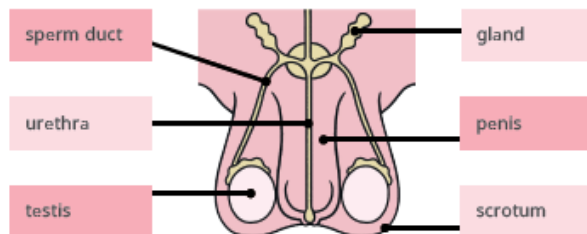


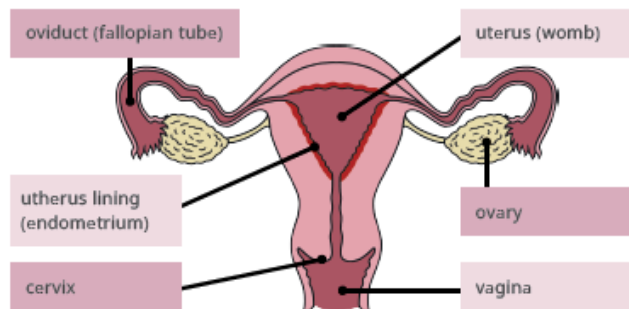
Knowledge organiser

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.

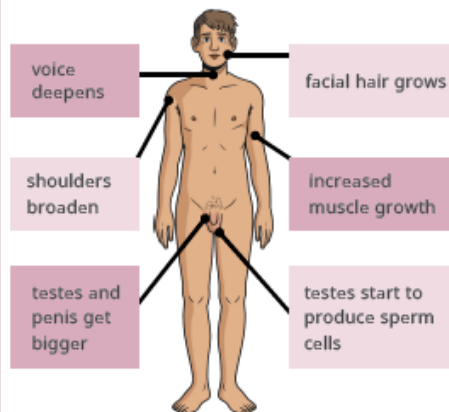
Puberty

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.

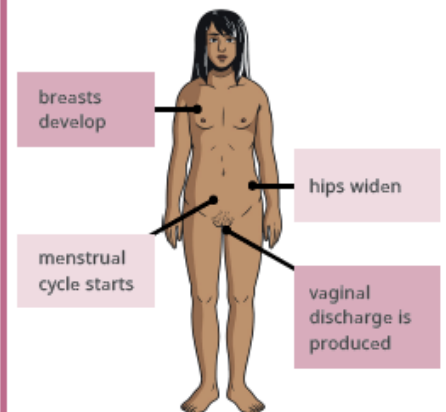
Changes that affect both males and females:

- 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



Sperm Cell Adaptations

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.



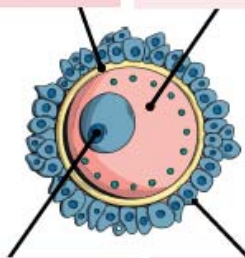
The nucleus contains genetic information from the father. The sperm cell carries half the genetic information that will be received by the offspring.

The sperm cell has a tail (flagellum) to allow it to move towards the egg cell to fertilise it.

Egg Cell Adaptations

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.

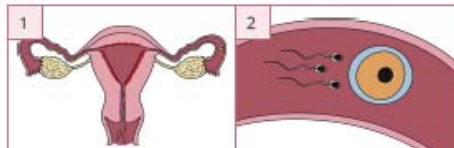
The large size of the egg cell increases the chance of it being fertilised and allows more space for nutrients to be stored.

The Menstrual Cycle

The menstrual cycle is a process that occurs in the female reproductive system. The average length of the menstrual cycle is 28 days.

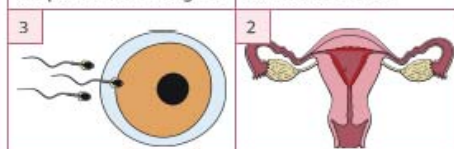
Day	Description
1 – 5	The uterus lining breaks down and passes out of the vagina. This is known as menstruation or 'having a period'.
5 – 14	The uterus lining starts to build up again. An egg cell starts to mature in the ovary.
14	An egg cell is released from the ovary. This is called ovulation.
14 – 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.

Human Reproduction



During sexual intercourse, semen containing sperm cells is ejaculated from the penis into the vagina.

Sperm cells travel through the female reproductive system to meet an egg cell in the oviduct.



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.

The resultant zygote divides several times to form a ball of cells called an embryo, which implants in the uterus lining.

Development of a Baby

The average length of gestation in humans is 40 weeks.

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.

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.