

### Human reproduction

#### Adolescence

The time during which you change from being a child to being an adult is called **adolescence**. The physical changes that happen between the ages of 9–14 are called **puberty**.

These changes include:

#### Females

breasts develop, ovaries start to release egg cells, periods start, hips widen,

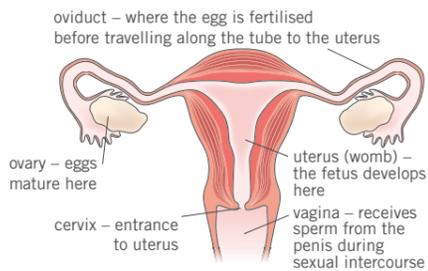
pubic and underarm hair grows, body odour develops, emotional changes, growth spurt

#### Males

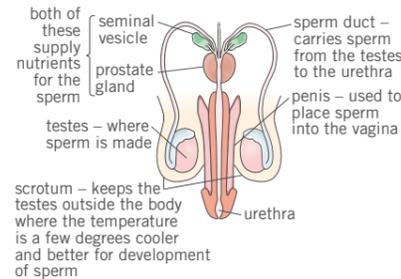
voice breaks, sexual organs develop, testes start to produce sperm, shoulders widen, hair grows on face and chest

#### Reproductive systems

##### female



##### male



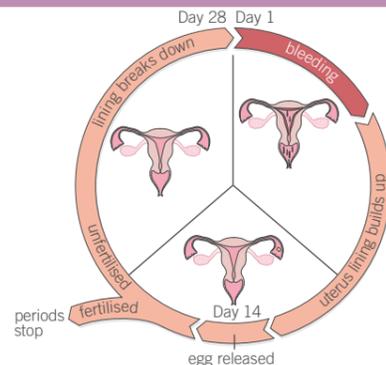
#### The menstrual cycle

**Day 1** – blood from uterus lining leaves the body through the vagina.

**Day 5** – bleeding stops. Uterus lining begins to re-grow.

**Day 14** – an egg cell is released from one of the ovaries (**ovulation**).

The egg cell travels through the oviduct towards the uterus.



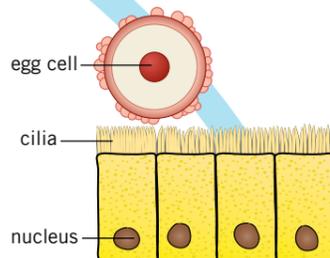
#### Methods of contraception

**Condoms** – A thin layer of latex rubber that prevents semen being released into the vagina.

**Contraceptive pill** – a daily tablet that contains hormones. It prevents pregnancy by stopping ovulation.

#### Fertilisation

An egg is released every month.



The egg cell is moved along the oviduct towards the uterus by **cilia**.

Sperm cells are produced in the **testicles/testes**.

Sperm are mixed with nutrients and fluid from the glands to form **semen**.

During sexual intercourse a male will release semen into the vagina (**ejaculation**).

If a sperm meets the egg **fertilisation** may happen.

The fertilised egg may then **implant** in the uterus lining and form an **embryo** (ball of cells)

the main steps in a baby's development (**gestation**) during pregnancy

- just a dot • 1 week – cells beginning to specialise
- 3 mm long 4 weeks – spine and brain forming, heart beating
- 3 cm long 9 weeks – tiny movements, lips and cheeks sense touch, eyes and ears forming
- 7 cm long 12 weeks – fetus uses its muscles to kick, suck, swallow, and practise breathing

There are three important structures in the uterus during gestation:

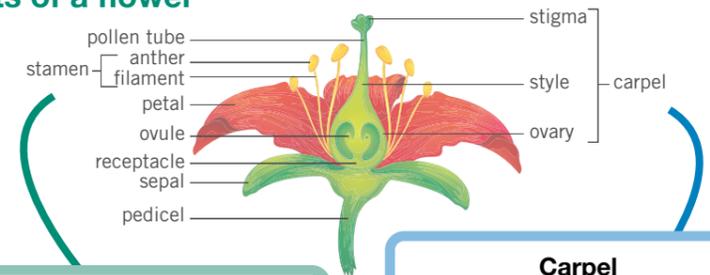
**placenta** – where substances pass from female to **foetus**

**umbilical cord** – connects the fetus to the placenta

**fluid sac** – shock absorber that protects the baby.

### Plant reproduction

#### Parts of a flower



#### Stamen

**male** part of the flower

- the **anther** produces pollen
- the **filament** holds up the anther

#### Carpel

**female** part of the flower

- the **stigma** is sticky to catch grains of pollen
- the **style** holds up the stigma
- the ovary contains **ovules**

#### Pollination

Pollination is the fertilisation of the ovule, which occurs when pollen is transferred from an anther to the stigma. Pollination can occur due to insects or the wind.

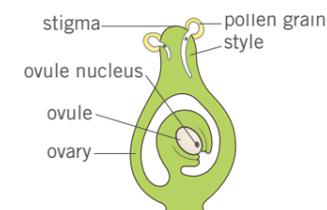
##### cross-pollination

between two **different** plants

##### self-pollination

between the male and female parts of the **same** plant

#### Fertilisation



The tube grows out of the pollen grain and down through the style.



The pollen nucleus moves down the tube.



The pollen nucleus joins with the ovule nucleus. Fertilisation takes place and a seed will form.

The ovules become seeds and are dispersed away from each other and from the parent plant. This is so they have space to grow and do not compete for resources such as nutrients. Dispersal can be by wind, animal, water or by explosion.

#### Germination

When a seed starts to grow it is called **germination**.

To germinate, seeds need:

- water – for the seed to swell and the embryo to start growing
- oxygen – for respiration and transferring energy for germination
- warmth – to help speed up the reactions in the plant.

#### Key Words

Make sure you can write a definition for these key terms.

adolescence anther carpel cervix cilia condom contraception contraceptive pill ejaculation embryo fertilisation foetus filament fluid sac fruit gametes germination gestation implantation menstrual cycle ovary penis period petal oviduct ovulation ovule placenta pollen pollination puberty scrotum seed seed dispersal semen sepal sex hormones sexual intercourse sperm duct stamen stigma style testes umbilical cord urethra uterus vagina

