Xi Lu what kind of soil she used when planting her seeds. Purchase that soil and add some of it to his own flowers. Then move his flowers to the window to get more sunlight.
- C. Put all the flowers in a row and give them more water. Measure the plants, make a graph, and report on the different sizes of the flowers. Research how tall these flowers should get and record that information.
- D. Research information about growing flowers, plant identical seeds in different situations, make observations about the flowers' growth, record and analyze the data, then draw a conclusion to answer the question.
2. Jane is investigating to find out if bean plants grow taller in ordinary topsoil or special potting soil over a three-week period. She sets up her investigation with 10 bean plants of equal size in each type of soil. What should Jane do each day to make sure she gets valid results?
- A. Water only the plants in the special potting soil.
- B. Calculate the average plant height for each soil type.
- C. Move the plants in ordinary topsoil to different locations.
- D. Estimate the height of each plant's stem and record the estimate.
3. Brianna's class wants to determine if Team A or Team B recycles more paper each day. They set up separate recycling bins in the classroom and labeled them "Team A" and "Team B". The students then placed their paper items in the correct bins.

Which of the following should the students do each day before emptying the bins?

- A. Make lists of the different types of paper in each bin.
- B. Count and record the number of paper items recycled in each bin.
- C. Make a list of which students recycled which paper item in each of the bins.
- D. Record their estimate of the number of times students placed items in each bin.

4. Mr. Palmer divided his class into four groups and gave each group a variety of paper airplanes. He told the students to try to throw them as far as possible. Each group threw each plane one time. After the activity, each group put the planes in order of how far each one traveled from shortest to longest. Did Mr. Palmer’s class do an experiment?
- A. No, because they did not control all the variables and they did not test multiple times.
 - B. Yes, because they did several tests with different planes and recorded their observations.
 - C. No, because all experiments require the use of scientific tools to get exact measurements.
 - D. Yes, because every group had the same plane and threw them more than three times.
5. Four students are planning to do science projects.

Student Name	Project
Christopher	Demonstrate different types of motion
Sasha	Compare weights of puppies in a litter as they grow
Selene	Show the distance between planets in the solar system
Waldon	Test different brands of batteries to determine which brand lasts the longest

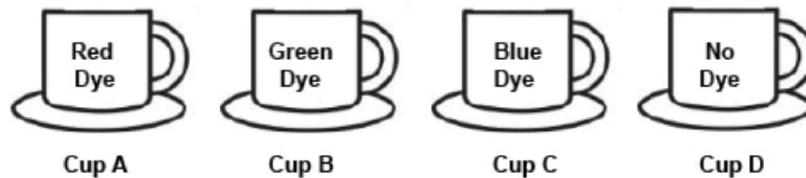
Which student is doing an experiment?

- A. Christopher
 - B. Sasha
 - C. Selene
 - D. Waldon
6. Fransisco is doing an experiment to see what materials complete a circuit. Which activity should NOT be part of his experiment?
- A. making a plan
 - B. interpreting data
 - C. gathering opinions
 - D. recording observations
7. Natasha wants to know whether adding coffee to soil will help plants grow. She plants seeds in pots and adds coffee to the soil. What else should Natasha do to find out if coffee helps plants grow?
- A. give plants fertilizer
 - B. put the plants in the shade
 - C. add more water to the soil
 - D. grow some seeds without coffee

8. Eddie plans to study the effect of different fertilizers on plants. He fills four pots with the same type and amount of soil. In three of the pots he mixes in a different type of fertilizer. In one of the pots he does not add any fertilizer. He then plants 5 seeds, from the same package, in each pot. All other variables are the same.

In Eddie's experiment, what is the pot with no fertilizer called?

- A. control
 - B. hypothesis
 - C. dependent variable
 - D. independent variable
9. Ashley is conducting an experiment to compare the amount of heat absorbed by water and its color. She fills 4 cups with room temperature water. She adds different colored food dye to 3 cups, leaves 1 cup with no food dye and then places all the cups in direct sunlight. Which cup is the control?



- A. Cup A
 - B. Cup B
 - C. Cup C
 - D. Cup D
10. While eating dinner Saveon noticed that tonight's rice was harder than last night's rice. He decided to try cooking different amounts of rice with different amounts of water until he found the best combination. When Tela asked him what he was doing, Saveon told her he was doing a science investigation. Tela said that Saveon had skipped steps and needed to go back to form a hypothesis. Saveon said he could do science any way he wanted. Who is right?
- A. Tela is right. Science must always follow the scientific method.
 - B. They are both wrong because Saveon is cooking, not doing science.
 - C. They are both right because Saveon did follow the scientific method.
 - D. Saveon is right. Science investigations can look different depending on the situation.

11. Martha followed these steps of an investigation:

Step 1: Gather three microwavable cups the same size and material and label the cups A, B and C.

Step 2: Add 25 milliliters (mL) of water to Cup A, 50 mL of water to Cup B, 100 mL of water to Cup C.

Step 3: Heat each cup for 1 minute in a microwave and measure the temperature of the water.

What is the best choice of what she should do after step 3?

- A. write a conclusion
- B. ask a new question
- C. add more water to each cup
- D. record the temperatures she observed

12. Maurice followed these steps in an investigation:

Step 1: collect five objects made of different types of metal

Step 2: place them on a large laboratory table

Step 3: use one magnet to touch each metal object and lift slowly

Step 4: record observations

Which of the following statements is Maurice **most likely** testing?

- A. The magnet will lift objects of certain colors.
- B. The magnet is attracted to various types of metal
- C. The magnet is attracted to the laboratory table
- D. The magnet can lift any metal object to the same height.

13. Izabella spent one week investigating the animal life in the garden outside her classroom window and recording her observations. Izabella witnessed the scene below.



Which of the following is an observation?

- A. There is one butterfly above the flower.
 - B. The butterfly enjoys the smell of this flower. The butterfly is investigating which flowers taste the best.
 - C. The plant provides food, water, and shelter for the caterpillars.
14. For her science fair project, Marcy is investigating how levels of carbon dioxide affect plant growth. Which of the following is most important for Marcy to do?
- A. She needs to make sure her results match her predictions.
 - B. She needs to make sure that her results include both words and numbers.
 - C. She needs to make sure that the explanation of her results is based on evidence.
 - D. She needs to make sure her results get published so that everyone can read them.
15. Which of the following must be true for scientific results to be valid?
- A. The results should be drawn in a graph.
 - B. The results should be based on evidence.
 - C. The results should support the ideas of other scientists.
 - D. The results should match the predictions of the scientist.

16. Izabella created a chart to keep track of what steps were needed to follow in order to keep good records for observing butterflies. Every day from Monday to Friday Izabella would assign friends to look out the window throughout the day and record the data. Izabella wrote her procedure as shown below.

Step 1	Remove the clipboard and pencil from the wall. (Record the time you started)
Step 2	Look out the window that faces the school garden and milkweed.
Step 3	Observe how many Monarch butterflies are on the milkweed plants.
Step 4	Count the number of new butterflies that land on the plants.
Step 5	Record on your data chart how many butterflies were observed.
Step 6	Return the clipboard and pencil to the wall. (Record the time you ended)

Why is it important that Izabella wrote her procedure in such detail?

- A. It is part of the scientific method.
 - B. To remember how the class did their investigation.
 - C. The data will show that there were also birds in the garden.
 - D. Others can repeat the exact experiment and compare the results.
17. Dr. Jones thinks that she has just discovered a new plant species. How should she **best** communicate her findings with other scientists?
- A. Post her discovery as a fact on the internet.
 - B. Publish her discovery for other scientists to test.
 - C. Call her friends and tell them about the discovery.
 - D. Share her information through television commercials.
18. Tom is creating an experiment to see what food his pet lizard likes best. He creates an experiment in which he offers his lizard a choice of crickets or mealworms. He records how much of each choice is eaten each day. At the end of two weeks, Tom observes that the lizard has eaten a few more mealworms than crickets.

What must Tom do to be sure his results are valid?

- A. Include another food option besides crickets and mealworms.
- B. Repeat the same experiment to confirm his results.
- C. Buy additional lizards and feed them all different options of food.
- D. Feed only mealworms for a while and then offer another choice again.

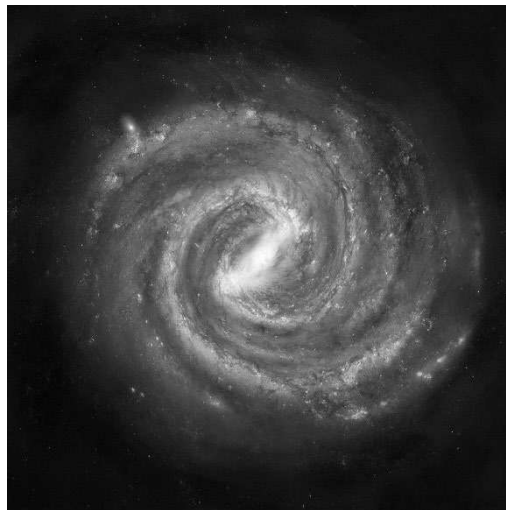
19. George and Erika were arguing about where the name “Milky Way” comes from. George said it comes from the candy bar, but Erika said it comes from how the stars look in the night’s sky. What is the Milky Way?

- A. our galaxy
- B. our nebula
- C. our universe
- D. our Solar System

20. Which sentence most accurately describes the composition of a galaxy?

- A. A galaxy consists of stars and planets with some dust spread in between.
- B. A galaxy is a giant black hole that does not allow much else to exist inside of it.
- C. A galaxy consists of gas, dust, billions of stars, and all the objects that orbit the stars.
- D. A galaxy consists of gas, dust, and one giant star with many planets and smaller stars orbiting around it.

21. Below is a picture of the Milky Way Galaxy.



What are the brightest objects you are seeing in the picture?

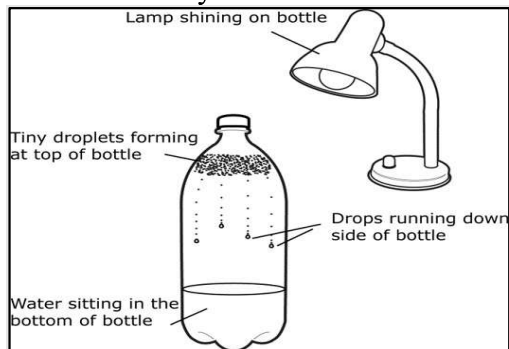
- A. gas
- B. dust
- C. stars
- D. comets

22. Dov had trouble remembering the difference between rotation and revolution. His teacher reminded him that the word revolution is longer than the word rotation, and a year is longer than a day. Using knowledge of inner and outer planets, which planet below has the longest year?
- A. Jupiter
 - B. Mercury
 - C. Neptune
 - D. Saturn
23. Which is the only known planet in our Solar System to have oxygen and liquid water?
- A. Earth
 - B. Mars
 - C. Saturn
 - D. Uranus
24. The planets in our Solar System are various distances from the Sun. What does the distance from the Sun determine for each planet?
- A. the length of time the planet takes to orbit the Sun
 - B. the time it takes the planet to rotate once
 - C. the number of moons the planet has
 - D. the size of the planet
25. Joanne knows that planets that are closer to the Sun receive more thermal energy than planets that are farther from the Sun. Which is the **best** statement from the choices below?
- A. Earth is colder than Mars.
 - B. Jupiter is colder than Uranus.
 - C. Mars is warmer than Mercury.
 - D. Saturn is warmer than Neptune.
26. Which object revolves around the Sun as part of our Solar System?
- A. galaxy
 - B. black hole
 - C. planet
 - D. star

27. What is the correct order of the inner planets?

- A. Mercury, Earth, Mars, Venus
- B. Venus, Mercury, Earth, Mars
- C. Mars, Venus, Earth, Mercury
- D. Mercury, Venus, Earth, Mars

28. Mauricio created a model of the Earth's water cycle.



Mauricio is using saltwater to demonstrate how the oceans evaporate. Read the following statements.

- 1) The tiny droplets forming at the top are saltwater.
- 2) The tiny droplets forming at the top are freshwater.
- 3) The water at the bottom of the bottle became freshwater.
- 4) The drops running down the side of the bottle are saltwater.

Which statement is correct?

- A. 1
- B. 2
- C. 3
- D. 4

29. What is the role of the Sun in the water cycle?

- A. The Sun forms the clouds.
- B. The Sun does not affect the water cycle.
- C. The Sun provides energy for evaporation.
- D. The Sun provides energy for precipitation.

30. Stephanie placed an uncovered bowl of water in a sunny spot outside her classroom. When she returned several hours later, much of the water was gone. What process caused less water to be in the bowl?
- A. accumulation
 - B. condensation
 - C. evaporation
 - D. precipitation
31. Arnold and Esther are hiking to the top of Bear Mountain. How might they expect the weather to change as they get closer to the top?
- A. The temperature and air pressure will decrease.
 - B. It will get windier and there will be more precipitation.
 - C. Winds will drop and the air will be more humid.
 - D. The temperature and air pressure will increase.
32. The image below is a wind vane. What measurement of the weather does this tool show?



- A. wind speed
 - B. wind direction
 - C. temperature
 - D. precipitation
33. Which of the following is a tool that could predict potential rain conditions?
- A. anemometer
 - B. measuring tape
 - C. rain gauge
 - D. barometer

34. Mariah called Elizabeth as she left the grocery store and told her she might be a little late because it was hailing outside. Elizabeth said she heard it was sleeting, not hailing. What could Mariah say to convince Elizabeth that it is hailing and not sleeting?

- A. The precipitation is balls of ice.
- B. The precipitation is warm and a liquid.
- C. The precipitation is soft and crystalline.
- D. The precipitation looks like frozen rain.

35. Which type of precipitation is caused by liquid water freezing in the clouds?

- A. hail
- B. rain
- C. sleet
- D. snow

36. Read the description of the air temperature and what the precipitation looks like. Then identify the missing type of precipitation that is being described.

Air Temperature	Precipitation Description	Type of Precipitation
24°C (75°F)	liquid water, falling at a rapid speed	???
-1°C (30°F)	ice crystals that combine to form different shapes	snow
17°C (62°F)	solid ice, shaped like small or medium bumpy rocks	hail

- A. hail
- B. humidity
- C. rain
- D. sleet

37. Morrisville and Springfield are two popular tourist destinations. Morrisville is near a swamp and Springfield is in the mountains. How would the weather in Morrisville compare to the weather in Springfield?

- A. Springfield would have higher humidity and cooler temperatures.
- B. Springfield would have lower humidity and warmer temperatures.
- C. Morrisville would have lower humidity and warmer temperatures.
- D. Morrisville would have higher humidity and warmer temperatures.

38. This is a photo of a swamp in southern Florida.



Which of these descriptions is **least** likely to describe the climate of a swamp like this?

- A. dry and chilly
 - B. hot and humid
 - C. frequent precipitation
 - D. two seasons, wet and dry
39. What happens to warm, moist air which rises up the western side of a mountain?
- A. The warm air rises up the western side and cools and condenses into clouds.
 - B. The warm air rises up the western side and evaporates into the sky.
 - C. The warm air rises up the western side and then falls down the northern side.
 - D. The warm air rises up the western side and then falls back down the western side.
40. Isabella is studying the weather of two areas in the same climate zone; Pike's Peak Mountain in Colorado and Lake Okeechobee in Florida. She notices that the temperature is much colder in Colorado than it is in Florida during the same month. Which of the following is NOT a reason why the weather is different.
- A. latitude
 - B. elevation
 - C. longitude
 - D. proximity to water

41. Many variables impact a location's climate. Which variable would have an impact on the climate of Florida?
- A. longitude
 - B. proximity to ocean
 - C. wind speed over land
 - D. number of lakes nearby in the state
42. Lola's family is booking a vacation to a city in another state but is keeping the exact location a surprise. Which question could Lola ask her parents to find out more about the climate in her vacation destination city?
- A. Is it raining there today?
 - B. What is the elevation of the city?
 - C. Will we drive or fly to get there?
 - D. When will we know the exact location?
43. Cecilia measured the mass of each of the following: a soccer ball, tennis ball, baseball, volleyball, and basketball. She recorded the mass of each ball in the chart below.

Ball	Mass
Soccer ball	405 grams
Tennis ball	58 grams
Baseball	146 grams
Volleyball	278 grams
Basketball	503 grams

Then, Cecilia lined up all the balls on the playground and she pushed each ball with the same amount of force. She measured the distance each ball traveled. Which ball will **most likely** go the farthest?

- A. tennis ball
- B. baseball
- C. volleyball
- D. basketball

44. In the illustration, a pulley is holding a 6 kilogram (kg) watermelon.



watermelon
6kg

Which object will lift the watermelon to the top of the pulley when added to the second basket?

- A. bowling ball, 7 kg
 - B. brick, 3 kg
 - C. cat, 5 kg
 - D. pineapple, 1 kg
45. This photo shows a windsurfer on a sailboard.



The wind will move the windsurfer and their sailboard. Which statement **best** describes what would happen if the windsurfer's mass increased, but the force of the wind did not?

- A. Increased mass will cause the windsurfer to change direction.
- B. Increased mass will cause the force of the wind to move the surfer less.
- C. Increased mass will cause the force of the wind to move the surfer more.
- D. The mass of the surfer has no affect on their motion. Only forces affect motion.

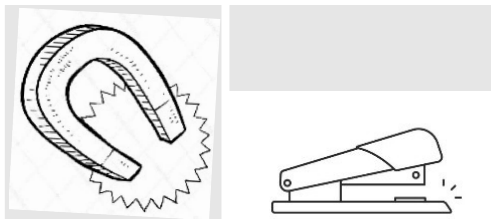
46. The children were playing soccer at recess. Aaron was kicking the ball so it stayed in front of him as he ran down the field as fast as he could. When he got closer to the goal, he kicked the ball across the field, past the other team, and aimed for the goal. Unfortunately, the ball was moving too slowly to get past the goalie.



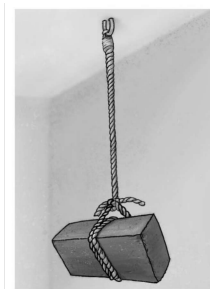
What could Aaron do to make the ball move faster?

- A. run faster.
 - B. put a spin the ball.
 - C. kick the ball harder.
 - D. make the ball bounce.
47. How do the properties of a ramp affect the force on a car on the ramp?
- A. The steeper the ramp, the greater the force of friction on the car.
 - B. The longer the ramp, the greater the force of gravity on the car.
 - C. The steeper the ramp, the less the force of friction on the car.
 - D. The longer the ramp, the les the force of gravity on the car.
48. Which of the following would have the **greatest** effect on the motion of a kickball rolling on the ground?
- A. the amount of wind
 - B. the friction of the air
 - C. the amount of force the ball was kicked with
 - D. gravity pulling on the kickball

49. Ruby used a horseshoe magnet to lift various objects off her desk. She picked up a paper clip. Next, she picked up an iron nail. Then she tried to pick up an iron stapler but was not able to. What is the best reason why Ruby was unable to pick up the iron stapler with her horseshoe magnet?



- A. The forces of magnetism and gravity were equal.
 B. The force of electromagnetism was stronger than gravity.
 C. The force of gravity was stronger than the force of magnetism.
 D. The force of magnetism was stronger than the force of gravity.
50. In the illustration, a brick is tied to the end of a rope.



Why is the brick not moving?

- A. The force of gravity is too strong for the brick to move.
 B. Both the force of gravity and the rope pull the brick upward.
 C. The force of gravity is gone because the brick is held up by the rope.
 D. The force of gravity on the brick is balanced by the upward pull of the rope.
51. Emily tries to pull a stack of books across a desk with a gentle pull. The stack of books does not move. Which of the following **best** explains why the stack of books will not move?
- A. The pull being used is unbalanced with the force of friction acting on the stack of books.
 B. The pull being used is balanced with the force of friction acting on the stack of books.
 C. The pull being used is too strong to move the stack of books.
 D. The stack of books is pushing too hard on the table.

52. John and Anastasia conducted experiments on how light affects plant growth. John started early and tested his lights three times. Anastasia started late and only had time to test her lights once. What is the **best** reason to have more than one trial in an experiment?
- A. The conditions in the experiment will change every time.
 - B. The results will change every time you run the experiment.
 - C. Only one of the trials is needed to support your hypothesis.
 - D. The results are more reliable and there is less chance of error.
53. Dr. Jones, a chemist, conducted an experiment, and was shocked at the results. It appeared that she discovered a new way to generate electricity without any pollution and using water as fuel. What should Dr. Jones do next?
- A. Double check her hypothesis.
 - B. Tell her family about her experiment.
 - C. Publish her results in a scientific journal.
 - D. Repeat her experiment several times to see if she gets the same results.
54. Jonathan and Sarah have performed an experiment and are not sure their results are valid. What should they do to check their results?
- A. average their data
 - B. change their lab report
 - C. perform a new experiment
 - D. repeat the same experiment
55. Jocelyn has a bird and a turtle, and she thinks that birds are more entertaining than turtles. Marion does not own any birds or turtles, but he thinks that turtles are more entertaining than birds. Which person, Jocelyn or Marion, would most likely know which animal is more entertaining?
- A. Marion because he only has an opinion but no observations.
 - B. Marion, because he has read about birds and turtles in books.
 - C. Jocelyn, because she only has an opinion but no observations.
 - D. Jocelyn, because she has an opinion based on her observations.

56. Omar is performing an investigation using several earthworms. He places a rectangular box under a bright lamp and covers one-half of the box so that it is shaded. Then, he puts the earthworms into the box on the side that is still brightly lit. Later, Omar notices that all of the earthworms have crawled over to the shaded side of the box.

Based on the investigation, which of the following is an observation and **NOT** a personal opinion?

- A. Earthworms are afraid of light.
- B. Earthworms like staying together.
- C. Earthworms move away from light.
- D. Earthworms like living in the ground.

57. Sylvia records data about her pet hamster Mel. Which of the following from Sylvia's list is NOT an observation?

- A. Mel eats carrots.
- B. Mel lives at my house.
- C. Mel likes the color red.
- D. Mel has a mass of 630 grams.

58. When rain falls west of the Rocky Mountains, the water flows into rivers that eventually empty into the Pacific Ocean. This happens very frequently. Even though water is getting added to the Pacific Ocean all the time, the amount of water in the Pacific Ocean is not increasing. Which of the following statements is the best explanation?

- A. Ocean water is stored in icebergs.
- B. Ocean water evaporates every day.
- C. Fresh water is denser than saltwater.
- D. Fresh water does not take up the same space as saltwater.

59. This is a photo of an ocean on a clear day.



How does the ocean affect weather?

- A. Larger ocean waves produce higher winds.
 - B. When the ocean is calm, fewer clouds are present.
 - C. The temperature of the ocean affects the amount of water vapor in the air.
 - D. The ocean makes rain salty because salt evaporates with water from the ocean.
60. The Earth's oceans are salty. Rain falls as fresh water. Which of the following processes is responsible for removing salt from ocean water?
- A. condensation
 - B. evaporation
 - C. precipitation
 - D. reservoirs

61. Megdi is making a chart of human organs and their functions, but he mismatched two of the organs and functions.

Human Body Organs and their Functions

Organs of the Human Body	Function
Skin	Provides protection and regulates temperature
Brain	Controls thoughts, speech movement, and other organs
Heart	Pumps blood through the body
Lungs	Removes oxygen from the air
Kidneys	Removes nutrients from food
Intestines	Passes waste as urine and filters blood
Bladder	Stores urine before excretion

Which two organs and functions are mismatched?

- A. kidneys and intestines
- B. kidneys and bladder
- C. brain and bladder
- D. intestines and skin

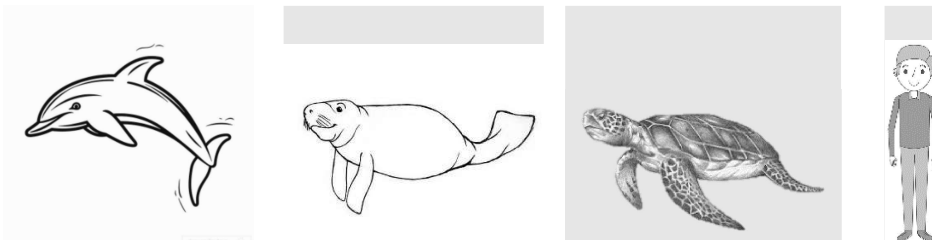
62. Newborn jaundice is when a baby’s skin and the white parts of the eyes look yellow. Newborn jaundice is very common and usually goes away without treatment. This happens when the organ that filters blood is not yet working properly. Which organ is **most likely** causing a newborn baby to look yellowish?

- A. heart
- B. liver
- C. lungs
- D. pancreas

63. Which of these organs have a function that helps with moving oxygen around your body?

- A. kidney
- B. intestine
- C. heart
- D. bladder

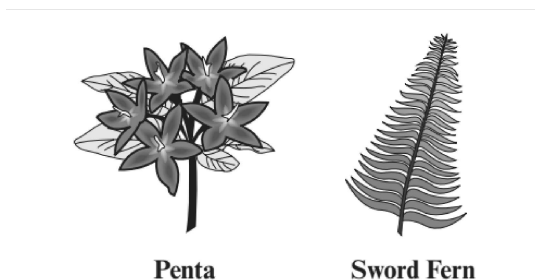
64. Dolphins, manatees and turtles live in the ocean, but humans live on land.



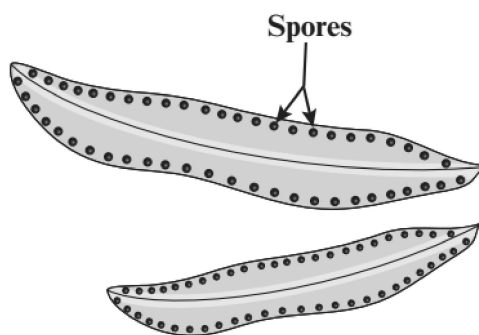
Which of the following statements is incorrect?

- A. None are cold blooded.
- B. They all give birth to live young.
- C. They all have five senses.
- D. They all have skeletons to provide support.

65. The drawings below show two plants that grow in Florida, a penta and a sword fern.



The drawing below shows the spores that appear on the underside of the sword fern's leaves.



Which of the following is present in the penta but NOT in the sword fern?

- A. root growth
- B. flower production
- C. ability to reproduce
- D. ability to make food

66. Which is **not** a correct statement about insects?
- A. They have their skeletons on the outside of their bodies.
 - B. Their eyes may have thousands of lenses.
 - C. They absorb nutrients through their skin.
 - D. They lay eggs to reproduce.
67. Pythons are an invasive species in the Florida Everglades. They are not native, and their presence has changed the environment. Since the introduction of pythons in the Everglades the number of bobcats has decreased. What is one possible explanation for the decrease in bobcats?
- A. Bobcats cannot eat the grass because the pythons hide in the grass.
 - B. Panthers eat pythons.
 - C. Pythons and bobcats eat the same prey.
 - D. The plant life is not enough to feed the bobcats.
68. Which of the following is a way that plants can respond to a change in their environment?
- A. extinction
 - B. migration
 - C. hibernation
 - D. Plants can't respond to changes.
69. An invasive species is one that is introduced to an environment where it is not naturally found. All of the following are examples of impacts an invasive species could have on an environment except which one?
- A. Extinction of native plants and animals
 - B. Reduce wildlife habitats
 - C. Spread diseases
 - D. Change the local climate