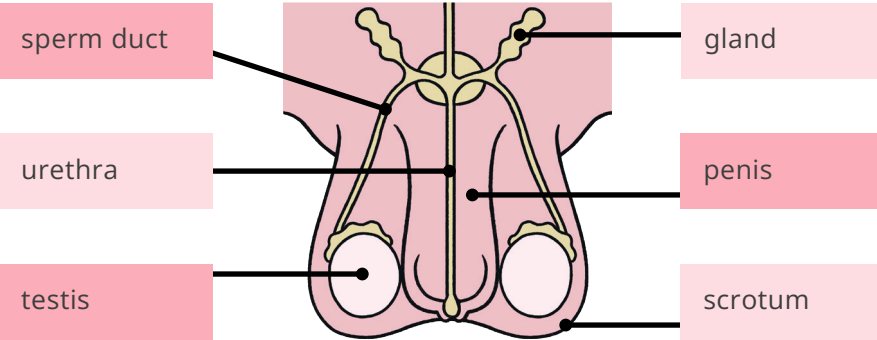


KS3 Human Reproduction Knowledge Organiser

Key Words

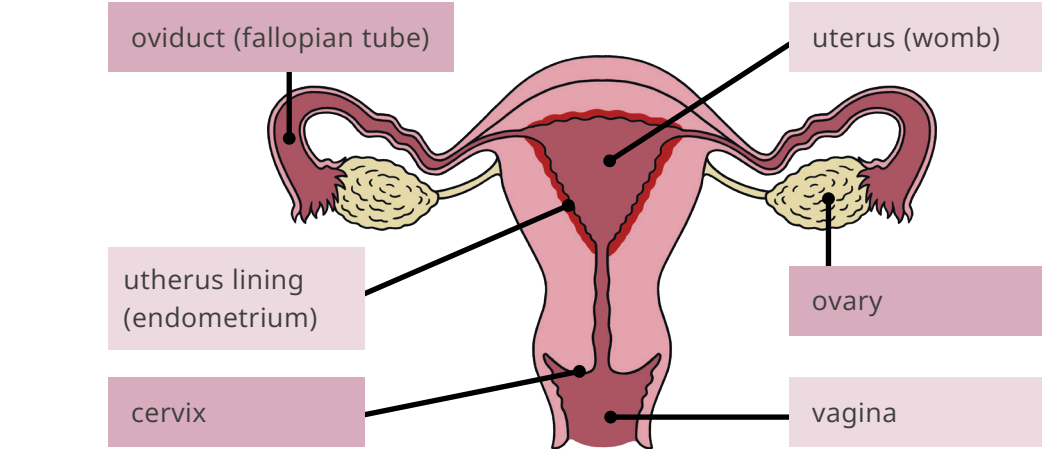
adaptation	A specific feature that allows a specialised cell to carry out a particular function.
biological sex	Determined by the reproductive organs a person has, the sex chromosomes in their body and the hormone levels they produce.
conception	The process of becoming pregnant.
egg cell	The female sex cell, produced by the ovaries.
embryo	An unborn or unhatched offspring in the early stages of development. In humans, this is up to the end of the eighth week after conception.
female (biological sex)	The sex typically given to an individual who produces egg cells, has XX chromosomes and produces higher levels of the hormone oestrogen.
hormone	A chemical that is produced naturally within the body and released into the bloodstream to send messages to other parts of the body.
male (biological sex)	The sex typically given to an individual who produces sperm cells, has XY chromosomes and produces higher levels of the hormone testosterone.
oestrogen	The main female reproductive hormone, produced by the ovaries. It is involved in thickening the uterus lining.
puberty	The period of time when a person becomes sexually mature. It causes physical changes that affect males and females differently.
sperm cell	The male sex cell, produced by the testes.
testosterone	The main male reproductive hormone produced by the testes. It stimulates sperm production.
vulva	The external female genitals.

Male Reproductive System



Part	Function
penis	Allows urine and semen to pass out of the male's body.
testis	Produces sperm cells and releases the male sex hormone testosterone.
urethra	A tube that carries urine and semen. It has a ring of muscle to keep these fluids separate.
scrotum	A bag of skin that contains the testes.
gland	Produces fluids that mix with sperm cells to make semen.
sperm duct	Carries sperm cells from the testes to the urethra.

Female Reproductive System



Part	Function
vagina	A muscular tube that leads from the cervix to the outside of the body.
cervix	A ring of muscle at the lower end of the uterus. This keeps the baby in place during pregnancy.
ovary	Contains hundreds of undeveloped egg cells. Every month, an egg cell matures and is released.
uterus	Where the baby develops during pregnancy.
oviduct	Carries egg cells from the ovaries to the uterus.
uterus lining	A blood-rich layer of tissue in which an embryo implants. This tissue is lost each month during menstruation.

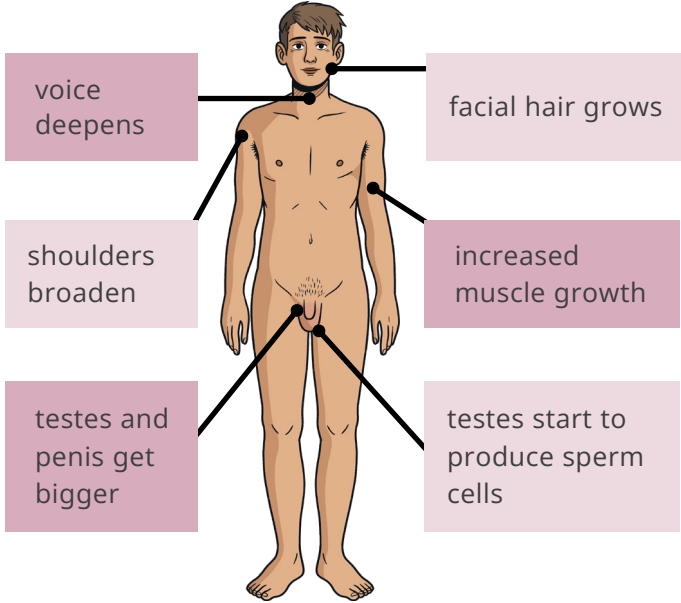
Puberty

Puberty is a period of time in a person's life when they become sexually mature. Puberty causes physical and emotional changes that affect males and females differently. These changes happen because of hormones.

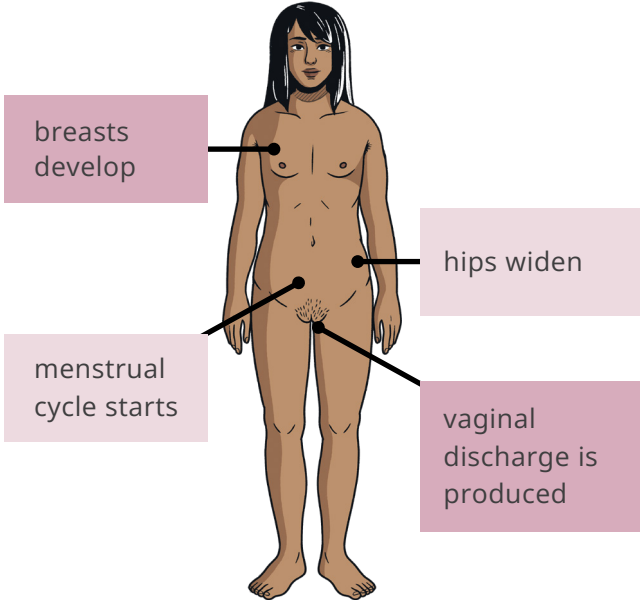
Changes that affect both males and females:

- growth of pubic hair
- growth of underarm hair
- growth spurts
- acne or occasional pimples
- body odour becomes stronger
- mood changes
- sexual thoughts and feelings

Puberty Changes in Males

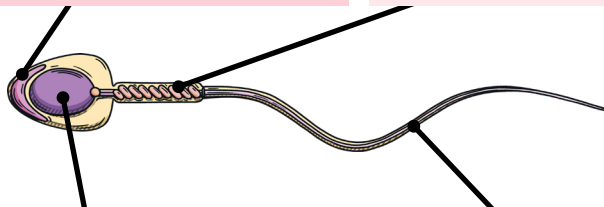


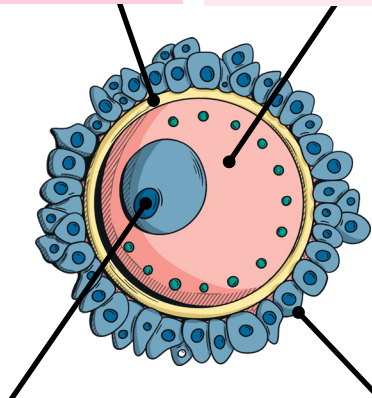
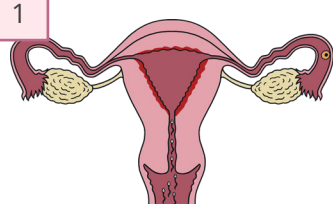
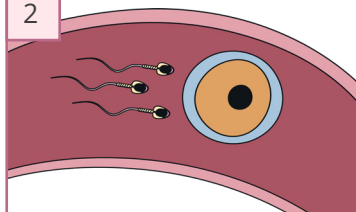
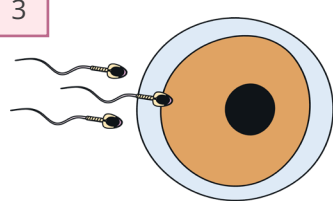
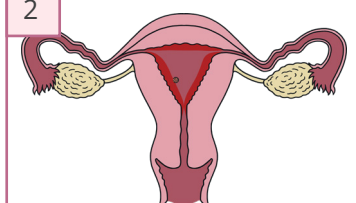
Puberty Changes in Females





KS3 Human Reproduction Knowledge Organiser

Key Words		Sperm Cell Adaptations		The Menstrual Cycle		Development of a Baby																										
ejaculation	The release of semen from the penis.	The head is covered with an acrosome, which releases enzymes to digest the egg cell membrane. The midpiece contains many mitochondria to release energy for movement.  The nucleus contains genetic information from the father. The sperm cell carries half the genetic information that will be received by the offspring. The sperm cell has a tail (flagellum) to allow it to move towards the egg cell to fertilise it.		The menstrual cycle is a process that occurs in the female reproductive system. The average length of the menstrual cycle is 28 days.		The average length of gestation in humans is 40 weeks.																										
fertilisation	The fusion of male and female gametes.			<table><tr><th>Day</th><th>Description</th></tr><tr><td>1 – 5</td><td>The uterus lining breaks down and passes out of the vagina. This is known as menstruation or ‘having a period’.</td></tr><tr><td>5 – 14</td><td>The uterus lining starts to build up again. An egg cell starts to mature in the ovary.</td></tr><tr><td>14</td><td>An egg cell is released from the ovary. This is called ovulation.</td></tr><tr><td>14 – 28</td><td>The uterus lining remains thick. During this time, the egg may be fertilised by a sperm cell.</td></tr><tr><td>28</td><td>If the egg cell is not fertilised by a sperm cell, the uterus lining begins to break down again and the cycle repeats.</td></tr></table>	Day	Description	1 – 5	The uterus lining breaks down and passes out of the vagina. This is known as menstruation or ‘having a period’.	5 – 14	The uterus lining starts to build up again. An egg cell starts to mature in the ovary.	14	An egg cell is released from the ovary. This is called ovulation.	14 – 28	The uterus lining remains thick. During this time, the egg may be fertilised by a sperm cell.	28	If the egg cell is not fertilised by a sperm cell, the uterus lining begins to break down again and the cycle repeats.	<table><tr><th>Week</th><th>Description</th></tr><tr><td>4 – 6</td><td>The embryo is about 6mm long. The heart and other organs start to form, and the heart begins to beat.</td></tr><tr><td>8 – 9</td><td>Arms begin to grow and toes and eyelids begin to form. The embryo is now called a foetus.</td></tr><tr><td>12</td><td>The foetus is now fully formed and all the organs, muscles and bones are in place. It is now around 60mm long and starts to move around.</td></tr><tr><td>20 – 24</td><td>The foetus is around 250mm long. It has begun to kick and can hear sounds outside the uterus. It swallows amniotic fluid and produces urine. Fingerprints have now formed.</td></tr><tr><td>28</td><td>The baby has hair and can open its eyes. There is a high chance that the baby would survive if it was born now.</td></tr><tr><td>37 – 40</td><td>The baby is fully developed and ready to be born. It is now around 520mm long. It rotates so its head is pointing downwards.</td></tr></table>		Week	Description	4 – 6	The embryo is about 6mm long. The heart and other organs start to form, and the heart begins to beat.	8 – 9	Arms begin to grow and toes and eyelids begin to form. The embryo is now called a foetus.	12	The foetus is now fully formed and all the organs, muscles and bones are in place. It is now around 60mm long and starts to move around.	20 – 24	The foetus is around 250mm long. It has begun to kick and can hear sounds outside the uterus. It swallows amniotic fluid and produces urine. Fingerprints have now formed.	28	The baby has hair and can open its eyes. There is a high chance that the baby would survive if it was born now.	37 – 40	The baby is fully developed and ready to be born. It is now around 520mm long. It rotates so its head is pointing downwards.
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foetus	An unborn offspring after the embryo stage of development. In humans this is from the eighth week after conception.																															
gamete	A sex cell.																															
gestation	The time between conception and birth, during which the baby is developing in the uterus.																															
implantation	The attachment of the embryo to the lining of the uterus at the start of pregnancy.																															
menstrual cycle	The monthly cycle of changes in the ovaries and the lining of the uterus to prepare for fertilisation.																															
menstruation	The process of releasing blood and tissue from the lining of the uterus as part of the menstrual cycle. Also known as a period.																															
miscarriage	The death of a foetus before 24 weeks of pregnancy.																															
offspring	The children or young of an organism.																															
ovulation	The release of a mature egg cell from an ovary.																															
placenta	An organ that develops in the uterus during pregnancy. It is responsible for transferring oxygen and glucose from the mother to the developing foetus, as well as removing waste products.																															
semen	The mixture of sperm cells and fluid released during ejaculation in males.																															
sexual intercourse	Sexual contact involving penetration, e.g. the insertion of the penis into the vagina.																															
stillbirth	The birth of a baby that has died in the uterus after 24 weeks of pregnancy.																															
umbilical cord	The cord which connects the placenta to the foetus.																															
zygote	A fertilised egg cell.																															

Egg Cell Adaptations		Human Reproduction	
The cell membrane changes after fertilisation so no more sperm cells can enter the egg. The cytoplasm contains nutrients to support the developing embryo after fertilisation.  The nucleus contains genetic information from the mother. The egg cell carries half the genetic information that will be received by the offspring. The large size of the egg cell increases the chance of it being fertilised and allows more space for nutrients to be stored.		1 During sexual intercourse, semen containing sperm cells is ejaculated from the penis into the vagina. 2 Sperm cells travel through the female reproductive system to meet an egg cell in the oviduct. 3 One sperm cell penetrates the egg cell membrane. The nucleus of the sperm cell fuses with the nucleus of the egg cell. This is called fertilisation. 2 The resultant zygote divides several times to form a ball of cells called an embryo, which implants in the uterus lining.	

Effect of Maternal Lifestyle	
Oxygen and nutrients, such as glucose, can pass from the mother’s blood into the blood of the foetus across the placenta. The placenta is attached to the foetus by the umbilical cord.	
Other substances, such as alcohol, can pass across the placenta during pregnancy. Some substances may increase the risk of developmental problems in a baby.	
Smoking cigarettes during pregnancy can increase the risk of miscarriage, stillbirth or sudden infant death syndrome (SIDS). Babies born to mothers who smoke are more likely to be born prematurely and/or have a low birthweight. A lack of oxygen passing from the mother to the baby may lead to problems with brain development.	
Drinking alcohol during pregnancy can increase the chance of miscarriage, stillbirth, premature birth or low birthweight. If a mother drinks heavily during pregnancy, it may lead to foetal alcohol syndrome, which can result in learning difficulties and behavioural problems.	