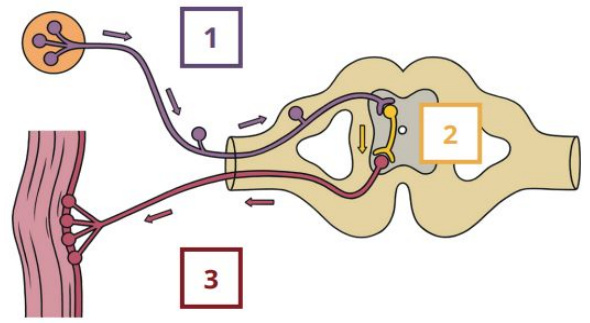


Biology

GCSE Homeostasis

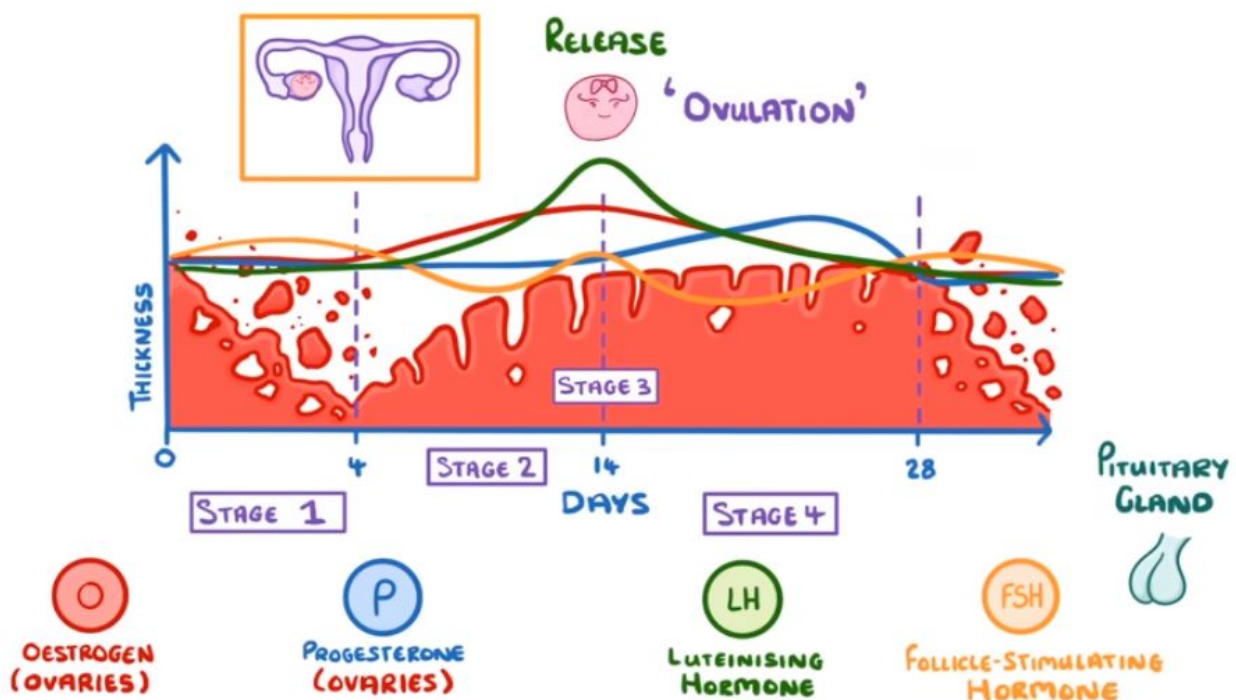
1 Reflex arc



1. Sensory neurones link the receptor to the coordination centre.
2. Relay neurones are found within the coordination centre and connect the sensory and motor neurones.
3. Motor neurones link the coordination centre to the effector.

N°	Keyword	Definition
2	Adrenal gland	The gland where the hormone adrenaline is produced.
3	Follicle stimulating hormone (FSH)	A hormone involved in the menstrual cycle that causes maturation of an egg in the ovary.
4	Glycogen	Glucose is converted into this molecule for storage in liver and muscle cells.
5	Luteinising hormone (LH)	A hormone involved in the menstrual cycle that stimulates the release of an egg
6	Oestrogen	The main female reproductive hormone. It is produced by the ovaries. It is involved in thickening and maintaining the uterus lining
7	Pituitary gland	The 'master gland' located in the brain that secretes several hormones into the blood in response to body conditions.
8	Progesterone	A female reproductive hormone that is involved in maintaining the uterus lining.
9	Synapse	A gap between two neurones. Impulses pass across it by diffusion of chemical neurotransmitters.

10



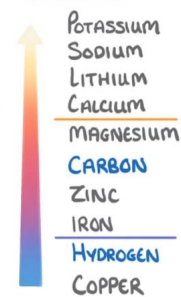
Chemistry

GCSE Chemical changes

1

Acid Formula	Acid Name	Salt Name
HCl	Hydrochloric	Chloride
H ₂ SO ₄	Sulphuric	Sulphate
HNO ₃	Nitric	Nitrate
H ₃ PO ₄	Phosphoric	Phosphate

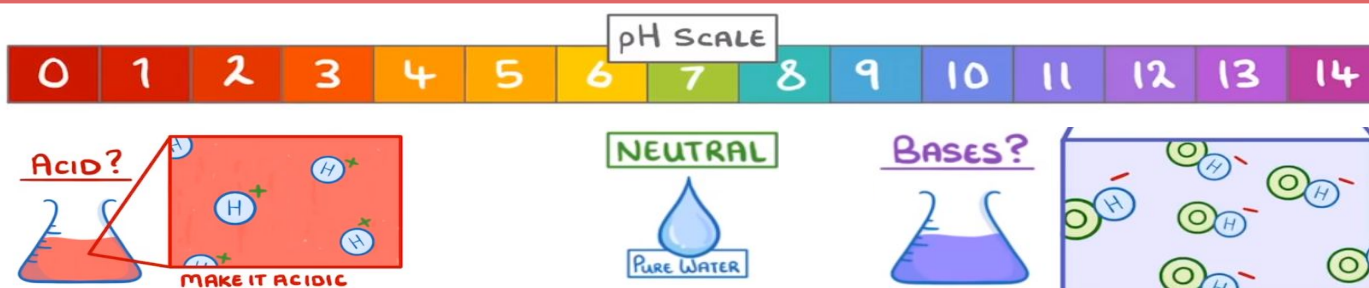
REACTIVITY SERIES



Learned	Revised	Confident
_____ % Achieved: _____		

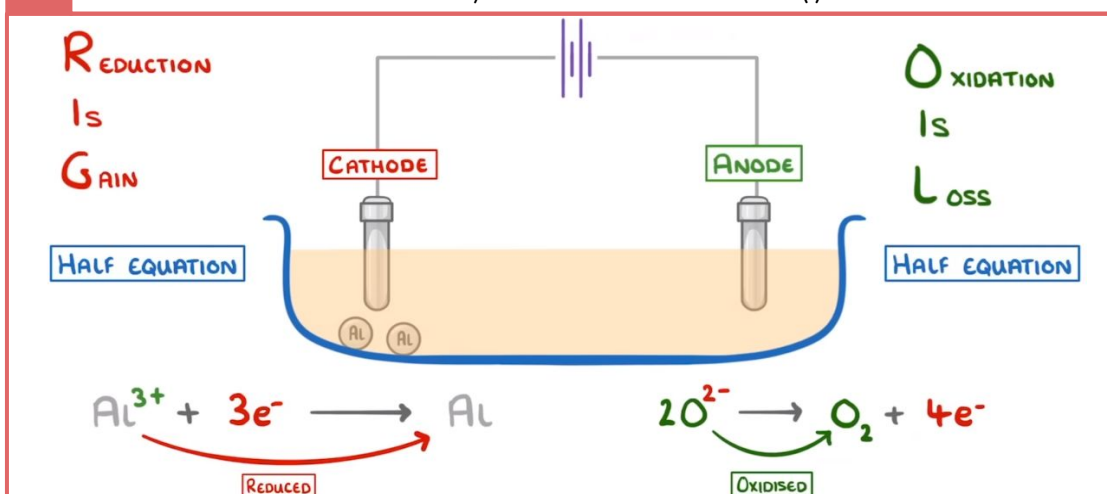
Nº	Keyword	Definition
2	Acid	Substance with a pH less than 7 that forms H ⁺ ions in solution e.g. H ₂ SO ₄
3	Base	A substance that reacts with an acid in a neutralisation reaction e.g. CaO
4	Alkali	Substance with a pH greater than 7 that forms OH ⁻ ions in solution e.g. NaOH
5	Strong acid	Strong acids will fully ionise / dissociate in solution whereas weak acids only partially ionise / dissociate in solution
6	Neutralisation	A reaction between acids and bases where a neutral product i.e. water forms
7	Displacement	A more reactive element will replace a less reactive element from a compound
8	Oxidation	Where oxygen is gained or electrons are lost by a species
9	Reduction	Where oxygen is lost or electrons are gained by a species
10	Electrolysis	Breaking down a substance, usually ionic compounds, using electricity

11



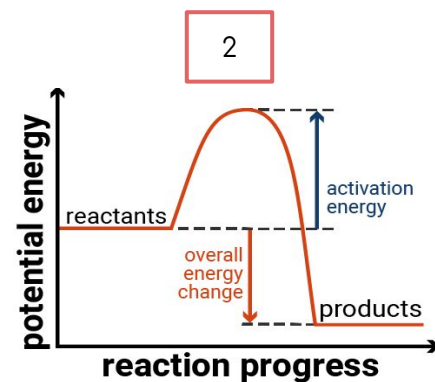
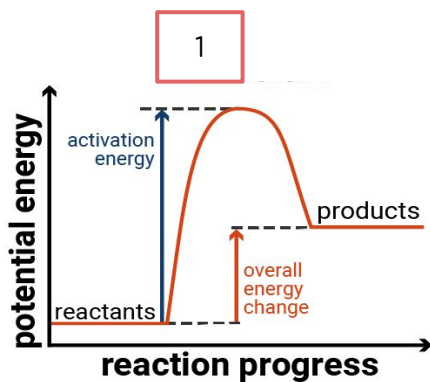
12

Electrolysis of Aluminium oxide (l)



GCSE Energy changes

Learned	Revised	Confident
_____ % Achieved: _____		



Nº	Keyword	Definition
3	Endothermic	A reaction that takes in energy from the surroundings
4	Exothermic	A reactions that releases energy to the surroundings
5	Activation energy	Minimum amount of energy required to start a reaction
6	Overall energy change	The difference between the energy of the reactants and the products
7	Catalyst	Provides an alternate reaction pathway with a lower activation energy to speed up the reaction

Nº	Facts
8	Bond breaking is an endothermic process, it requires energy
9	Bond making is an exothermic process, it releases energy
10	An endothermic reaction has a positive overall energy change - more energy was taken in than was released
11	An exothermic reaction has a negative overall energy change - less energy was taken in than was released

Nº	Overall energy change calculations (HIGHER)
12	Complete these questions using a simple T-table with "Break" and "Make" as headings. Tick off the bonds as you count them. Total break - Total make = Overall energy change

OVERALL REACTION

$$\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$$

ENDOOTHERMIC

H-H Cl-Cl

BREAK BREAK

TOTAL

H-Cl

H-Cl

FORM

TOTAL

EXOTHERMIC

MOLECULE	ENERGY (kJ/mol)
H-H	436
Cl-Cl	242
H-Cl	431

ENERGY REQUIRED TO BREAK BONDS **ENERGY RELEASED BY FORMING BONDS**

678 - 862

= -184 kJ/mol

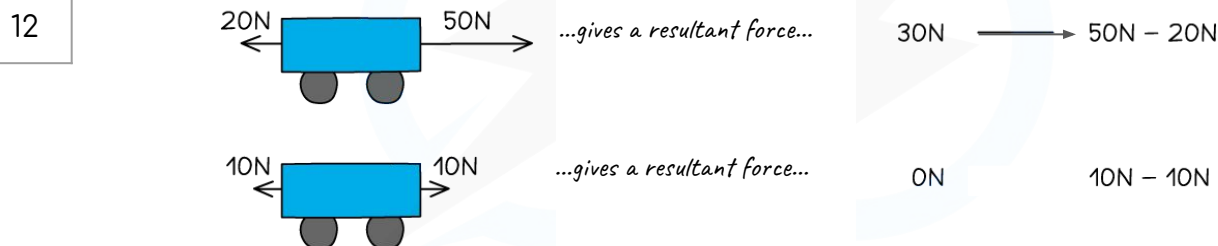
Physics

GCSE Forces

Learned	Revised	Confident
_____ % Achieved: _____		

N°	Contact forces	Non contact forces
1	Air resistance Drag Friction Lift Normal contact force Tension Thrust Uplift	Electrostatic forces Gravitational forces (weight) Magnetic forces

N°	Keyword	Definition
2	Contact force	Occurs when two objects must touch for a force to act
3	Centre of mass	The point at which you assume the entire mass of an object is concentrated
4	Elastic deformation	The object can go back to its original shape and size when the forces are removed
5	Hooke's law	The extension of an elastic object is directly proportional to the force applied provided that the limit of proportionality is not exceeded
6	Inelastic deformation	The object does NOT go back to its original shape and size when the forces are removed
7	Limit of proportionality	The point at which an elastic object stops obeying Hooke's law
8	Non contact force	Occurs when two objects do NOT need to touch for the force to act
9	Resultant force	A single force that can replace all other forces acting on an object to give the same effect as the original forces acting altogether
10	Scalar	Scalar quantities have magnitude only (eg. distance and speed)
11	Vector	Vector quantities have magnitude AND direction (eg. velocity and force)



N°	Equations to learn
13	Weight = mass x gravitational field strength
14	Work done = force x distance
15	Force = spring constant x extension

GCSE Forces (2)

1 Typical speeds



1.5 m/s



6 m/s



55 m/s



330 m/s (IN AIR)



3 m/s



25 m/s



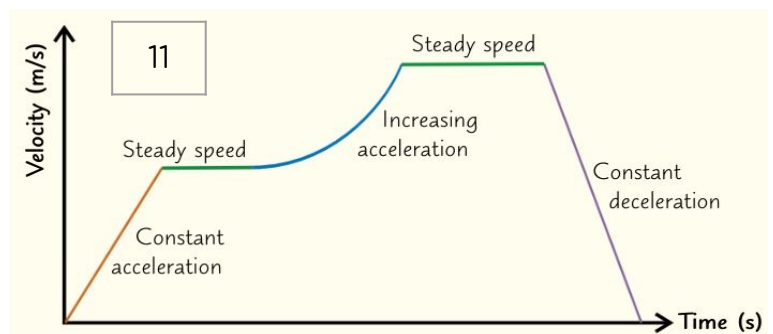
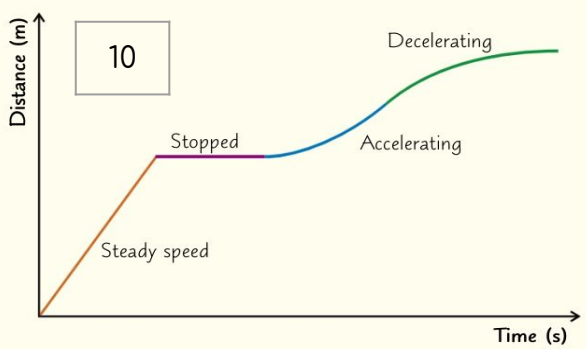
250 m/s

Learned Revised Confident

_____ % Achieved: _____

Nº	Keyword	Definition
2	Displacement	A measure of an object's distance and direction in a straight line from its starting point to its finishing point on a journey.
3	Velocity	Speed in a given direction.
4	Braking distance	The distance moved by a vehicle, once the brakes are applied (affected by the conditions of the road, brakes and tyres)
5	Thinking distance	The distance moved by a vehicle, during the drivers reaction time (affected by tiredness, drugs, alcohol, distractions)
6	Stopping distance	Thinking distance + braking distance

Nº	Newton's laws of motion
7	(1) If the resultant force on a stationary (still) object is zero, the object will remain stationary. If the resultant force on a moving object is zero, the object will keep moving with the same velocity. If there is a non-zero resultant force acting on an object, its velocity will change (accelerate).
8	(2) Acceleration is directly proportional to force (more force, more acceleration). Acceleration is inversely proportional to mass (more mass, less acceleration)
9	(3) When two objects interact, the forces they exert on each other are equal and opposite



Nº	Equations to learn
12	Distance travelled = speed x time
13	Acceleration = $\frac{\text{change in velocity}}{\text{time}}$
14	Resultant force = mass x acceleration
15	(HIGHER ONLY) Momentum = mass x velocity