

Knowledge Organiser Key Stage 3

Subject : Science

Year: 7

Topic Title: Reproduction

Key Facts

1. Female reproductive organs:

Ovaries - contain hundreds of undeveloped female gametes (sex cells) called **ova** (egg cells).

Oviducts – connect the ovary to the uterus; lined with **cilia** (tiny hairs that waft the egg to the uterus).

Every month, an egg develops, becomes mature and is released from an ovary to the uterus;

Uterus - a muscular bag with a soft lining; where a baby develops until birth;

Cervix - a ring of muscle at the lower end of the uterus; keeps baby in place during pregnancy;

Vagina - muscular tube leading from cervix to the outside of a woman's body. The penis goes into the vagina during sexual intercourse.

2. Male reproductive organs:

Testes - produces gametes (sex cells) called sperm; make male sex hormones.

Glands - produce a fluid which is mixed with sperm. The mixture of sperm and fluid is called **semen**.

Sperm ducts – takes the sperm from the testes to the penis

Urethra – semen passes through here during **ejaculation**;

Penis - passes urine and semen out of the man's body.

3. The menstrual cycle lasts around **28 days**

4. **Day 1**, is when bleeding from the vagina begins, caused by the loss of the uterus lining, with a little blood. This is called **menstruation** or having a **period**.

5. **Day 5**, the loss of blood stops. The uterus lining begins to re-grow; an egg cell starts to mature in one of the ovaries.

6. **Day 14**, the mature egg cell is released from the **ovary**. This is called **ovulation**. The egg cell travels through the **oviduct** towards the **uterus**.

7. If the egg cell does not meet with a sperm cell in the oviduct, the lining of the uterus breaks down and the cycle repeats.

8. If an egg cell meets a sperm cell, **fertilisation** takes place

9. The fertilised egg (**zygote**) implants into the uterus lining, and the woman is **pregnant**

10. A **foetus** develops in the **uterus**

11. The foetus relies on its mother for protection against bumps, and temperature changes; this is done by the **amniotic sac**, containing **amniotic fluid**

12. The **placenta** provides oxygen (for respiration) and nutrients, and removes waste (eg carbon dioxide). The **umbilical cord** joins the placenta to the uterus.

13. Seed dispersal is important because plants compete with each other for:

- light
- water
- space
- minerals in the soil

14. Seeds must be **dispersed** from each other and from the parent. This reduces **competition** and increases chance of successful growth

15. Seeds can be dispersed by wind, water, animals or can be self-propelled

16. Plant reproductive organs:

| | |
|----------------|---|
| Sepals | Protect the unopened flower |
| Petals | May be brightly coloured to attract insects |
| Stamens | The male parts of the flower (each consists of an anther held up on a filament) |
| Anthers | Produce male sex cells (pollen grains) |
| Stigma | The top of the female part of the flower which collects pollen grains |
| Ovary | Produces the female sex cells (contained in the ovules) |
| Nectary | Produce a sugary solution called nectar , which attracts insects |

17. Plants can be wind-pollinated or insect-pollinated

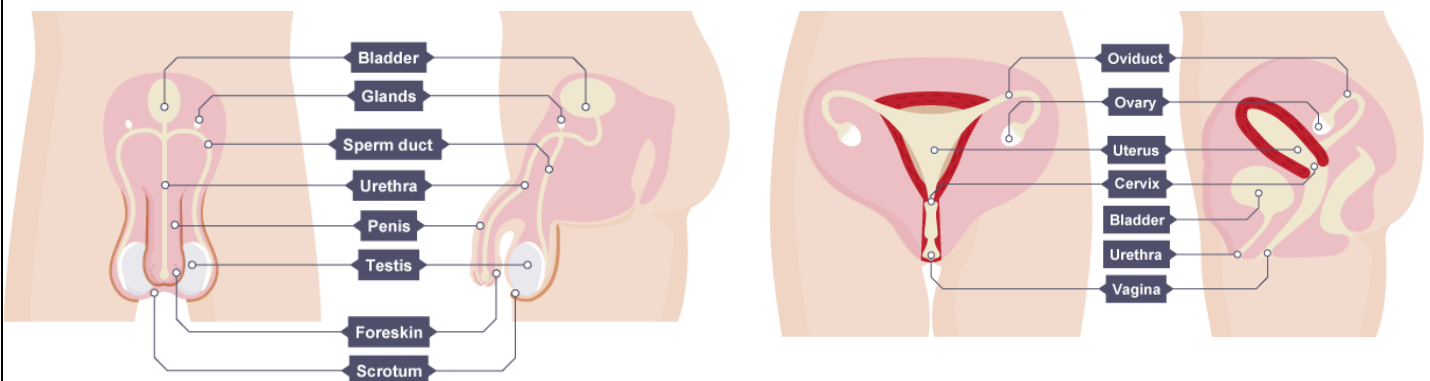
18. Wind-pollinated flowers have external stamen and stigma; insect-pollinated flowers have brightly coloured petals and scents

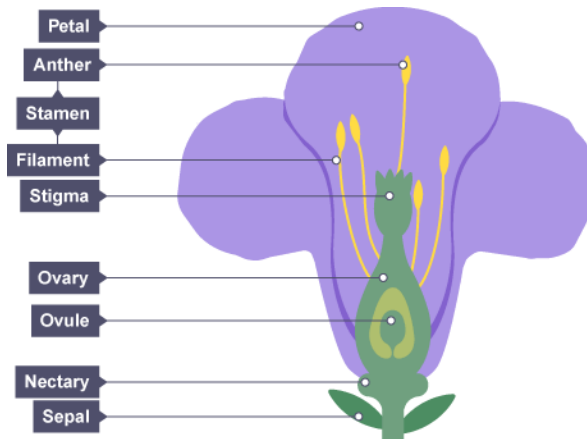
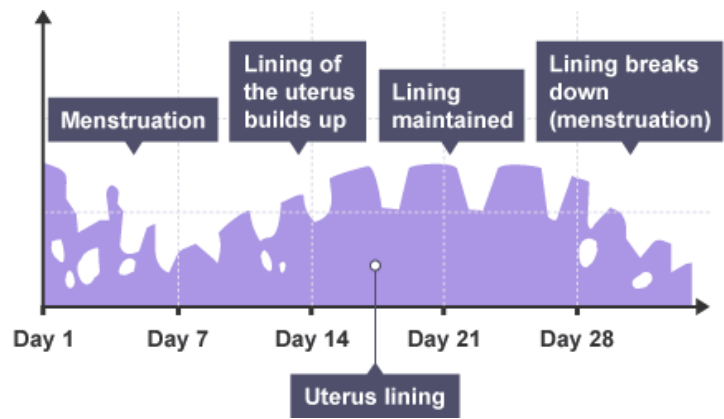
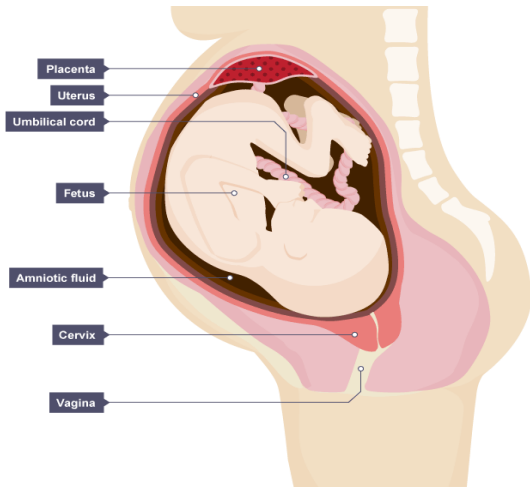
19. Variation exists between individuals in the same species (like different breeds of dog), and between species (like dogs vs cats)

Key words

1. **Reproduction** – having young / offspring
2. **Menstruation** – the bleeding part of the menstrual cycle
3. **Fertilisation** – when a sperm cell and egg cell fuse
4. **Zygote** – a fertilised egg cell that can potentially develop into a baby
5. **Embryo** – the very start of a developing baby (0-9 weeks)
6. **Foetus** – a developing baby (10 – 40 weeks)
7. **Gestation** – the time that the mother is pregnant with young / offspring
8. **Ejaculation** – when semen is released from the man's body
9. **Dispersal** – spreading / spacing out
10. **Variation** - differences between living things
11. **Continuous variation** - can be any value in a range, eg height or weight
12. **Discontinuous variation** - has values that are one thing or another, but have no values in between. eg blood group, gender (male or female), eye colour.
13. **Pollination** – **pollen grains** need to move from the **anther** of one flower to the **stigma** of another flower.

Diagrams





Potential misconceptions to avoid / errors students often make

1. Reproductive organs:

Eggs develop in the ovaries, embryos develop in the uterus

2. Menstrual cycle:

The entire menstrual **cycle** lasts 28 days on average, and **menstruation** (the period) lasts around 5 days

3. Plant reproduction:

Plants can still undergo sexual reproduction, which involves the fertilisation of gametes (sex cells). In plants, this is pollen and ova (eggs).

4. Timeline of a developing baby:

Fertilisation → Zygote → Embryo → Foetus → Baby → Birth

5. Pregnancy

The blood from the mother and baby **never** mix during pregnancy; instead, the nutrients and oxygen have to **diffuse** across to the baby, and waste products need to **diffuse** out to the mother