

# Course Mapping Guide

## Secondary Science

# About CENTURY

CENTURY is a learning platform that uses artificial intelligence to personalise learning for every learner. Our team of experienced teachers have created all of our content for English, maths and science from years 2 to 11, as well as functional skills content for post-16 learners. All courses are aligned to the national curriculum and national standards.

- ✓ Learning materials and questions for primary, secondary and post-16 learners
- ✓ Tailored to each learner's skills and knowledge
- ✓ Powered by the world's leading adaptive learning platform
- ✓ Web-based learning for tablets, laptops and desktops




# How does **CENTURY** work?



### Diagnostics

Learners begin by completing diagnostics that quickly identify knowledge gaps and misconceptions, and help CENTURY recommend the best learning materials for each individual learner.



### Recommended Path

This constantly adapting personalised pathway contains micro-lessons designed to address gaps in knowledge, provide stretch and challenge and promote long-term memory retention.




### Leadership Dashboard

Senior and middle leaders get an overview of performance and engagement on a subject, class and learner level.




### Achievements

Learners get rewarded with badges and streaks for completing micro-lessons or using CENTURY over a certain period of time to increase their motivation and engagement.




### Automated Marking

Teachers can view data in real time, to help you quickly identify which learners require additional support or further stretch.



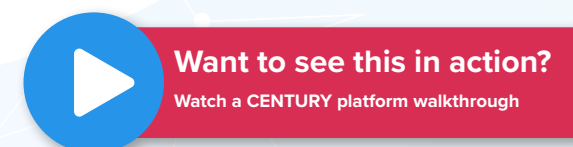
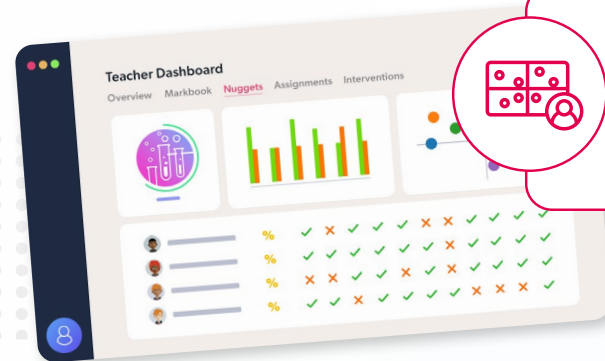
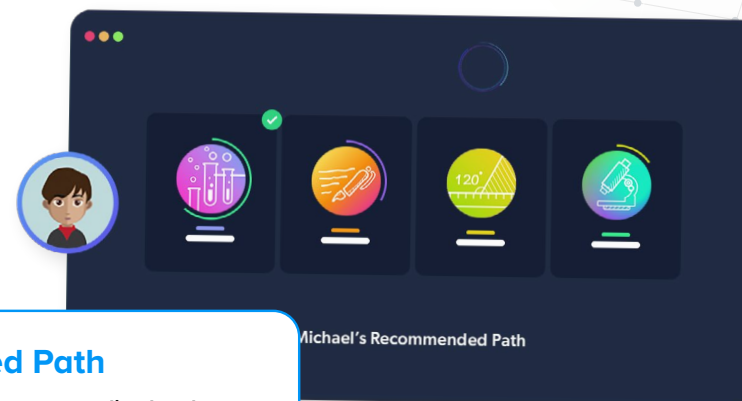
### Teacher Dashboard

Use the markbook to monitor individual learners and whole-class trends with a range of dashboards.



### Learner Dashboard & Guardian Portal

Learners can identify their strengths and areas for improvement. Parents and guardians can monitor their learner's progress, completed work, and see work set.



# Science Courses

## KS3

This map show how our KS3 Biology, Chemistry and Physics courses are aligned to the KS3 national curriculum. You can edit each of these courses to match your KS3 schemes of work.



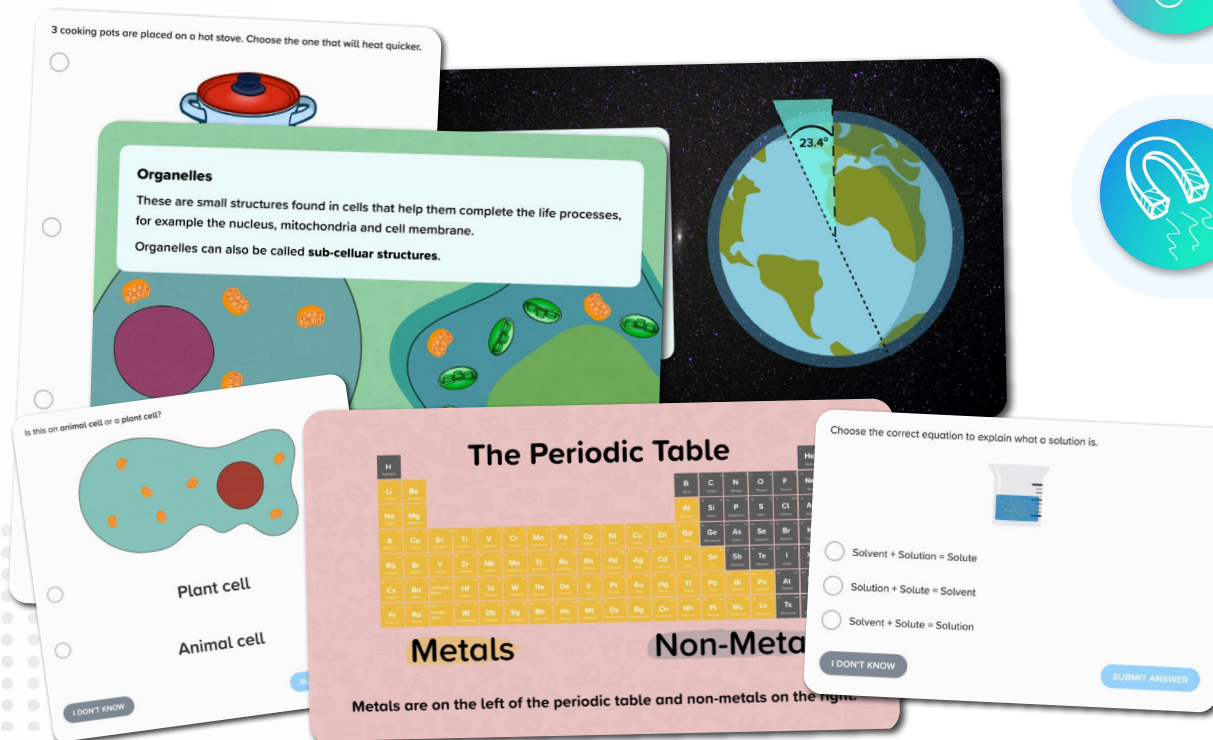
**Science – KS3 Biology**



**Science – KS3 Chemistry**



**Science – KS3 Physics**



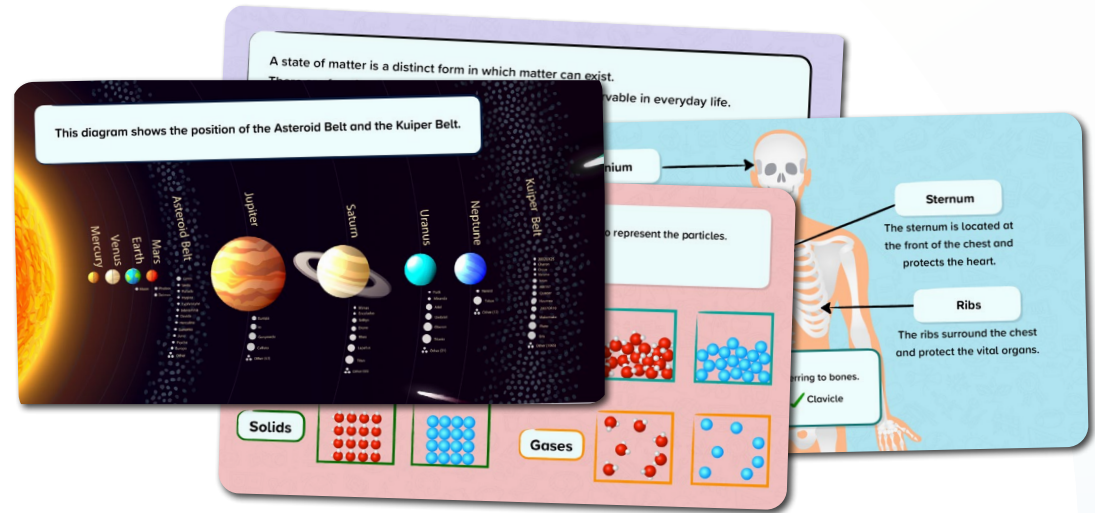
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# Science Courses

## Lower Secondary Cambridge

These maps show how our KS3 Biology, Chemistry and Physics courses are aligned to the Cambridge scheme.



**Science – Stage 7: Cambridge University Press Aligned**



**Science – Stage 7: Cambridge Framework Aligned**



**Science – Stage 8: Cambridge University Press Aligned**



**Science – Stage 8: Cambridge Framework Aligned**



**Science – Stage 9: Cambridge University Press Aligned**



**Science – Stage 9: Cambridge Framework Aligned**

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# Science Courses

## GCSE AQA Biology

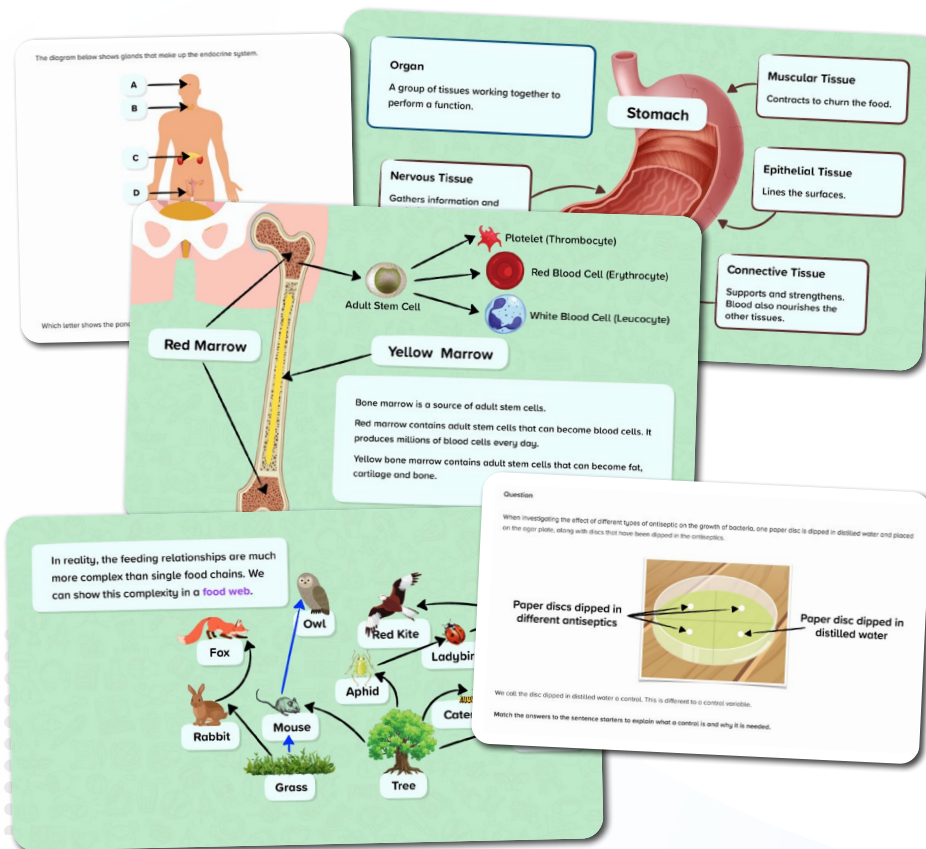
These courses were created by our experienced team of science teachers to support learners studying the GCSE AQA Biology scheme of learning.



**Biology GCSE: AQA (F)**



**Biology GCSE: AQA (H)**



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# Science Courses

## GCSE AQA Chemistry

These courses were created by our experienced team of science teachers to support learners studying the GCSE AQA Chemistry scheme of learning.

Alternative 1  
Question  
Match the formula to the diagram.

A pure substance is a substance that contains one compound or one element.

Types of Particle

Sodium Chloride

Chlorine

Sodium

Atoms

Molecules

Ions

Electrons

A pure substance made up of one element.

Not all element symbols are the first letters of the element name.

26 Fe Iron	Iron	Fe
11 Na Sodium	Sodium	Na
79 Au Gold	Gold	Au

Alternative 1  
Question  
The Latin name for iron is *ferru*

The Latin name for sodium is *na*

The Latin name for gold is *au*

Match the correct chemical formula to the ores below.

Haematite $\text{Fe}_2\text{O}_3$	Bornite $\text{Cu}_5\text{FeS}_4$	Bauxite $\text{Al}_2\text{O}_3$
Chalcopyrite $\text{CuFeS}_2$	Sphalerite $\text{ZnS}$	



Chemistry GCSE: AQA (F)



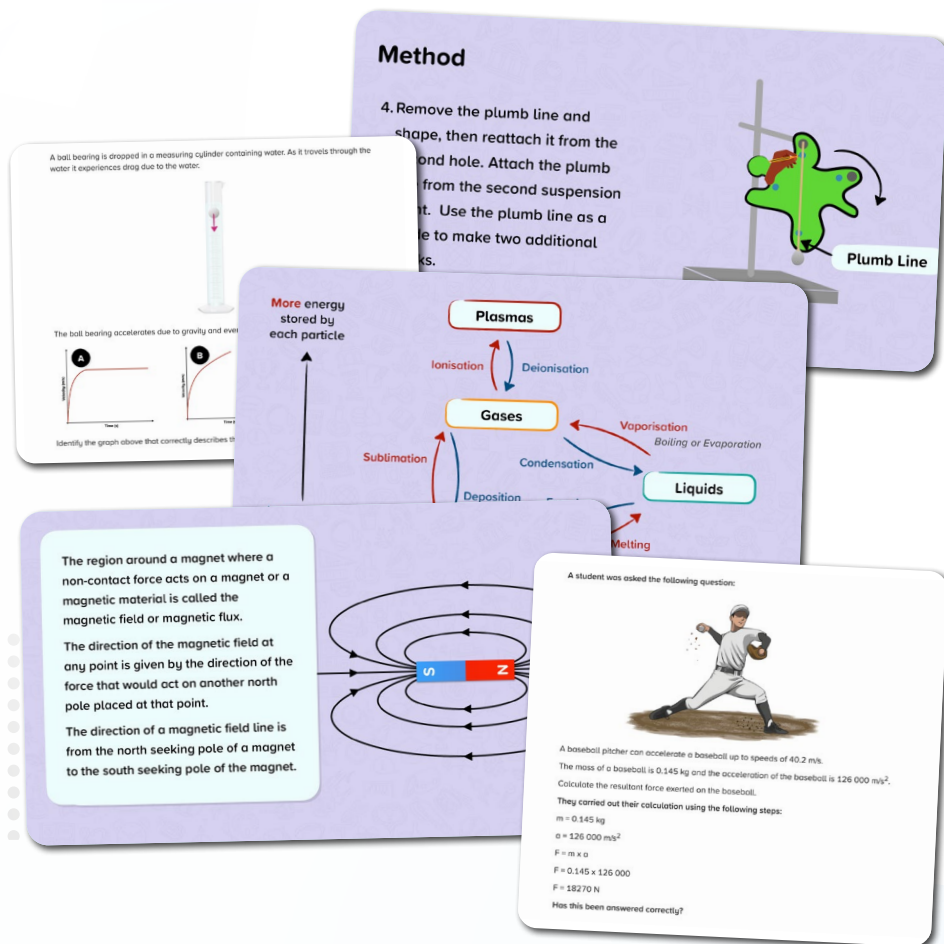
Chemistry GCSE: AQA (H)

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# Science Courses

## GCSE AQA Physics

These courses were created by our experienced team of science teachers to support learners studying the GCSE AQA Physics scheme of learning.



**Science Physics GCSE: AQA (F)**



**Science Physics GCSE: AQA (H)**

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# Secondary Science Courses

## GCSE AQA Synergy

These courses were created by our experienced team of science teachers to support learners studying the GCSE AQA Synergy scheme of learning.



### Combined Science GCSE: AQA Synergy (F) – Life & Environmental Sciences

Specification: 8465



### Combined Science GCSE: AQA Synergy (H) – Life & Environmental Sciences

Specification: 8465



### Combined Science GCSE: AQA Synergy (F) – Physical Sciences

Specification: 8465



### Combined Science GCSE: AQA Synergy (H) – Physical Sciences

Specification: 8465

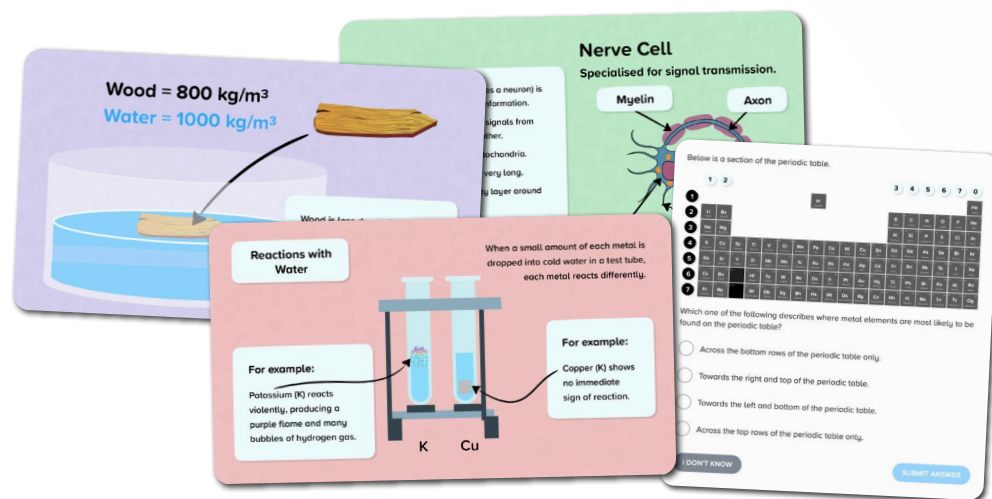
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# Science Courses

## GCSE AQA Trilogy

These courses were created by our experienced team of science teachers to support learners studying the GCSE AQA Synergy scheme of learning.



### Combined Science GCSE: AQA Trilogy (F) – Biology

Specification: 8464



### Combined Science GCSE: AQA Trilogy (H) – Biology

Specification: 8464



### Combined Science GCSE: AQA Trilogy (F) – Chemistry

Specification: 8464



### Combined Science GCSE: AQA Trilogy (H) – Chemistry

Specification: 8464



### Combined Science GCSE: AQA Trilogy (F) – Physics

Specification: 8464



### Combined Science GCSE: AQA Trilogy (H) – Physics

Specification: 8464

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# Science Courses

## Science Courses - ELC

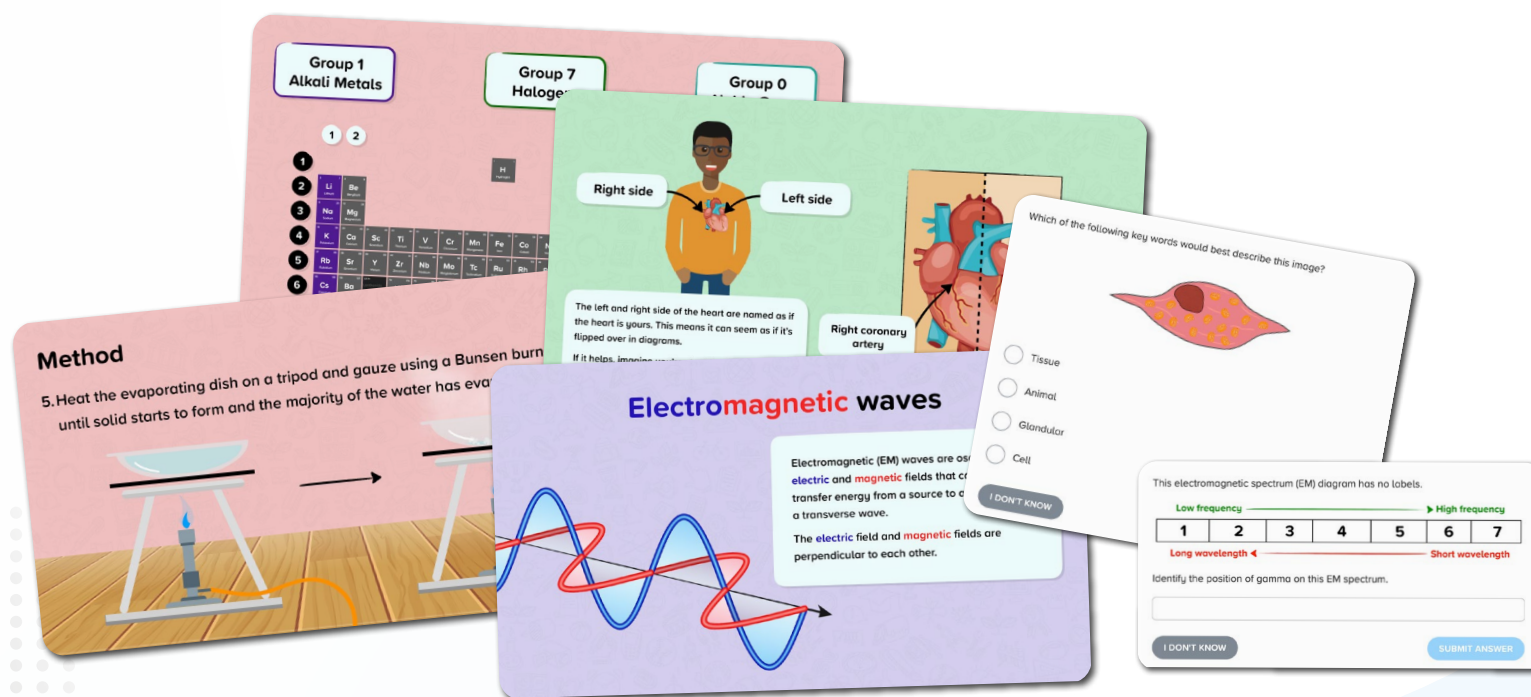
This course is mapped to AQA ELC Science, and is designed for students studying both ELC and GCSE.

AQA: 5960

QAN: 601/7522/9ng



**Science ELC+ (Double Award): AQA**



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# Science Courses

## GCSE Edexcel

These courses were created by our experienced team of science teachers to support learners studying the GCSE Edexcel Biology scheme of learning.



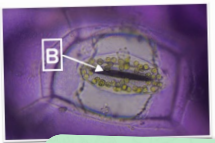
**Biology GCSE: Edexcel (F)**



**Biology GCSE: Edexcel (H)**

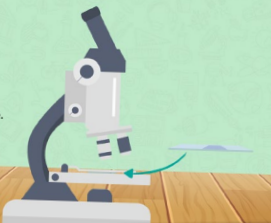
Study the diagram below.

Identify the structure labelled B.

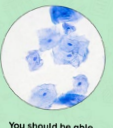


**Method**

7. The slide is now ready for viewing under a microscope.



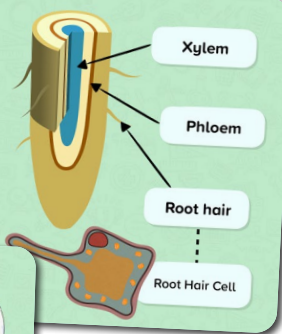
You should be able to see something like this!



Minerals are dissolved in water found in the soil.

The water and minerals are absorbed by the root hair cells.

The water and minerals are then transported around the plant in the xylem vessels.



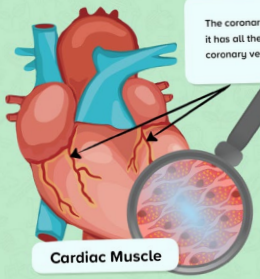
Xylem

Phloem

Root hair

Root Hair Cell

The coronary arteries carry blood into the heart muscle, making sure it has all the oxygen and glucose it needs for respiration. The coronary veins carry away waste products.



**Cardiac Muscle**

The walls of the heart are made up of cardiac muscle.

The cardiac muscle enables the heart to pump blood (by the contraction of different heart chambers).

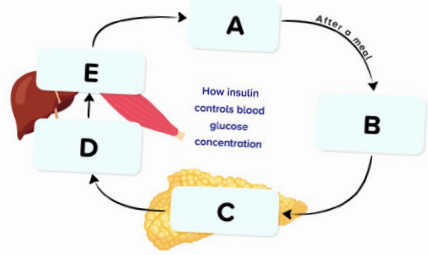
The contractions are automatic; you cannot control this movement.

This is called your pulse.

**Question**

The flow diagram below summarises the process involved in the control of blood glucose concentration by insulin.

The steps in the process have been replaced with letters, A to E.



How insulin controls blood glucose concentration

After a meal

Drag each of the steps to the letter it corresponds to.

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# Science Courses

## GCSE Edexcel

These courses were created by our experienced team of science teachers to support learners studying the GCSE Edexcel Chemistry scheme of learning.



**Chemistry GCSE: Edexcel (F)**



**Chemistry GCSE: Edexcel (H)**

**Thomson's Conclusions**

- The cathode ray is made up of negatively charged particles.
- These particles are only 1/1840 the mass of a hydrogen atom, so these negative particles must actually be part of the atom.

Atomic particles can be found in all elements. The atom must be positively charged to balance out the negative charge of the electrons.

**Question**

Below are four particle diagrams. Label each of the particle diagrams with the correct state of matter.

**Examples of Giant Covalent Structures**

**Diamond** **Graphite** **Silicon Dioxide**  
*Silica*

**Question**

A 24 carat sample of 18 carat gold was found to contain 18 g of pure gold and 6 g of other metals. Calculate the percentage of gold in the sample. Give your answer to 2 significant figures.

You are given in the question:

Mass of substance (gold) = 18 g  
Mass of Mixture (sample) = 24 g

To find the percentage of gold in the sample:

Mass of substance (gold)	18 g	× 100	
Mass of Mixture (sample)	24 g	÷	
			<b>Answer</b>
			75%

Percentage (%) = 75% (2 s.f.)

**Chemical Equation:**

$$\text{HNO}_3 (\text{aq}) + \text{KOH} (\text{aq}) \longrightarrow \text{KNO}_3 (\text{aq}) + \text{H}_2\text{O} (\text{l})$$

Use the chemical equation to work out how many moles of hydrochloric acid will be needed.

**Moles of  $\text{HNO}_3$  needed = \_\_\_\_\_ moles**

Type your answer as a number, without a unit.

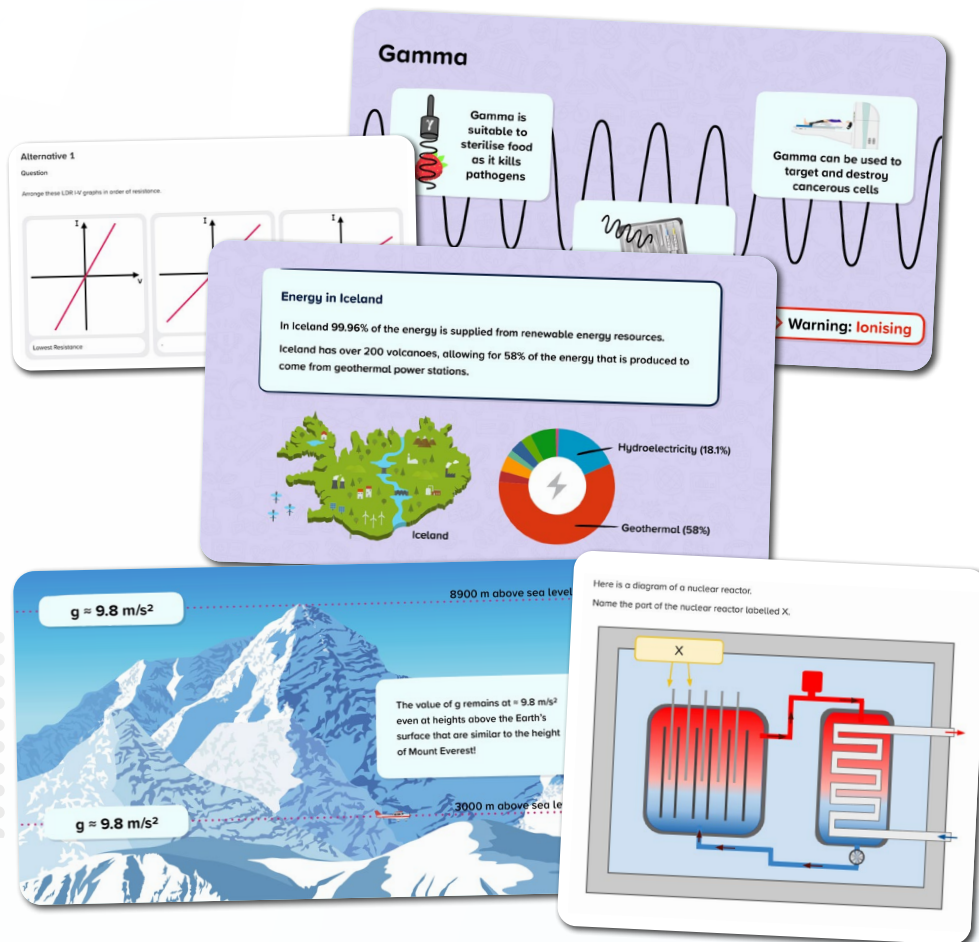
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# Science Courses

## GCSE Edexcel

These courses were created by our experienced team of science teachers to support learners studying the GCSE Edexcel Physics scheme of learning.



**Physics GCSE: Edexcel (F)**



**Physics GCSE: Edexcel (H)**

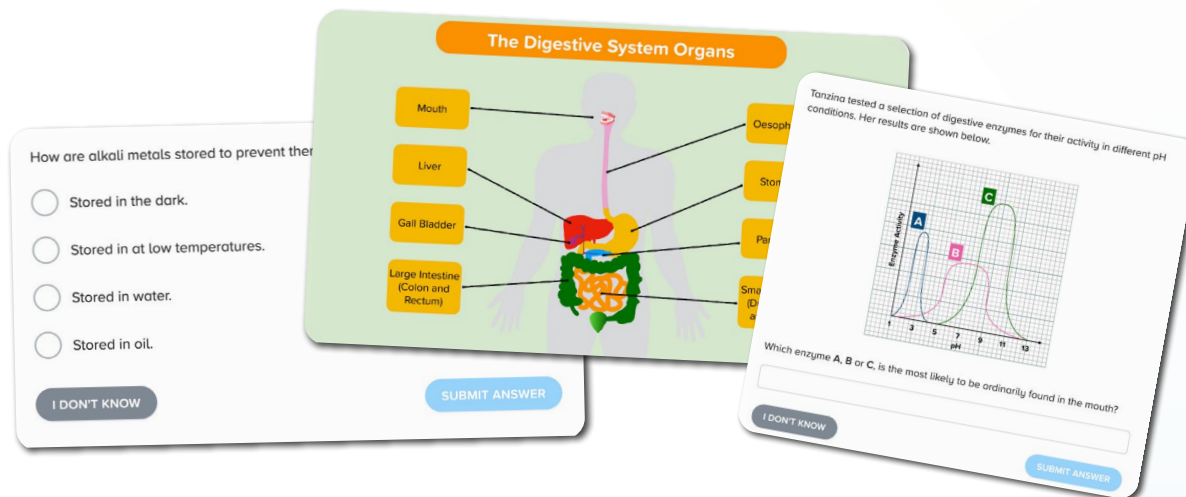
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# Science Courses

## GCSE Edexcel

These courses were created by our experienced team of science teachers to support learners studying the GCSE Edexcel Combined scheme of learning.



**Combined Science GCSE:  
Edexcel – Biology (F)**



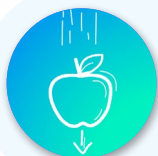
**Combined Science GCSE:  
Edexcel – Biology (H)**



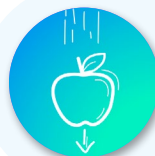
**Combined Science GCSE:  
Edexcel – Chemistry (F)**



**Combined Science GCSE:  
Edexcel – Chemistry (H)**



**Combined Science GCSE:  
Edexcel – Physics (F)**



**Combined Science GCSE:  
Edexcel – Physics (H)**

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# Science Courses

## Secondary Other

These courses were created by our experienced team of science teachers.



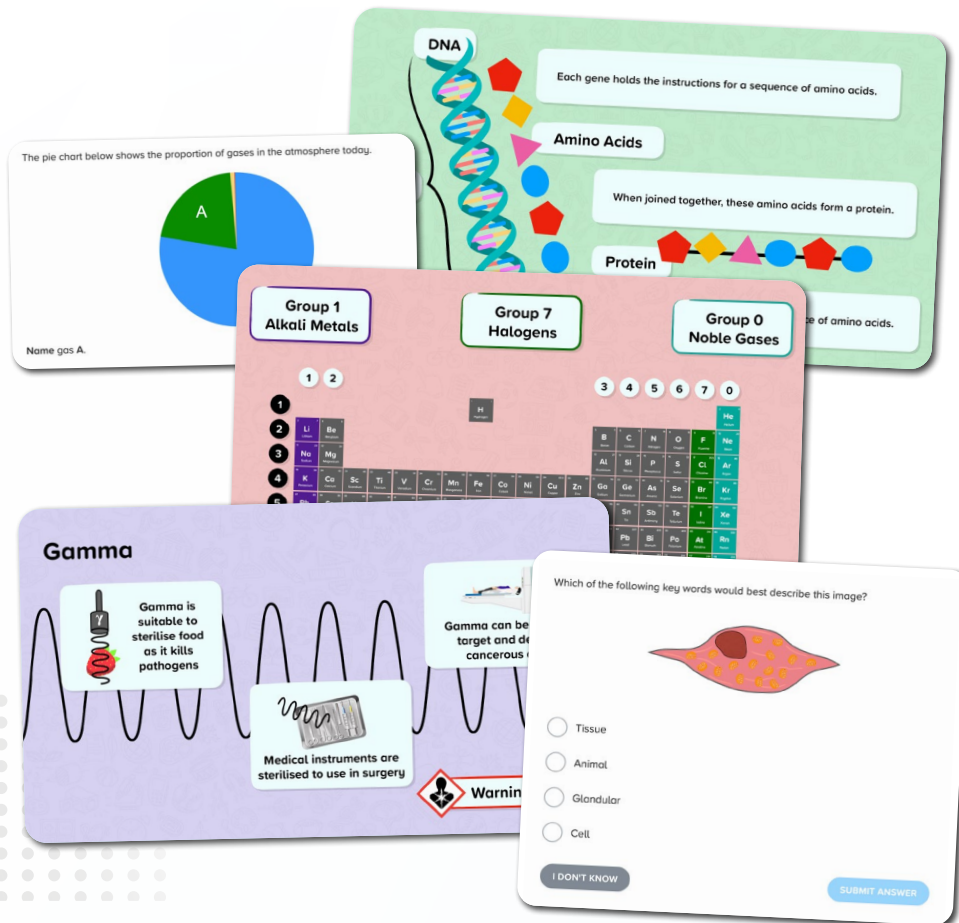
**Biology GCSE**



**Chemistry GCSE**



**Physics GCSE**

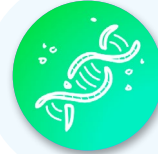


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# Science Courses

## IGCSE Cambridge Biology

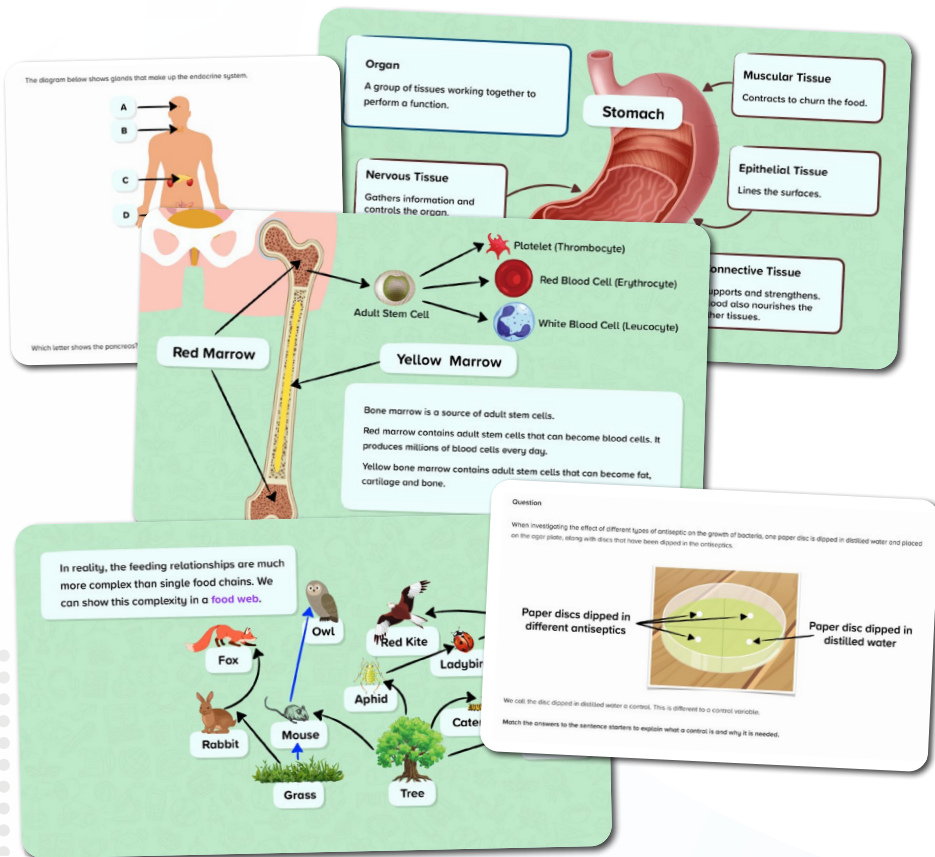
These courses were created by our experienced team of science teachers to support learners studying the IGCSE Cambridge Biology scheme of learning.



**Biology IGCSE (Core)**



**Biology IGCSE (Extended)**



# Science Courses

## IGCSE Cambridge Chemistry

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Cambridge Chemistry scheme of learning.



**Chemistry IGCSE (Core)**



**Chemistry IGCSE (Extended)**

**Thomson's Conclusions**

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To find the percentage of gold in the sample:

Mass of substance (gold)	18 g
Mass of Mixture (sample)	24 g
Percentage (%)	75%

**Answer** 75%

Hydrochloric acid (HNO<sub>3</sub>) and potassium hydroxide (KOH) react to form potassium nitrate (KNO<sub>3</sub>) and water (H<sub>2</sub>O).

**Chemical Equation:**

$$\text{HNO}_3 (\text{aq}) + \text{KOH} (\text{aq}) \longrightarrow \text{KNO}_3 (\text{aq}) + \text{H}_2\text{O} (\text{l})$$

Use the chemical equation to work out how many moles of hydrochloric acid will be needed.

**Moles of HNO<sub>3</sub> needed = \_\_\_\_\_ moles**

Type your answer as a number, without a unit.

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# Science Courses

## IGCSE Cambridge Physics

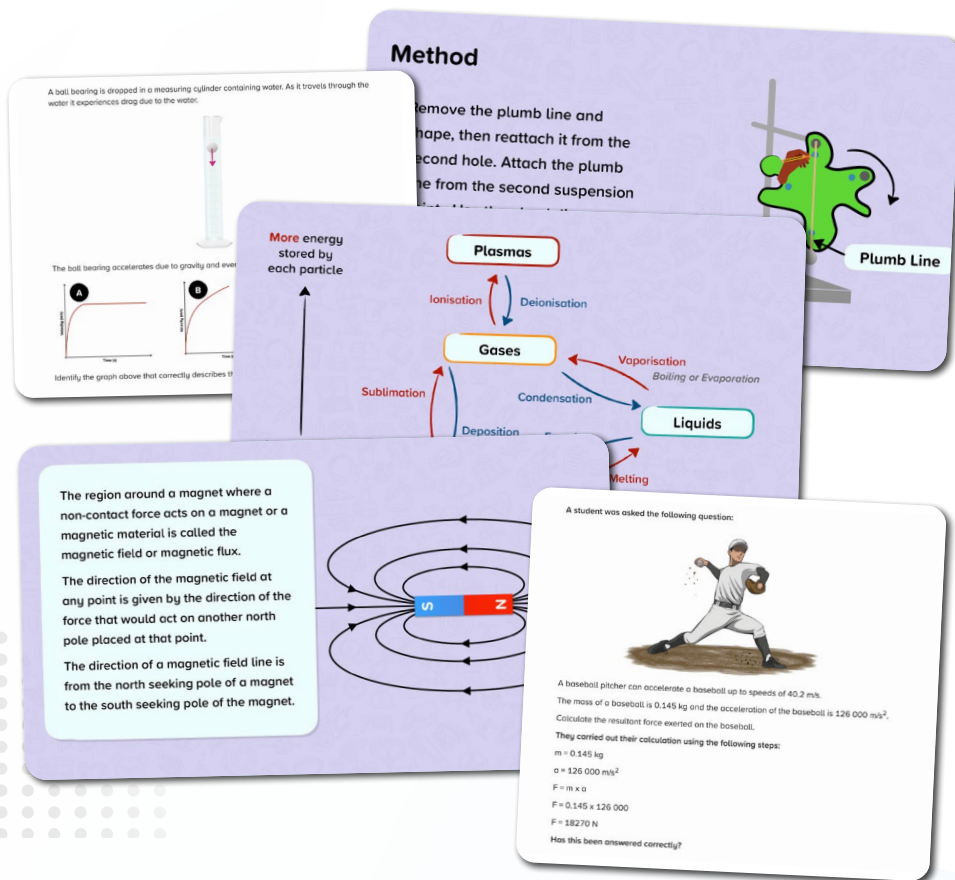
These courses were created by our experienced team of science teachers to support learners studying the IGCSE Cambridge Physics scheme of learning.



**Physics IGCSE (Core)**



**Physics IGCSE (Extended)**



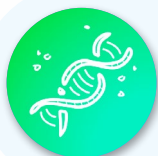
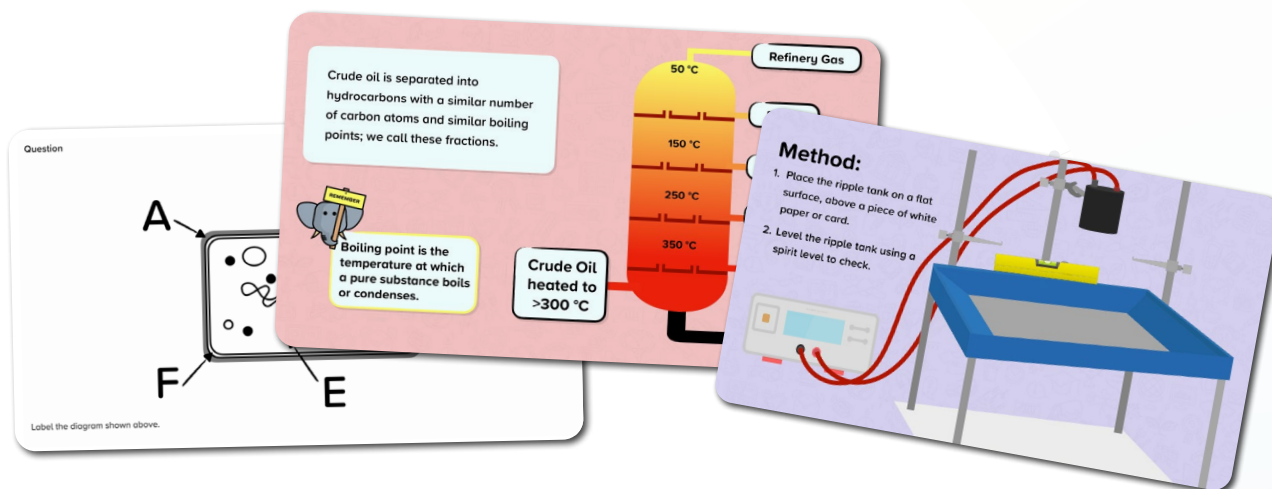
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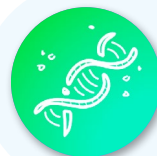
# Science Courses

## IGCSE Cambridge Combined

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Cambridge Combined scheme of learning.



**Combined Science IGCSE –  
Biology (Core)**



**Combined Science IGCSE –  
Biology (Extended)**



**Combined Science IGCSE –  
Chemistry (Core)**



**Combined Science IGCSE –  
Chemistry (Extended)**



**Combined Science IGCSE –  
Physics (Core)**



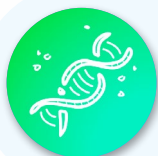
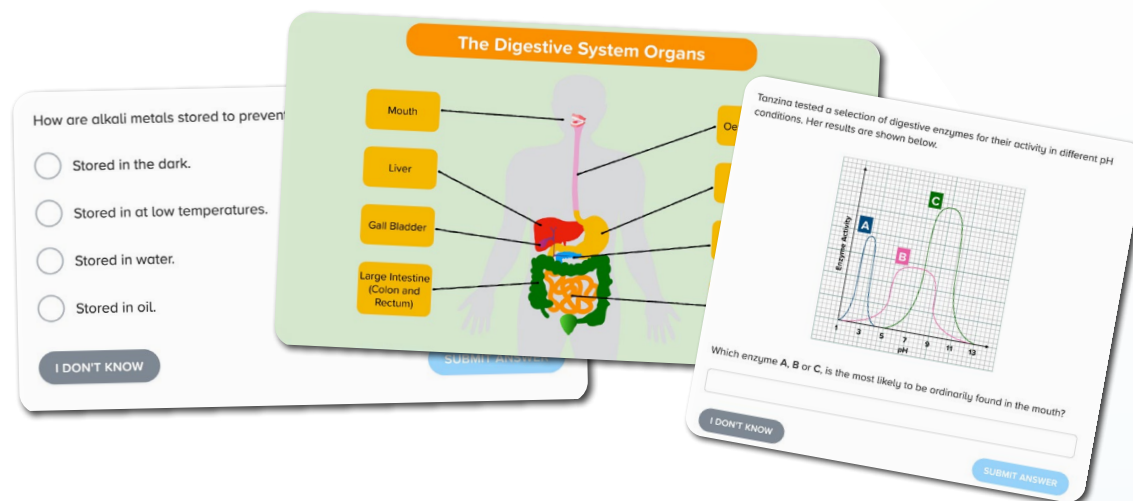
**Combined Science IGCSE –  
Physics (Extended)**

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# Science Courses

## IGCSE Cambridge Co-ordinated

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Cambridge Co-ordinated scheme of learning.



**Co-ordinated Science IGCSE –  
Biology (Core)**



**Co-ordinated Science IGCSE –  
Biology (Extended)**



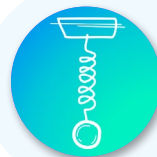
**Co-ordinated Science IGCSE –  
Chemistry (Core)**



**Co-ordinated Science IGCSE –  
Chemistry (Extended)**



**Co-ordinated Science IGCSE –  
Physics (Core)**



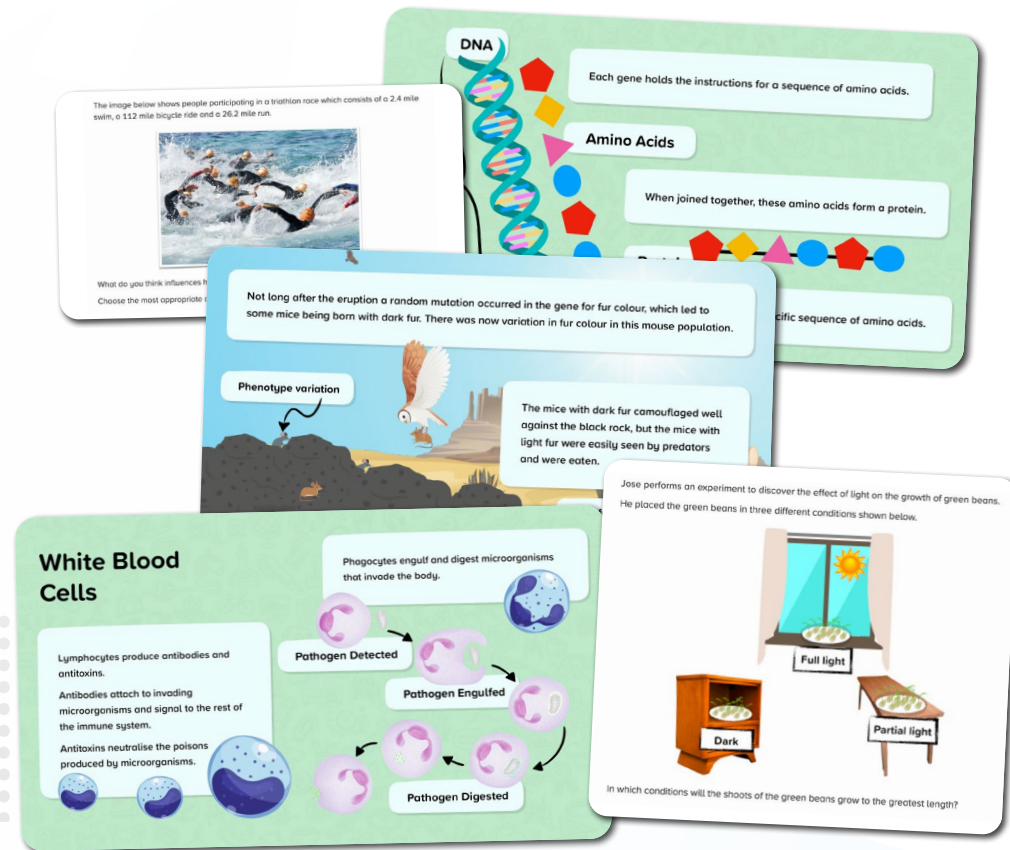
**Co-ordinated Science IGCSE –  
Physics (Extended)**

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# Science Courses

## IGCSE Edexcel Biology

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Edexcel Biology scheme of learning.



**Biology IGCSE**



**Human Biology IGCSE**

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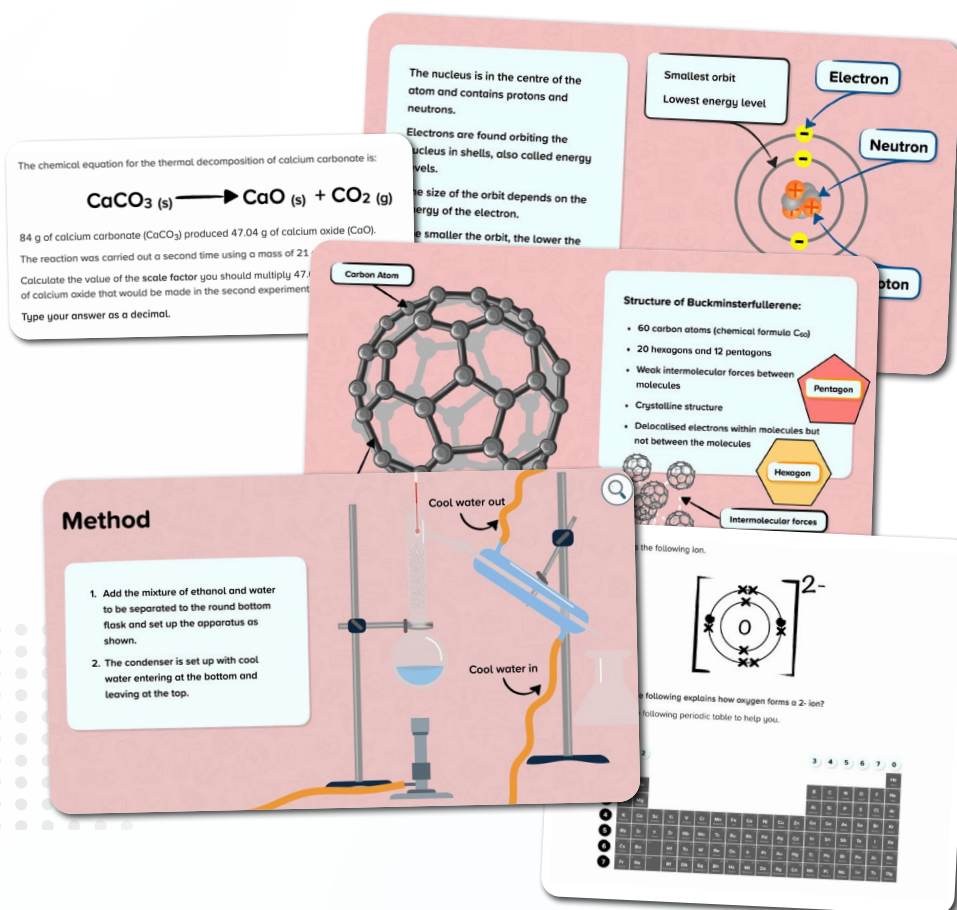
# Science Courses

## IGCSE Edexcel Chemistry

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Edexcel Chemistry scheme of learning.



Chemistry IGCSE

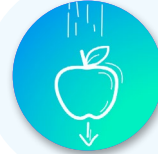


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# Science Courses

## IGCSE Edexcel Physics

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Edexcel Physics scheme of learning.



Physics IGCSE

A fighter jet accelerates uniformly at  $10 \text{ m/s}^2$  to a velocity of  $610 \text{ m/s}$ . During this period of acceleration, the aircraft travels  $15 \text{ km}$ . Calculate the initial velocity of the aircraft.  
Give your answer to 1 decimal place.

$u =$  \_\_\_\_\_

Air Resistance

The sky diver falls through the air due to the force of weight.  
As air is a fluid, the sky diver experiences drag force in the opposite direction to the sky diver's motion.

Medical Diagnosis      Medical Treatments or Diagnosis

Radio-waves   Microwaves   Infrared   Visible light   Ultraviolet   X-rays   Gamma

Warning: Ionising

Short wavelength

Boiler   Turbine   Generator

Bio-fuels

How does a bio-fuel power station work?

1. Biofuels can be burnt to heat water and turn it into steam.
2. The steam is extracted and used to turn a turbine.
3. The turbines turn the generator to produce electricity.

The motion of a galloping horse is represented using a velocity-time graph.

Velocity ( $\text{m/s}$ )

Time ( $\text{s}$ )

The acceleration of the horse at  $9 \text{ s}$  into the journey is to be found. To find the acceleration of the horse, a tangent is drawn at  $9 \text{ s}$ . Two points are identified on the tangent and  $\Delta x$  and  $\Delta t$  are labelled.

Use the graph above to calculate the acceleration of the cyclist at  $9 \text{ s}$ .  
Do not include a unit in your answer.

Acceleration = \_\_\_\_\_  $\text{m/s}^2$

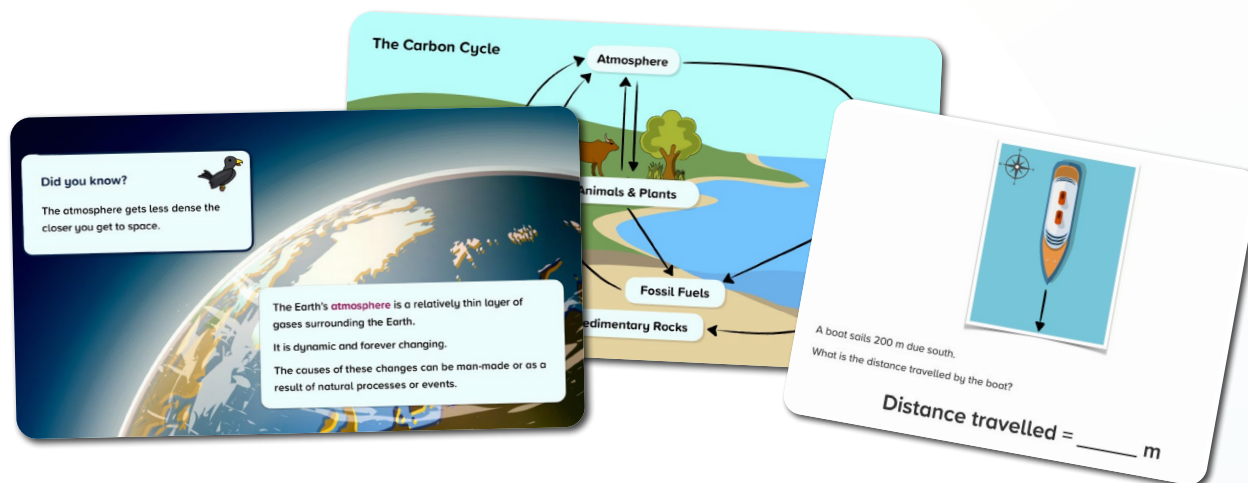
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# Science Courses

## IGCSE Edexcel Combined

These courses were created by our experienced team of science teachers to support learners studying the IGCSE Edexcel Combined schemes of learning.



**Science Combined Single Award IGCSE  
– Biology**



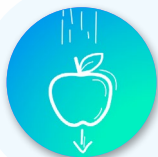
**Science Combined Double Award IGCSE  
– Biology**



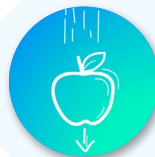
**Science Combined Single Award IGCSE  
– Chemistry**



**Science Combined Double Award IGCSE  
– Chemistry**



**Science Combined Single Award IGCSE  
– Physics**



**Science Combined Double Award IGCSE  
– Physics**

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# Science Courses

## Science Keywords Edexcel IGCSE

This course contains assessments from each topic in the IGCSE Edexcel specification to test the spelling and definition of key words.



## Science Keywords Edexcel IGCSE

### Keyword Quiz

Quiz yourself on the  
This helps develop  
allowing you to write

What do we call a solid conductive material through which electricity can flow?

- ☐ Electrolyte
- ☐ Cathode
- ☐ Electrode
- ☐ Anode

SUBMIT ANSWER

Herbivores that consume producers at trophic level 2 of a food chain are called \_\_\_\_\_

- ☐ Tertiary consumers
- ☐ Producers
- ☐ Secondary consumers
- ☐ Primary consumers

SUBMIT ANSWER

The angle of incidence beyond which total internal reflection occurs is known as the \_\_\_\_\_

- ☐ refractive index
- ☐ angle of reflection
- ☐ angle of refraction
- ☐ critical angle

I DON'T KNOW

SUBMIT ANSWER

What is complete combustion?

- ☐ A reaction that breaks down large hydrocarbons into smaller molecules.
- ☐ Combustion carried out in sufficient oxygen, producing only water and carbon dioxide.
- ☐ Combustion with insufficient oxygen, producing harmful substances.
- ☐ A reaction that joins monomers to form polymers.

I DON'T KNOW

SUBMIT ANSWER

### Keyword Quiz



Quiz yourself on the scientific keywords for this topic.

This helps develop your scientific literacy and oracy skills,  
allowing you to write and speak like a scientist.

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# Science Courses

## Working Scientifically

This course includes scientific skills and ideas that flow through all scientific disciplines. It is suitable for study alongside secondary science subjects.



## Working Scientifically

**Card 1: Bunsen burner parts and safety**

Barrel or Chimney  
Collar  
Air Hole  
Gas Inlet

It is important to know the names of the parts on the Bunsen burner. This will make it easier to safely operate it.

The barrel or chimney can get very hot during use, so the burner should be carried by the base to avoid burns.

The collar controls the size of the air hole, this is how the size & temperature of the flame can be regulated.

**Card 2: Precision and Accuracy in Archery**

Not Accurate Not Precise  
Not Accurate Precise  
Accurate Not Precise  
Accurate Precise

Consider an archery player:  
The arrows are considered to be **precise** if they are close together.  
The arrows are considered to be **accurate** if they are near the centre of the bullseye.  
Like the results in an experiment, can be **precise** without being **accurate**.

**Card 3: Photosynthesis Investigation**

Let's take a look at the classic investigation into the effect of light intensity on the rate of photosynthesis.

00:03:00

70 80 90 100 cm

**Card 4: Neutralisation Experiment**

Medium

Acid  
Base

Salt + Water

Hazard: Using dilute hydrochloric acid in a neutralisation experiment.

Risk: **Medium** – The acid is mildly corrosive and could cause skin or eye irritation if spilled. The risk is higher if protective equipment is not used.

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# Science Courses

## Prepare for A-Level Science

These courses covers the key concepts and foundational knowledge to aid transition and preparation to study science at A-level.



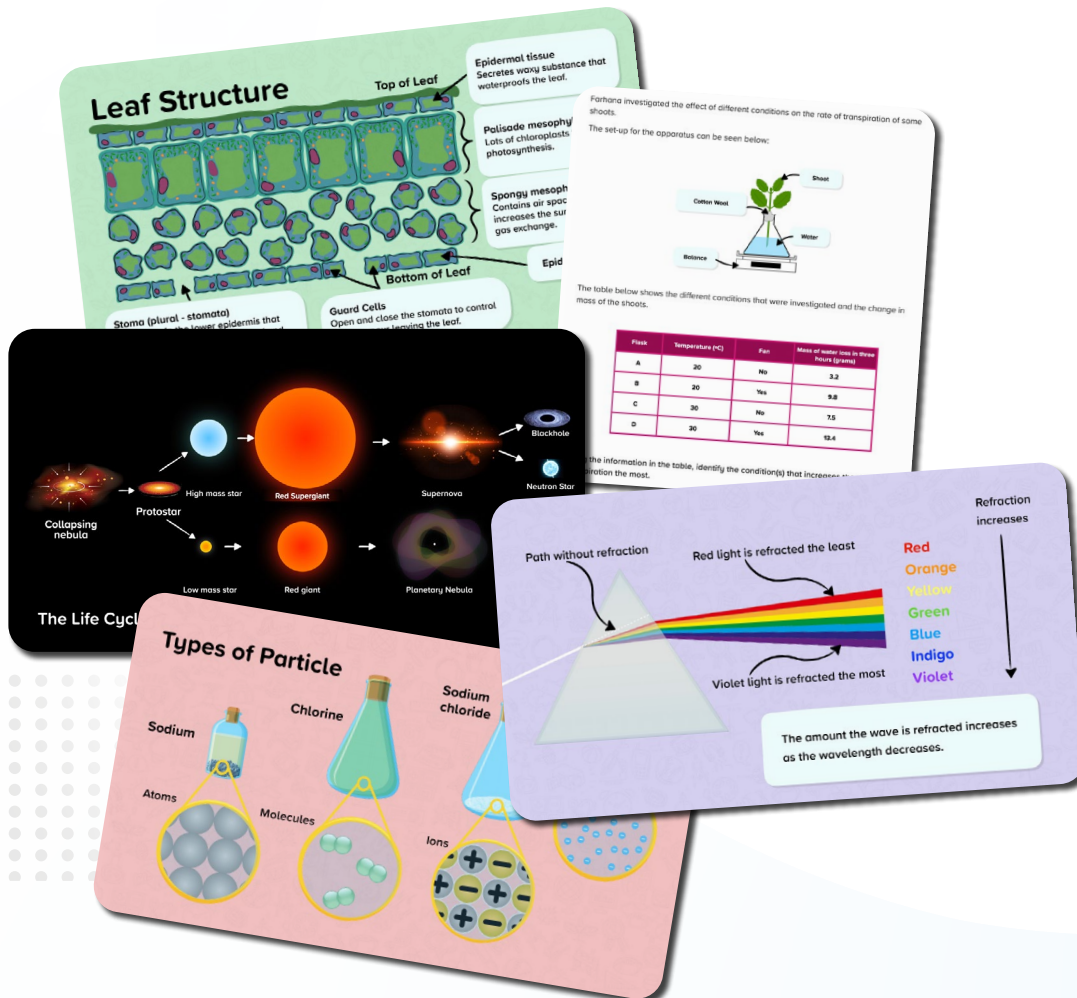
**Prepare for A-Level: Biology**



**Prepare for A-Level: Chemistry**

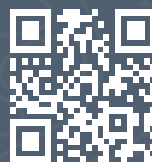


**Prepare for A-Level: Physics**



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