

A close-up photograph of a newborn baby's hand reaching up towards a woman's face. The baby's hand is in the foreground, with fingers slightly curled. The woman's face is in the background, partially obscured by the hand, with her eyes closed and a peaceful expression. The lighting is soft and warm, creating a tender and intimate atmosphere. The background is dark, making the baby's hand and the woman's face stand out.

Fetal Development

A New Life Presentation

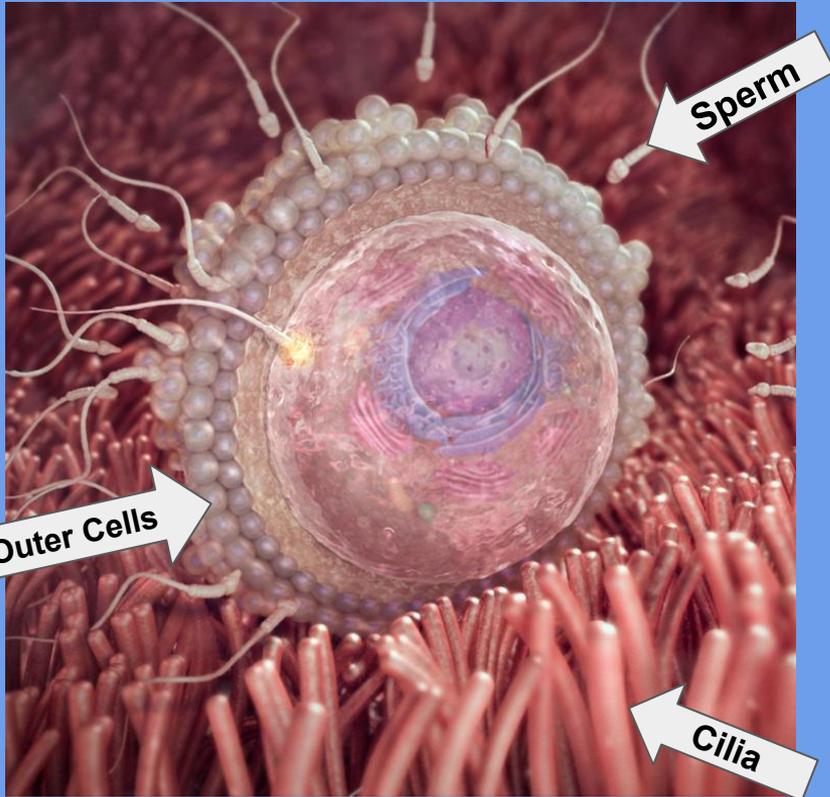
Conception

Your body works hard to help the sperm on their way. When you ovulate, the mucus around your cervix is thinner than usual. This helps the sperm to swim more easily.

Sperm can live inside you for up to seven days, which is why it's good to have sex every couple of days or so to maximise your chances.

When a sperm succeeds in reaching your egg, it releases enzymes to burrow a hole in your egg's outer cells. The sperm wriggles through the gap, and your egg immediately closes its outer membrane to lock out other sperm that have made it this far.

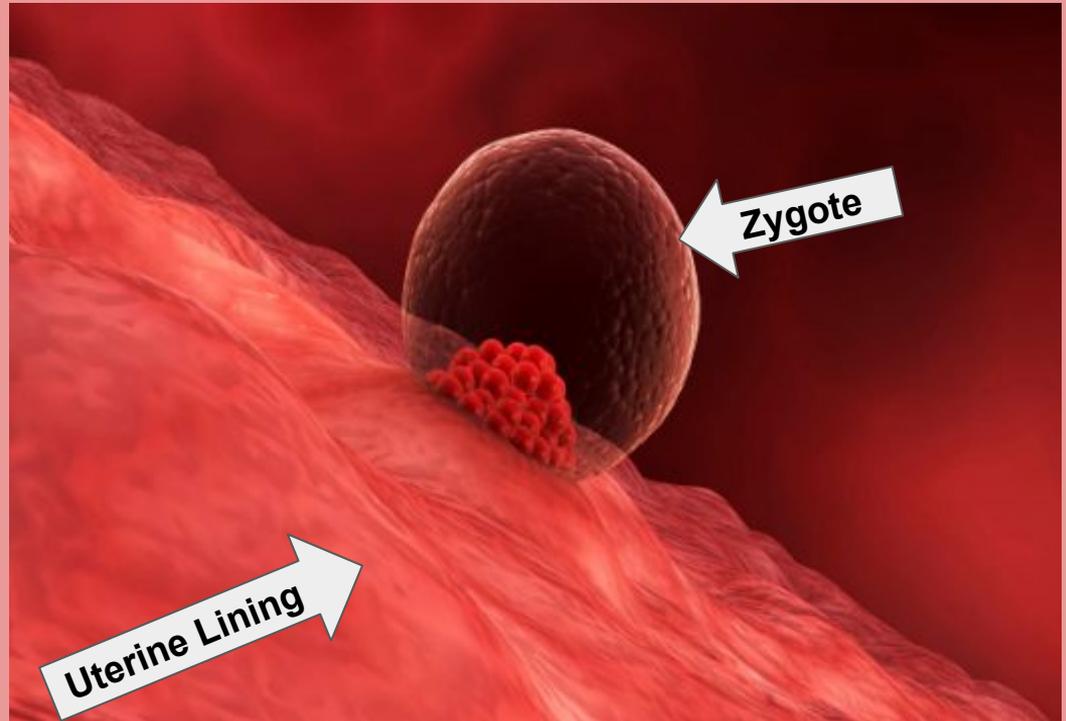
Egg and sperm each have a nucleus that carries a bundle of genetic material. Within about 24 hours, the two gene bundles combine to create the beginnings of a unique human being - your baby! If the sperm has a Y chromosome, your baby will be a boy. If the sperm has an X chromosome, you'll be expecting a girl.



Implantation

Your fertilised egg is called a zygote. Straight away, the zygote begins dividing into identical cells as it's swept down the fallopian tube.

Between 2-4 four days later, the zygote reaches your uterus and begins burrowing into the thickened lining of your uterus (implantation), where it will continue to grow.



Week 5



Your baby measures about the size of a sesame seed, and looks more like a tiny tadpole than a human.

The developing placenta continues to burrow into the wall of your womb to ensure a good blood supply for your baby, who is growing at a furious pace.

Within your baby's tadpole-shaped form, three layers of cells are forming. These will grow into the major organs and tissues:

- In the top layer, a hollow structure called the neural tube begins to form, as a groove then a tube. This is where your baby's brain, backbone, spinal cord and nerves will develop. Skin, hair and nails will also develop from this layer.
- The middle layer is where the skeleton and muscles grow from, and where the heart and blood circulation system will form.
- The third layer houses the beginnings of what will become the lungs, the intestines and the urinary system.

Your baby's neural tube also starts to close at each end to form a protective cavity around the emerging spinal cord and brain.

- Your baby's tiny heart is the first organ to function. Although it looks more like a tube, rather than the final four chambers of a fully grown heart, it's already connected to blood vessels. It's probably already beating, as most embryo hearts start to function around day 21 or 22 of pregnancy.

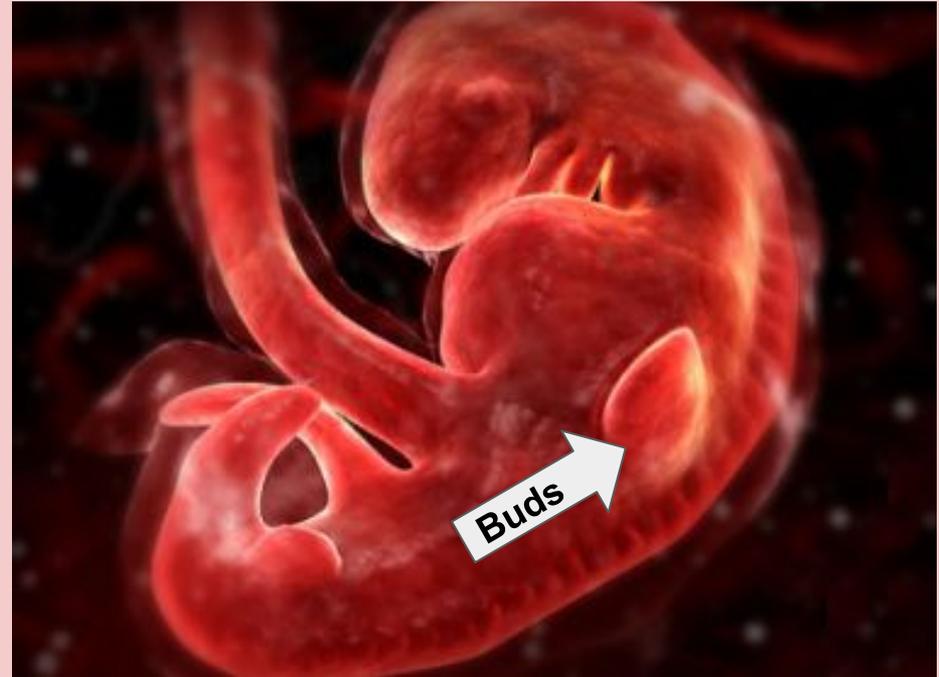
Your baby is about the size of a lentil. Her heart might be seen beating if you have a vaginal ultrasound around now. Her heart beats faster than yours, at about 100 beats a minute.

Your baby has grown from an oval into a C shape as her features start to develop. She has dark spots where her eyes will be, and little pits to mark her ears, soon followed by dimples where her nostrils will be. Small folds below her developing brain will grow into your baby's tongue, jaws and neck.

The buds, or bumps, that will grow into your baby's arms begin to swell, soon followed by those for her legs. Muscle and bone tissue are forming, and she's covered with a thin layer of skin. At this stage, her skin is so thin that you can see through it.

Inside, cells that will become your baby's intestines are developing, along with the bud of tissue that will become her lungs, liver and kidneys. Your baby's neural tube, from which her brain and spinal cord grow, continues to close at each end.

Week 6



Week 7



Your growing baby is about 1cm long, the size of a blueberry. He has a tiny tail, an extension of his tailbone (coccyx), that will soon disappear.

In your baby's arms, cartilage tissue is forming, along with nerves. His arms are also lengthening, and his shoulders, upper arms and forearms are becoming clearer. His hands look more like flattened paddles than palms with fingers. His legs and feet will go through the same development as his arms and hands, just a few days later.

Your baby's brain is growing so fast that it's bigger than his body. His nose and nostrils are forming and his inner ear starts to develop, although the outer ear won't be obvious just yet. His eyes are still in the early stage of development, but already translucent folds are beginning to form tiny eyelids.

Your baby's liver is churning out red blood cells until his bone marrow grows and takes over this role.

A loop in your baby's growing intestines is bulging into his umbilical cord. The cord now has distinct blood vessels, ready to carry oxygen and nutrients to his tiny body, and remove waste substances such as carbon dioxide.

Your baby is about the size of a kidney bean. You won't feel it yet, but her body is like a tiny jumping bean too, moving in fits and starts.

Your baby's head is larger than the trunk of her body, and is bent over onto her chest. Her facial features are slowly becoming more defined as her upper jaw and nose take shape. She has little mounds where the shell of her ears will grow and her eyes are now more obvious, with eyelid folds partially covering them.

Nerve cells in your baby's brain are branching out to form early neural pathways. The part of the brain responsible for her sense of smell is also taking shape.

Your baby's hands are developing ridges where her fingers will be. Her legs are forming, and the shape of her feet is starting to show. She won't have toe ridges yet. Her legs and feet develop around five days later than her arms and hands. Her embryonic tail is almost gone, shrinking back to form her tailbone (coccyx).

Week 8



Week 10

This is a big week for your baby! Until now, she's been in the embryonic stage of development, which is when cells form to become her brain and nervous system, her limbs, and all her major organs.

This week marks her move into the fetal stage, which lasts until she's born. From now on, she'll grow and develop, until she's ready for life outside your womb.

Your baby is about the size of a green olive. She measures about 3.1cm (1.2in) from head to bottom (crown to rump) and weighs nearly 4g (0.1oz).

Her head is more rounded and upright now, the outer part of her ears are fully developed and her limbs are well formed. Her eyelids are fused shut, and will stay that way until about 27 weeks of pregnancy.

Her tiny fingers and toes are no longer webbed, her arms and legs can rotate at her shoulder and hip joints, and her hands meet over her heart.

She may be small, but she's very active, kicking her new limbs and reaching up to touch her face.

The yolk sac, which provided your baby with nutrients before the placenta developed, will soon shrink.

Your baby has a fully developed heart, which is beating at about 180 beats per minute. That's two or three times faster than yours. Her other vital organs, including her kidneys, intestines, brain, and liver (now making red blood cells in place of the yolk sac), are starting to function, though they'll continue to develop throughout your pregnancy.



Week 12



Your baby is about 5.4cm (2.1in) from head to bottom (crown to rump), the size of a lime, and weighs up to 14g (5oz).

Her/his skeleton is made of firm tissue called cartilage. From now on it will begin to develop into bone, starting with her skull and long bones. This hardening process takes a long time. In fact, her bones won't be fully developed until she's a woman in her 20s!

Your baby is starting to look more human every day. Though her eyes are still wide-set and her ears low on her head, her earlobes are taking shape. She's also gaining some of the skills she'll need after she's born. She can close her tiny fingers to make a fist now.

Your baby's reflexes are becoming more honed, and you may see her fidgeting when you have your dating scan.

Although your baby's on the go, and getting stronger every day, you won't feel her move for a few weeks yet.

From head to bottom (crown to rump), your baby is about 8.7cm (3.4in) and weighs around 43g (1.5oz). She's roughly the size of a lemon.

Fine hair called lanugo is starting to appear on your baby's head and body. Over the next six weeks or so, this hair growth will thicken. Lanugo plays a part in regulating your baby's temperature because it helps to bind a protective waxy substance called vernix caseosa to her skin. Lanugo will start to fall out about four weeks before your baby's due, although you may see downy traces of it when she's born.

Your baby is now moving her arms and legs in a more coordinated way. You may have been lucky enough to see her kick her legs or move her arms around during your dating scan. Your baby may even be able to wiggle her fingers by now.

Impulses darting through your baby's brain mean her facial muscles are getting a workout. Her tiny features rapidly form one expression after another, from squints and frowns to grimaces. She's also beginning to make slow eye movements under her closed lids.

Week 14



Week 16



Your baby is now about 11.6cm (4.6in) from head to bottom (crown to rump), about the size of an avocado. She weighs about 100g (3.5oz).

In the next three weeks she'll go through a huge growth spurt, more than doubling her weight. As your baby grows in size, so does the placenta, which helps to support and nourish her.

Your baby's neck muscles and back bones are now stronger, meaning her head is more upright. Her grasp may now have developed enough for her to hold her little hands together.

On the top of your baby's head, the lines of her scalp pattern are beginning to form. A groove called the philtrum is starting to appear under your baby's nose, giving her top lip its distinctive Cupid's bow shape.

Your baby's circulatory system is in full working order. Her heart is pumping about 24 litres (42 pints) of blood around her body every day. By the time she's born, it'll be pumping around 12 times that amount.

Your baby is about 14.2cm (5.6in) from head to bottom (crown to rump), almost the size of a bell pepper, and weighs up to 190g (6.7oz).

She looks more like a tiny human each day. Her head is smaller relative to her body size, and her legs have lengthened. The outer shells of her ears are clearly visible and are in their final position.

Your baby is maturing inside her body, too. In her lungs, the main branching tubes are starting to develop tinier tubes at their tips. By the end of your second trimester, these tiny tubes will have sprouted air sacs (alveoli). By the time your baby is born at full term, alveoli are laced with fine vessels through which blood flows to pick up oxygen, ready to circulate to her organs and tissues.

Your mid-pregnancy ultrasound scan (anomaly scan) is offered between 18 weeks and 21 weeks. So you'll soon get a glimpse of your baby kicking, flexing, reaching and even rolling.

During the anomaly scan, a sonographer will assess your baby's growth and development in detail. If you want to find out, and if your baby is in the right position, your sonographer may also be able to tell you your baby's sex.

If you're having a girl, your baby's womb (uterus) is in place, and her vagina and fallopian tubes are developing. If you're having a boy, his penis will be distinct - it's growing rapidly now.

Week 18



Week 20



This week, your baby measures about 25.6cm (10in), or the length of a banana, and weighs about 300g (10.6oz).

You're halfway to your due date and your baby is becoming more active every day. Even if you're still waiting to feel that exciting first kick, your baby is busy flexing and stretching.

She's probably sucking her thumbs or fingers, too!

At your anomaly scan, which will take place between 18 weeks and 20 weeks, the sonographer will check how your baby's growing by measuring the circumference of her head and abdomen, and her thigh bone (femur) length. She'll measure your baby's head and body because it can be difficult to record your baby's length accurately when she's curled up.

A slick, fatty substance called vernix caseosa is beginning to form within the pores of your baby's developing skin. In the third trimester, it will be secreted from your baby's skin follicles to act as a moisturiser and lubricant, helping to protect her delicate skin from her long immersion in amniotic fluid.

Vernix also plays a role in the transition from womb to world, by helping your baby's skin to adapt from a watery to a dry environment. It may also help your baby to stabilise her body temperature and to fight infection.

Week 22

Your baby is about the size of a spaghetti squash this week. She weighs almost 430g (15.2oz) and measures about 27.8cm (10.9in) from crown to heel. She's proportioned like a newborn, but her baby fat is yet to appear. She'll build up fat in the coming months.

Your baby's eyes have formed, although her irises are not yet fully pigmented. The colour of her eyes will continue to develop after she is born.

Your baby continues to swallow amniotic fluid, which is good practice for her digestive system. Her body is absorbing tiny amounts of sugar from the fluid, which supplements the nourishment she receives from the placenta.

Your baby is doing wees to clear her body of excess water. Any waste from her body is removed from the amniotic fluid through the placenta, to be absorbed into your blood stream. Your body has to process your baby's waste products along with your own. That's one of the reasons why your kidneys have to work harder during pregnancy.

A sticky byproduct of your baby's digestive system, called meconium, is slowly building up in her bowel. When your baby's born, the meconium will be her first poo. It's normal for newborns to lose a little body weight over a few days after they're born - it's partly the weight of their first poo!

If you're having a baby girl, her mammary glands, which are responsible for making breastmilk, continue to develop this week. If you're having a boy, his testes are now starting to descend from his pelvis into his scrotum.



Week 24



Your baby now weighs up to 600g (1.3lb) and is starting to fill the space in your womb (uterus). From head (crown) to heel she measures about 30cm (11.8in), which is about as long as an ear of corn.

Her patterns of sleeping and waking are becoming more defined, although they may not happen when you'd like them to. You'll probably find that, when you're trying to sleep, she's alert and kicking.

Your baby's kicks may feel subtle at first, but as she gets bigger and stronger they'll feel more punchy. When she turns her whole body, her movements may feel smoother to you.

Your baby's brain is growing rapidly, and her facial muscles are getting a workout as she tests out different expressions, such as smiling and scowling.

Although your baby still has a lot of growing to do before she's ready to be born, she's now considered "viable". This means that if she were to be born this week, her lungs are developed enough so that she has a chance of survival with specialist care in a neonatal unit.

Thankfully, however, extreme prematurity is uncommon, so it's unlikely you'll be meeting your little one for a few months yet.

Measuring your baby from head (crown) to heel, she's about 35.6cm (14in) long. She now weighs as much as a red cabbage, which is about 760g (1.7lb).

Her growing body is supported by her strengthening spine, which has 150 joints, 33 rings of bone, and 1,000 ligaments.

Your baby's response to sound is becoming more sophisticated as her brain develops. She's able to hear more distinctly, and may be able to pick out the different voices of you and your partner. This early recognition will help her to bond with you once she's born - she'll be listening out for the comforting, familiar sound of your voice.

Your baby's lungs continue to develop, branching out new airways with tiny air sacs (alveoli) at their tips. This network of airways is also known as the respiratory tree.

Inside your baby's lungs, surfactant is developing. This is a substance that coats the inside of the air sacs to help them inflate and deflate efficiently. However, your baby's lungs are not ready to breathe air just yet. When your baby takes her first breath after being born, sacs will fill with air. Oxygen will be absorbed into her bloodstream through a mesh of miniscule blood vessels, also now developing.

If you're having a boy, his testicles are continuing to descend from his pelvis towards his scrotum. Testicles usually reach the scrotum in the third trimester, although for some baby boys it may happen in the first three months of life outside the uterus.

Your baby's tastebuds are now fully developed. High up in her gums, the toothbuds that will eventually become her adult incisor and canine teeth continue to take shape.

Week 26



Week 28



Good news - you're now in your third trimester! Your baby weighs just over 1kg (2.2lb), about the same as an aubergine, and is at least 37.6cm (14.8in) long.

Your baby's eyes are now ringed with delicate lashes. Soon, the muscle fibres that form your baby's irises will develop colour and pattern. However, the final colour of your baby's eyes won't be revealed until at least a few weeks after she's born.

A white, fatty substance called myelin is slowly wrapping around your baby's spinal cord and the nerves that branch out from it. This process is called myelination, and it will continue during pregnancy and throughout your baby's first year.

Myelin is important, as it helps to speed up messages between your baby's brain and the nerves around her body. It also acts as a protective layer. The nerves that support your baby's movement are sheathed in myelin first, before the nerves that serve her senses.

Your baby now measures a little more than 39.9cm (15.7in) from head (crown) to heel, which is similar to the size of a cabbage.

Her growth, in terms of her length, will soon slow down, but she'll continue to gain weight until she's born. She weighs about 1.3kg (2.9lb) at this stage.

White, greasy, moisturising vernix coats your baby's skin from head to toe and from back to front. Vernix helps to protect her skin from its long immersion in amniotic fluid.

Vernix is also antimicrobial, keeping bacterial and fungal infections at bay. Your baby's immune system is also busy developing to help protect her against infections.

If you shine a torch or a bright light at your bump, you may soon feel your baby respond by turning her head. However, her eyesight is still developing, so try again in a couple of weeks if she doesn't respond now.

Your baby's eyesight will continue to develop after birth. When she's born, she'll only be able to see faces and objects within 20cm to 30cm.

The amniotic fluid surrounding your baby has been increasing every week, but this growth has been slowing as your baby gets bigger. By 37 weeks, the volume of the amniotic fluid will peak at between 700ml and 1,000ml (between 1.4 pints and 1.6 pints). This will tail off by the time you reach your due date, when the fluid levels will drop to about 600ml (1 pint).

Week 30



Week 32



Your baby now weighs about 1.7kg (3.7lb) and is as long as a kale leaf, around 42.4cm (16.7in) from head (crown) to heel.

From 32 weeks, babies born early have a good chance of surviving and thriving, although they will need help to breathe at first. This is because their lungs won't be fully developed until just before birth.

Your baby's fingernails are fully formed and have reached the tips of her fingers. Her toenails grow to full length later than her fingernails, but they are just visible at this stage. If she gets an itch, she may gently scratch herself. Your baby's hair is getting thicker, although it may thin out after birth.

By this stage, your baby may be getting ready for birth by lying in your womb (uterus) with her head pointing downwards. If she's not this way round yet, don't worry. Most babies move into a head-down position by 36 weeks, so there's still plenty of time for her to turn.

Week 34

Your baby is the size of a cantaloupe melon. She weighs more than 2.1kg (4.7lb) and is about 45cm (17.7in) from head (crown) to heel.

It's reassuring to know that babies born at 34 weeks, who have no other health problems, are able to thrive outside the womb (uterus).

If your baby is born this week, she may need a little help in the neonatal unit, but after that she'll be all set to do as well as if she'd arrived full-term.

Your baby is continuing to fill out. She has been laying down a special type of fat, called brown fat. This helps her to keep warm after she's born, as newborn babies can't regulate their core body temperatures very well. Brown fat stops growing after birth, and your baby will need you to make sure she has the right number of layers so she doesn't get too hot or cold. Your midwife will guide you about how to keep your new baby cosy.

Your baby already knows your voice and your partner's voice. It may now be possible for her to recognise lullabies and songs, too. This is because the part of her ear that sends messages to her brain (cochlea) is becoming more mature.

Research shows that if you regularly sing a particular song to your baby before she's born, she's more likely to be soothed when you sing it again after birth. Singing to your bump is a great way to bond with your unborn baby too.



Week 36



Your baby weighs nearly 2.6kg (5.7lb) and at just over 47.4cm (18.7in), she's similar in length to a romaine lettuce.

Your pregnancy is considered full-term by the end of this week, meaning your baby is ready to be born any day. Bear in mind, only about four per cent of babies are born on their due date. Most women give birth some time between 38 weeks and 42 weeks.

Your baby's hearing is likely to take a leap in sensitivity this week. Her brain and nervous system are maturing fast as her arrival in the world approaches.

She continues to shed what's left of her downy lanugo hair and vernix caseosa, the protective substance that covers her skin. She'll swallow this hair and skin and, once digested, it will stay in her bowels as meconium, a black or dark green sticky substance. This meconium will become her first poo after birth.

Your midwife will check what position your baby is in at your 36-week antenatal appointment. It's likely that your baby is in the head-down, or cephalic, position.

Your baby's head may even have moved down into your pelvis, ready for birth (engaged). If this happens, you might feel like your bump has moved down and you have more room to breathe. This is called lightening. Although it means your baby is ready to be born, it's not necessarily a sign that she's on her way yet.

Week 38

The average weight of a baby at 38 weeks of pregnancy is about 3.1kg (6.8lb), and the average length is about 49.8cm (19.6in). Your baby is about as long as a leek.

Your midwife may be able to give you an idea of whether your baby will be bigger or smaller than this, based on your fundal height. Fundal height is the distance from your pubic bone to the top of your womb (uterus).

The fine lanugo hair that covered your baby's body is largely gone. But she may still have some patches when she's born, particularly on her upper arms and shoulders. Her elbows and knees may have small dimples, and she can now make a firm grasp with her hands.



Week 40

After months of anticipation, your due date has been and gone, and ... you're still pregnant. It's frustrating, but lots of women find themselves in this situation. Babies born between now and 42 weeks are still considered full-term, it is good to remember most first time mothers deliver at 41.5 weeks.

Rest assured your baby is quite cosy where she is! Most of her fetal development is complete, but her hair may continue to get thicker and her nails may grow more too.

The average newborn measures about 51.2cm (20.2in) from head (crown) to heel, and at 3.5kg (7.6lb), weighs the same as a small pumpkin. Anywhere between 5.5lb and 8.8lb is considered a normal birth weight.



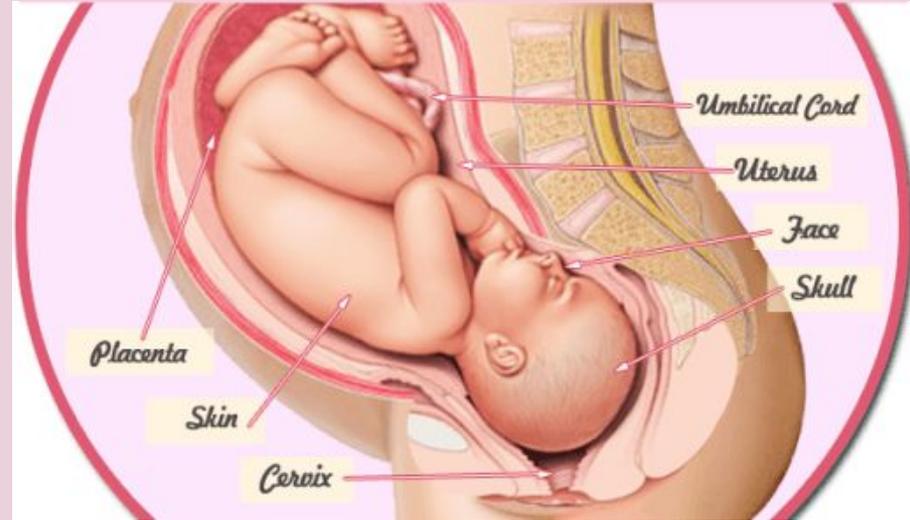
Week 42

Your baby is the size of a medium watermelon!

When this latecomer finally makes her debut, chances are her skin will be dry, cracked, peeling or wrinkled — all completely temporary. That's because the protective vernix was shed weeks ago in anticipation of a delivery date that came and went.

All babies are born with two soft spots (fontanelles) at the top of their head, where the skull hasn't finished joining. This allows your baby's skull bones to shift over each other during vaginal birth, helping to ease her way along the narrow birth canal.

As a newborn, your baby has all the skills and reflexes that will help her to thrive, with your love and care. She'll instinctively search for your nipple for a feed soon after birth (called "rooting"). And if you put your finger in her tiny hand she'll grasp it tightly.

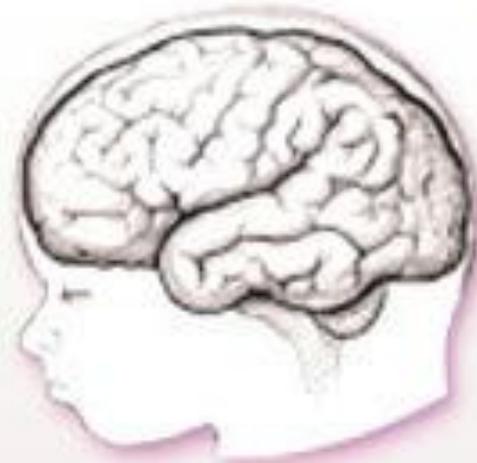


Older is Better

A baby's brain at 35 weeks weighs only two-thirds of what it will weigh at 39 to 40 weeks.



35 weeks



39 to 40 weeks