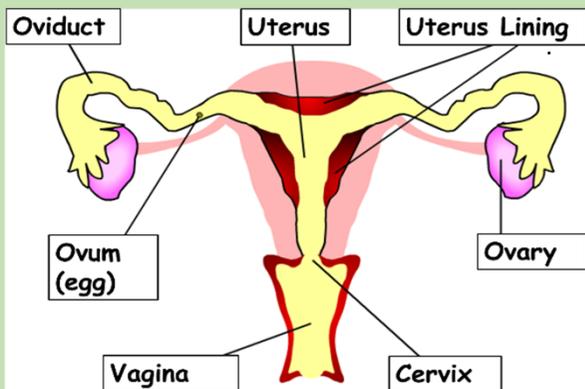


1. Biology – Female Parts



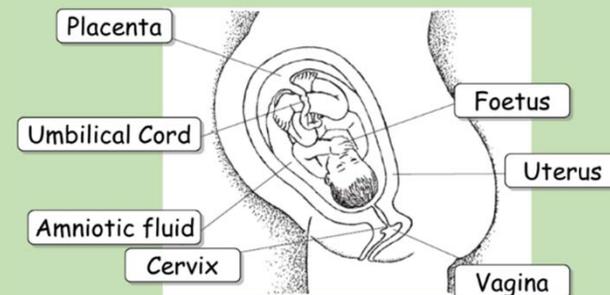
Part	Function
Oviduct	Connects the ovary and the uterus and is where the ovum is normally fertilised.
Ovum (egg)	The female sex cell.
Vagina	A muscular tube which leads to the cervix.
Uterus	Where the baby develops until birth.
Uterus Lining	The inner layer of the uterus that is lost monthly when a woman is not pregnant.
Ovary	Contains undeveloped female sex cells.
Cervix	A ring of muscle at the end of the uterus. It keeps the baby in place when pregnant.

2. Biology – Pregnancy

Fertilisation is defined as – when a sperm cell penetrates the egg cell and both nuclei join together.

A human pregnancy lasts approximately 9 months (40 weeks). This is the gestation period. During this time the foetus grows inside the uterus. It is protected by the amniotic fluid.

The placenta and umbilical cord provide the foetus with **nutrients** and **oxygen** and remove carbon dioxide and other waste products.



Calculate Percentage Change -

1. Find the difference between the two numbers.
2. Divide by the original number.
3. Multiply by 100.

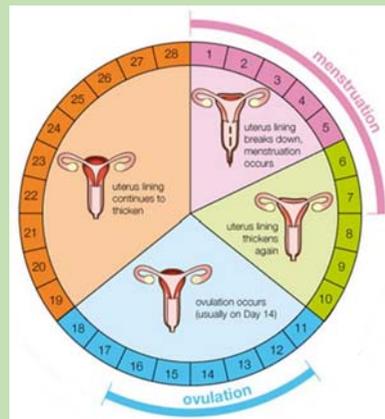
After 9 months the baby is ready to be born. **The cervix relaxes and muscles in the wall of the uterus contract.**

Waves of muscle contraction push the baby out of the mother's body through the vagina.

3. Biology – The Menstrual Cycle

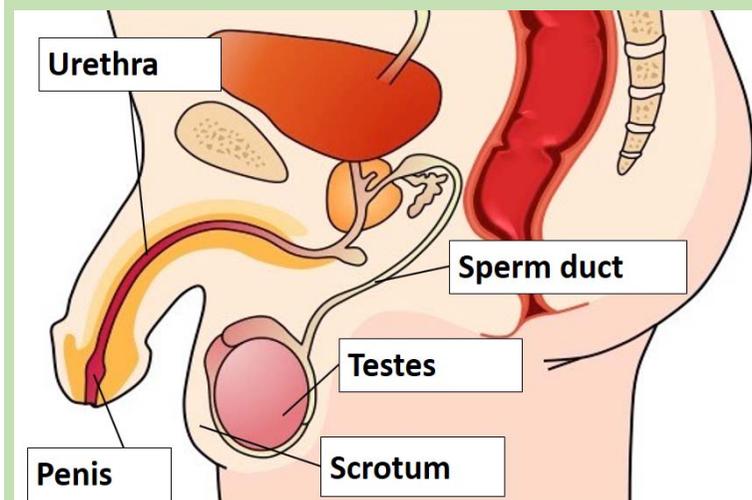
The Menstrual Cycle typically lasts 28 days.

- During the **first 5 days** (approximately) the uterus lining is lost and leaves the body through the vagina.
- After **day 6** the uterus lining builds again ready for a fertilised ovum.
- The ovum is released on **day 14**. If it is fertilised (sperm and egg nuclei fuse) it will implant in to the lining.
- If the ovum is not fertilised the lining will be lost and the cycle starts again.



4. Biology – Male Parts

Part	Function
Testes	Produces sperm and makes male sex hormones.
Urethra	A tube that carries the urine or semen out of the body.
Scrotum	Holds the testes in place.
Sperm Duct	Transports the sperm cells from the testes into the urethra.



1. Chemistry - Neutralisation

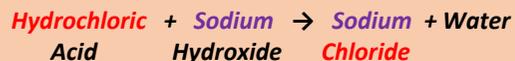
Neutralisation:

When an acid is added to an alkali the following reaction happens:



Naming Salts:

Take the first part of the alkali and the salt ending from the acid to name the salt.



The **reactants** are BEFORE the arrow and the **products** are AFTER the arrow.

Salt Endings:

Hydrochloric acid = *chloride*, Sulphuric acid = *sulphate*

Alkalis and Bases:

A base is a substance that reacts with acids. E.g. – CuO.

An alkali is a base that is soluble in water. E.g. – NaOH.

Common Acid, Alkali and Salt Formulae:

Acids:

Hydrochloric Acid = HCl, Sulphuric Acid = H₂SO₄

Alkalis:

Magnesium Oxide = MgO, Sodium Hydroxide = NaOH, Copper Oxide = CuO

Salts:

Sodium Chloride = NaCl, Copper Sulphate = CuSO₄

2. Chemistry – Metals and Acids

Acids and Metals:

When adding a metal to an acid the following reaction happens:



We can test for the reaction by testing for hydrogen. A lit splint gives a squeaky pop.

Some metals are more reactive than others:

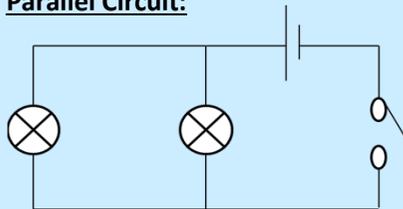
Most
Reactivity
→
 Least

Calcium, Magnesium, Zinc, Iron, Copper, Silver, Gold, Platinum

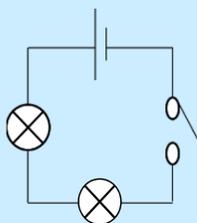
Metals such as gold and platinum are so unreactive they will not react with an acid at all.

1. Physics – Making Circuits

Parallel Circuit:

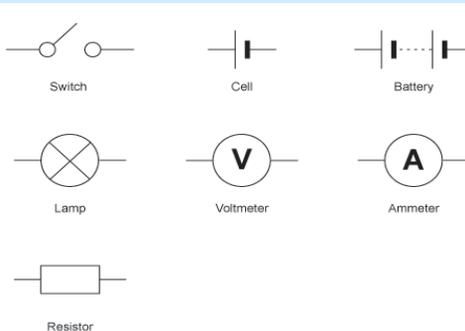


Series Circuit:



Parallel circuits contain extra loops where as series circuits have just one loop.

Circuit Symbols:



2. Physics – Current and Voltage

Resistance is a measure of how hard it is for electrons to move in an electrical circuit. It is calculated by:

$$\text{Resistance } (\Omega) = \text{Potential difference (V)} \div \text{Current (A)}$$

Potential difference is the energy available to be transferred by electricity. It is measured using a voltmeter and is measured in Volts. **Current** is the rate of flow of electrical charge. It is measured using an ammeter and is measured in Amps.

Current and potential difference in series and parallel circuits:

	Series	Parallel
Current	SAME at all points in the circuit	SPLITS between the loops
Potential Difference	SHARED between the components	SAME across each loop

3. Physics - Energy Transfers

There are eight energy stores.

- Chemical
- Thermal
- Kinetic
- Gravitational
- Electrostatic
- Nuclear
- Elastic
- Magnetic

Energy is transferred from one store to another.

For example: bungee jumper – the energy is in the **gravitational store** (person above the ground) and is **transferred** into the **kinetic store** (moving) and **thermal store** (heat).

Energy can be identified as useful and wasted.

For example: bungee jumper – the **useful energy** is the **kinetic store** (moving) and the **waste energy** is the **thermal store** (friction).