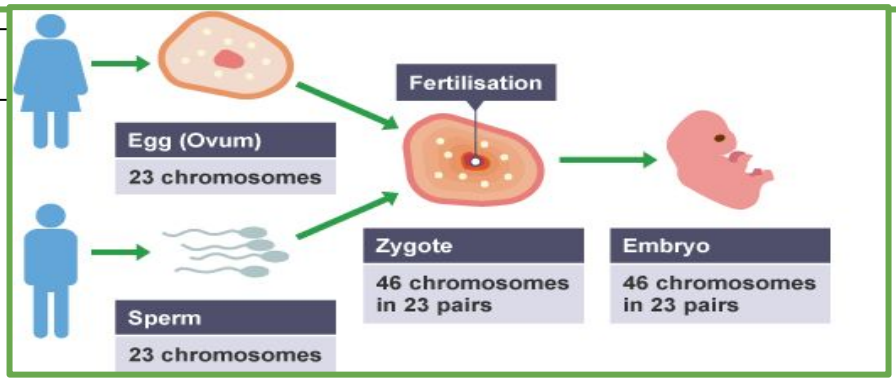
Biology

GCSE Inheritance and Evolution

Learned	Revised	Confident

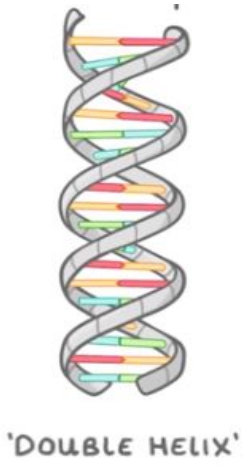
_____ % Achieved:_____

1

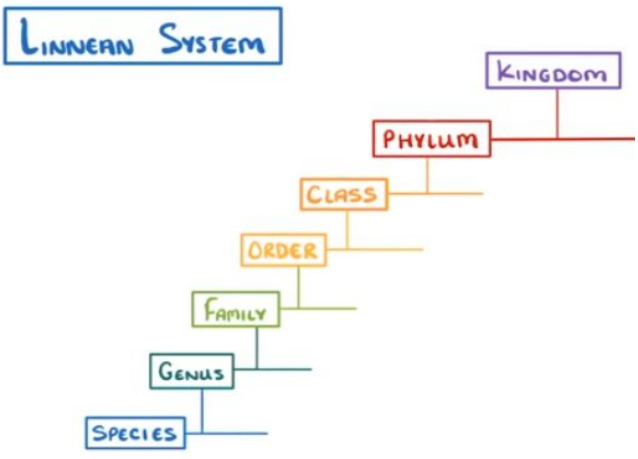


N°	Keyword	Definition
2	Alleles	Different forms of the same gene.
3	DNA	Deoxyribonucleic acid. The material inside the nucleus of cells, carrying the genetic information of a living being.
4	Dominant allele	Represented with a capital letter. It is always expressed, even if only one copy is present.
5	Gamete	Sex cell (sperm in males and ova/eggs in females).
6	Genome	Entire set of genetic material in an organism.
7	Recessive allele	Represented with a lowercase letter. It is only expressed if two copies of it are present

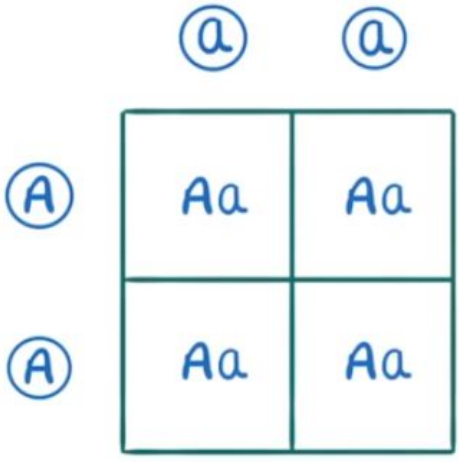
8 **Structure of DNA**



9 **Classification of living organisms**



10 **Punnett Square**



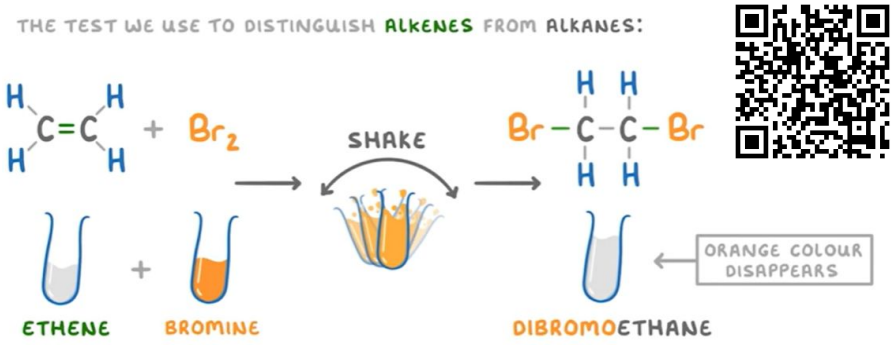
Key facts

11	Natural selection	All species of living things have evolved from simple life forms over a period of time.
12	Genetically modified	Describes a cell or organism that has had its genetic code altered by adding a gene from another organism.
13	Genetic engineering	Process which involves the artificial transfer of genetic information from one donor cell or organism to another.
14	Evidence for evolution	Fossils, extinction, DNA analysis and antibiotic resistance.

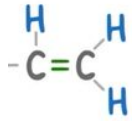
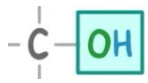
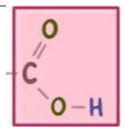
Chemistry

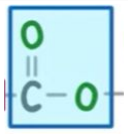
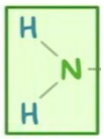
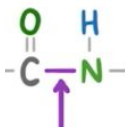
GCSE Organic Chemistry - Triple only

Learned	Revised	Confident
_____ % Achieved:_____		

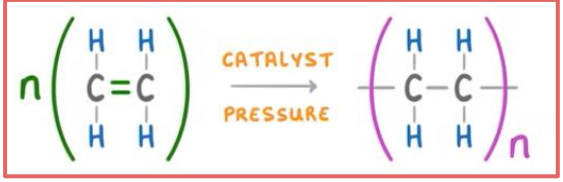


N°	Keyword	Definition
1	Monomer	Small, single molecule that can join with others to make a polymer
2	Polymer	Long chain molecule that is formed from lots of smaller monomers
3	Addition reaction	Reaction where the double bond opens and new atoms are added to each carbon, one single product forms - this can form polymers
4	Condensation reaction	Reaction where a larger molecule and a smaller molecule e.g. H_2O or HCl forms - this can form polymers
5	Functional group	A group of atoms that are responsible for the reactivity of a molecule e.g. -OH group in alcohols

N°	Organic compound	Atoms in functional group	Functional group
6	Alkene	C=C	
7	Alcohol	-OH	
8	Carboxylic acid	-COOH	

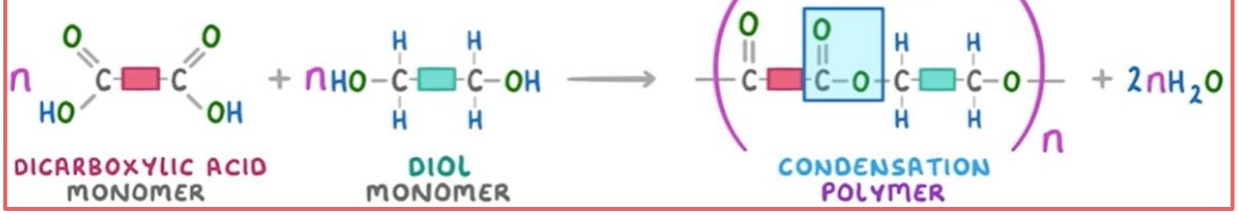
N°	Organic compound	Atoms in functional group	Functional group
9	Ester	-COO-	
10	Amino	$-NH_2$	
11	Peptide	-NHCO-	

Addition polymerisation



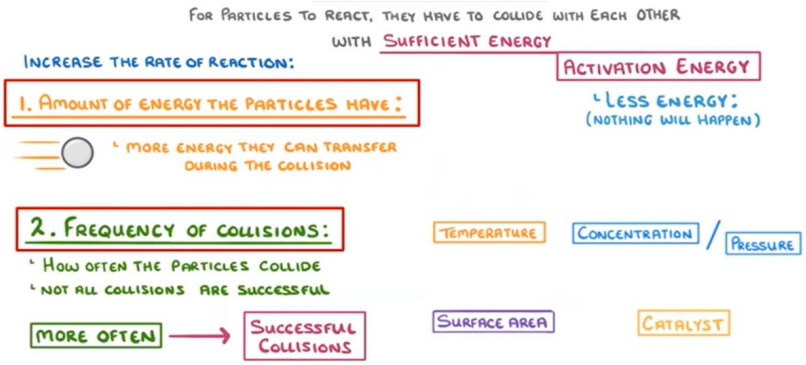
Naturally occurring polymer (amino acids → proteins)

Condensation polymerisation



GCSE Rates of reaction

Learned	Revised	Confident
_____ % Achieved:_____		

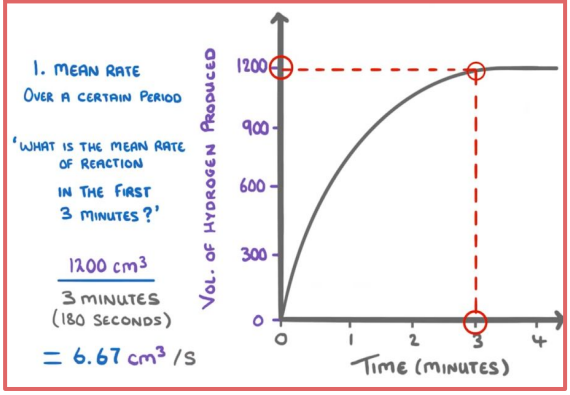


N°	Facts
1	Increasing the temperature increases the rate of reaction. Particles have more energy and so move more and faster so the frequency of collisions increases - they also collide with more energy meaning more successful collisions
2	Increasing the concentration/pressure increases the rate of reaction. There are more particles in the same volume and so the frequency of collisions increases.
3	Increasing the Surface area increases the rate of reaction. There are more exposed particles and so the frequency of collisions increases.
4	Adding a catalyst to a reaction increases the rate of reaction. The catalyst provides an alternate reaction pathway with a lower activation energy so more particles have successful collisions (with enough energy to overcome activation energy)
5	There are generally three factors we can use to,measure rate of reaction: measure the volume of gas produced; measure loss in mass; measure the turbidity (cloudiness) if a solid is produced

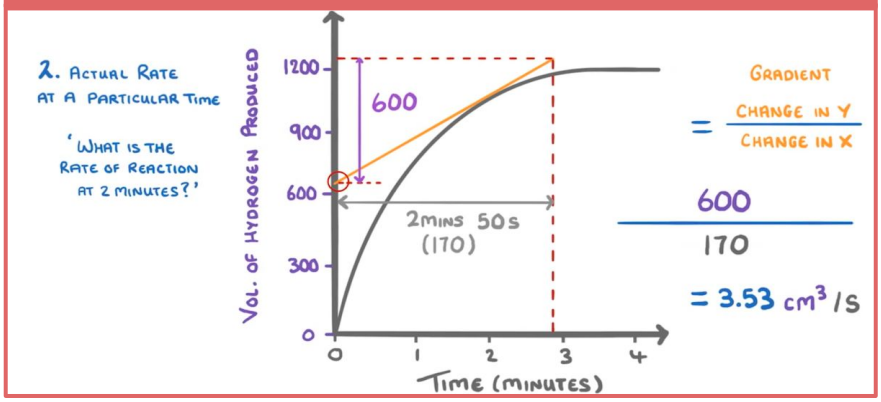
Calculating rate of reaction

$$\text{Rate of Reaction} = \frac{\text{Quatity of Reactants used}}{\text{Time Taken (s)}} \qquad \text{Rate of Reaction} = \frac{\text{Quantity of Products Formed}}{\text{Time Taken (s)}}$$

Mean rate of reaction (H + F)



Rate of reaction at a specific time (H only)



N°	Reversible reactions (⇋) and equilibrium
6	Some chemical reactions are reversible, indicated by a ⇋ arrow. A reversible reaction reaches a state of equilibrium: ***" The rate of the forward reaction is equal to the rate of the reverse reaction, in a closed system"*** We can change the position of equilibrium by changing the concentrations, temperature or pressure of the system - this will change the yield of the products too.

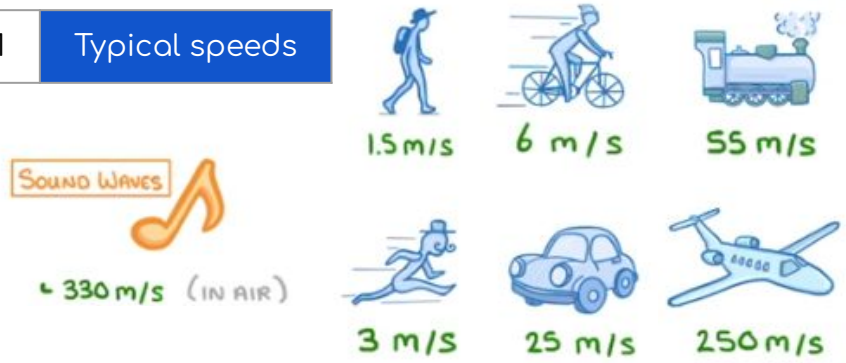
Physics

GCSE Forces (2)

Learned	Revised	Confident

_____ % Achieved:_____

1 **Typical speeds**



N°	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

N°	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

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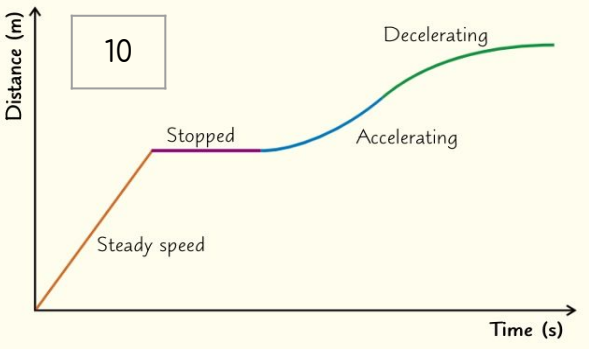

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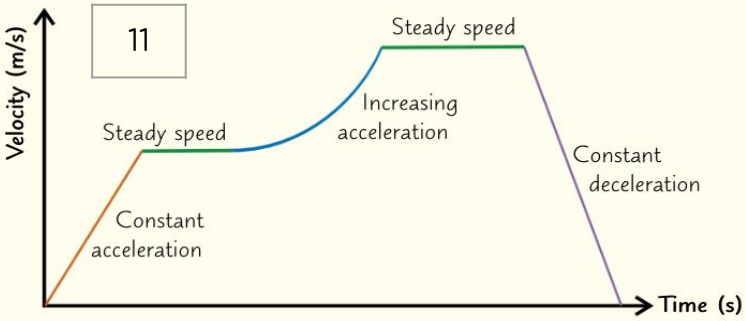


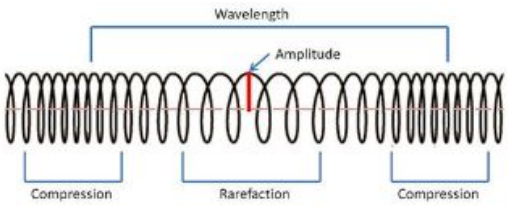
N°	Equations to learn
12	Distance travelled = speed x time
13	Acceleration = $\frac{\text{change in velocity}}{\text{time}}$
14	Resultant force = mass x acceleration
15	(HIGHER ONLY) Momentum = mass x velocity

GCSE Waves

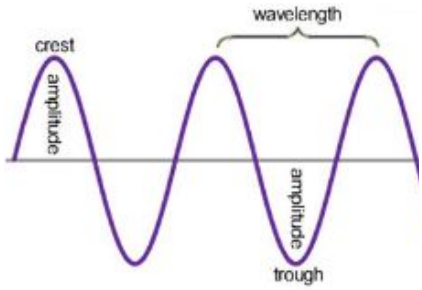
Learned	Revised	Confident

_____ % Achieved:_____

1	Longitudinal wave

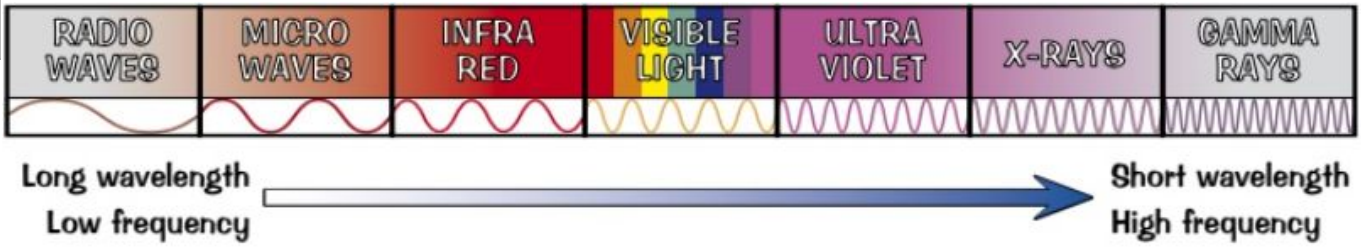


2	Transverse wave



N°	Keyword	Definition
3	Amplitude	Maximum displacement of a point on a wave from its undisturbed position (m)
4	frequency	Number of waves passing a fixed point per second (Hz)
5	Period	Time taken for one complete wave to pass a fixed point (s)
6	Wavelength	The distance from one point on a wave to the equivalent point on the next wave (m)
7	Longitudinal wave	Oscillations are **parallel** to the direction of energy transfer
8	Transverse wave	Oscillations are **perpendicular** to the direction of energy transfer
9	Normal	A line that is perpendicular (90°) to a surface.
10	Reflection	When a wave bounces back when it meets a boundary between two materials
11	Reflection	When a wave changes direction when it reaches a boundary between two materials at an angle to the normal

12



N°	Facts
13	Waves transfer energy without transferring matter
14	The law of reflection is: angle of incidence = angle of reflection

N°	Equations to learn
15	$\text{Period} = \frac{1}{\text{frequency}}$
16	Wave speed = frequency x wavelength