



Year 7 Science knowledge organiser

Module – Genes

Topic – Variation and Human reproduction

Length of topic – Approx. 12 lessons

Method of assessment – Summative assessment

Links to prior learning

KS2 Year 5 Living Things and their Habitats topic

- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals.

KS2 Year 6 Evolution and inheritance topic

- recognize that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.

Knowledge to be taught.

- There is variation between individuals of the same species. Some variation is inherited, some is caused by the environment and some is a combination.
- Variation between individuals is important for the survival of a species, helping it to avoid extinction in an always changing environment.
- Multicellular organisms are composed of cells which are organised into tissues, organs and systems to carry out life processes.
- The menstrual cycle prepares the female for pregnancy and stops if the egg is fertilised by a sperm.
- The developing foetus relies on the mother to provide it with oxygen and nutrients, to remove waste and protect it against harmful substances.

Skills to be covered

- Producing bar graphs to plot continuous and discontinuous variation.

Working scientifically strands covered

Analyse patterns	✓
Discuss limitations	✓
Draw conclusions	✓
Present data	✓
Communicate ideas	✓
Construct explanations	✓
Critique claims	✓
Justify opinions	✓
Collect data	
Devise questions	
Plan variables	
Test hypothesis	
Estimate risks	
Examine consequences	✓
Review theories	✓
Interrogate	✓

Assessment

Summative assessment based on knowledge taught through the topic



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Facts

DNA stands for deoxyribonucleic acid. It is a chemical made up of two long molecules, arranged in a spiral. This is referred to as the double-helix structure.

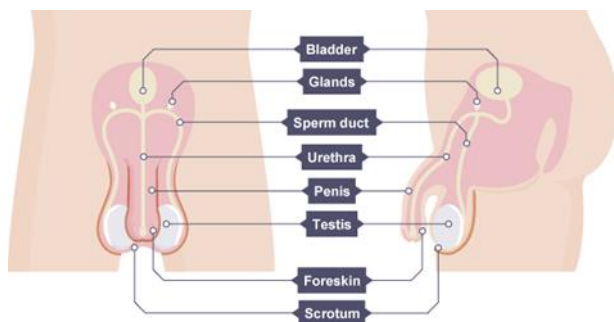
Genes are short sections of DNA. Genes carry information for particular characteristics, such as ear shape or eye colour.

Humans, dogs and goldfish are all examples of species.

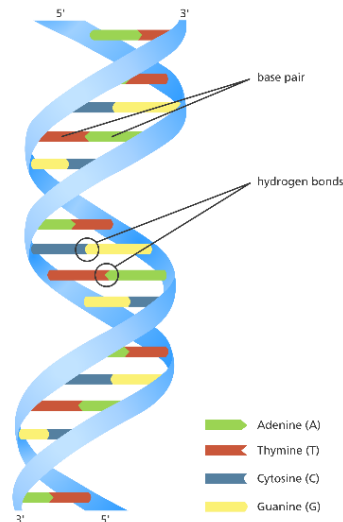
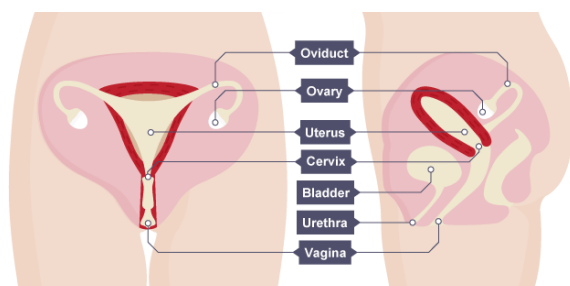
The menstrual cycle lasts approximately 28 days.

If an egg is fertilised it settles into the uterus lining.

The male reproductive system



The female reproductive system



Keywords

Amniotic fluid: Liquid that surrounds and protects the foetus.

Continuous variation: Where differences between living things can have any numerical value.

Discontinuous variation: Where differences between living things can only be grouped into categories.

Fertilisation: Joining of a nucleus from a male and female sex cell.

Foetus: The developing baby during pregnancy.

Gestation: Process where the baby develops during pregnancy.

Gamete: The male gamete (sex cell) in animals is a sperm, the female an egg.

Species: A group of living things that have more in common with each other than with other groups.

Menstruation: Loss of the lining of the uterus during the menstrual cycle.

Ovary: Organ which contains eggs.

Oviduct, or fallopian tube: Carries an egg from the ovary to the uterus and is where fertilisation occurs.

Ovulation: Release of an egg cell during the menstrual cycle, which may be met by a sperm.

Penis: Organ which carries sperm out of the male's body.

Placenta: Organ that provides the foetus with oxygen and nutrients and removes waste substances.

Reproductive system: All the male and female organs involved in reproduction.

Testicle: Organ where sperm are produced.

Umbilical cord: Connects the foetus to the placenta.

Uterus, or womb: Where a baby develops in a pregnant woman.

Vagina: Where the penis enters the female's body and sperm is received.

Variation: The differences within and between species.