

# Course Mapping Guide

## Science - Edexcel IGCSE

# 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.



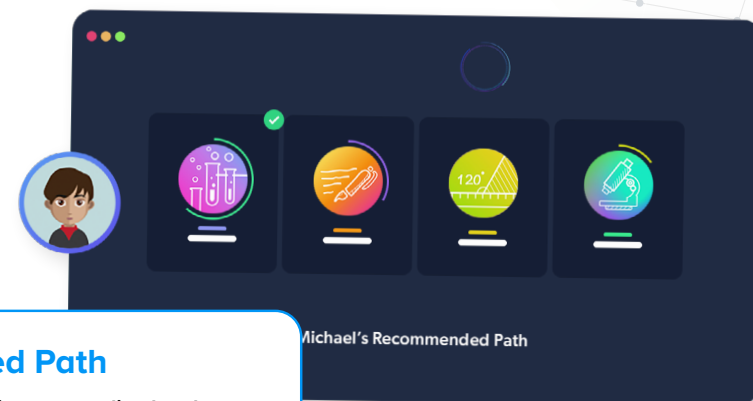
### Teacher Dashboard

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

## IGCSE Edexcel

These courses are mapped to the IGCSE Edexcel scheme.



**Science Biology IGCSE**



**Science Human Biology IGCSE**

The image below shows people participating in a triathlon race which consists of a 2.4 mile swim, a 112 mile bicycle ride and a 26.2 mile run.

What do you think influences the results of a triathlon? Choose the most appropriate answer.

**DNA**

Each gene holds the instructions for a sequence of amino acids.

**Amino Acids**

When joined together, these amino acids form a protein.

**Protein**

Each protein has a specific sequence of amino acids.

Not long after the eruption a random mutation occurred in the gene for fur colour, which led to some mice being born with dark fur. There was now variation in fur colour in this mouse population.

**Phenotype variation**

The mice with dark fur camouflaged well against the black rock, but the mice with light fur were easily seen by predators and were eaten.

**White Blood Cells**

Lymphocytes produce antibodies and antitoxins. Antibodies attach to invading microorganisms and signal to the rest of the immune system. Antitoxins neutralise the poisons produced by microorganisms.

Phagocytes engulf and digest microorganisms that invade the body.

Pathogen Detected

Pathogen Engulfed

Pathogen Digested

Jose performs an experiment to discover the effect of light on the growth of green beans. He placed the green beans in three different conditions shown below.

Full light

Partial light

Dark

In which conditions will the shoots of the green beans grow to the greatest length?

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## Science Chemistry IGCSE

The chemical equation for the thermal decomposition of calcium carbonate is:

$$\text{CaCO}_3 (\text{s}) \longrightarrow \text{CaO} (\text{s}) + \text{CO}_2 (\text{g})$$

84 g of calcium carbonate ( $\text{CaCO}_3$ ) produced 47.04 g of calcium oxide ( $\text{CaO}$ ).  
The reaction was carried out a second time using a mass of 21.7 g of calcium carbonate.  
Calculate the value of the scale factor you should multiply 47.04 by to get the mass of calcium oxide that would be made in the second experiment.  
Type your answer as a decimal.

**Method**

1. Add the mixture of ethanol and water to be separated to the round bottom flask and set up the apparatus as shown.
2. The condenser is set up with cool water entering at the bottom and leaving at the top.

The nucleus is in the centre of the atom and contains protons and neutrons.  
Electrons are found orbiting the nucleus in shells, also called energy levels.  
The size of the orbit depends on the energy of the electron.  
The smaller the orbit, the lower the energy level.  
The shell that is closest to the nucleus is the smallest orbit.

Smallest orbit  
Lowest energy level

Electron

Neutron

Proton

Carbon Atom

**Structure of Buckminsterfullerene:**

- 60 carbon atoms (chemical formula  $\text{C}_{60}$ )
- 20 hexagons and 12 pentagons
- Weak intermolecular forces between molecules
- Crystalline structure
- Delocalised electrons within molecules but not between the molecules

Pentagon

Hexagon

Intermolecular forces

the following ion.

$$\left[ \begin{array}{c} \times \\ \times \\ \times \\ \times \end{array} \right]^{2-}$$

the following explains how oxygen forms a 2- ion?  
following periodic table to help you.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
H	He	Li	Be	B	C	N	O	F	Ne	Na	Mg	Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	

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## Science 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.

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

**Medical Diagnosis**

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

**Medical Treatments or Diagnosis**

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 labelled  $\Delta x$  and  $\Delta y$ .

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

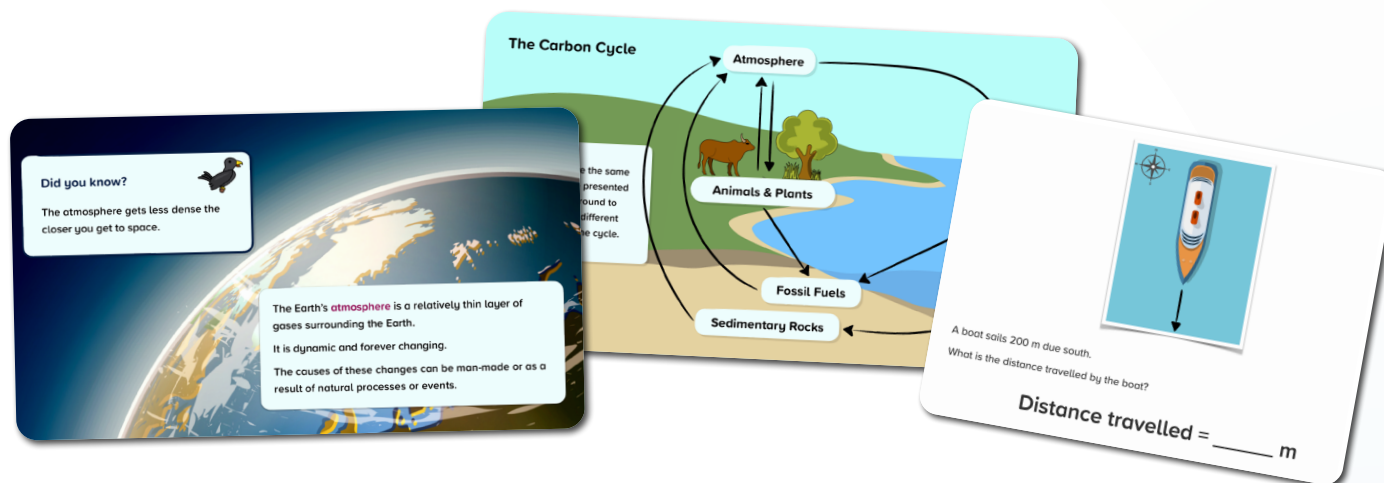
Acceleration = \_\_\_\_\_  $\text{m/s}^2$

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# Science Courses

## GCSE Edexcel

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**Science Combined Single Award IGCSE  
– Biology**



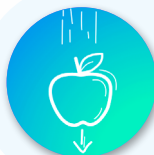
**Science Combined Double Award IGCSE  
– Biology**



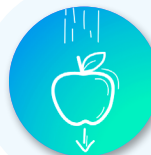
**Science Combined Single Award IGCSE  
– Chemistry**



**Science Combined Double Award IGCSE  
– Chemistry**



**Science Combined Single Award IGCSE  
– Physics**



**Science Combined Double Award IGCSE  
– Physics**

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# Science Courses

## Working Scientifically Secondary

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



## Working Scientifically Secondary

The collage features four overlapping cards with various scientific illustrations and text:

- Top Left Card (Green):** Illustrates a Bunsen burner with labels: "Barrel or Chimney", "Collar", "Air Hole", and "Gas Inlet". Text: "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."
- Top Right Card (Pink):** Shows four target diagrams illustrating accuracy and precision. Labels below the targets: "Not Accurate Not Precise", "Not Accurate Precise", "Accurate Not Precise", and "Accurate Precise". Text: "Consider an archery player: The arrows are considered to be **precise** if they are close together. They 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**."
- Bottom Left Card (Green):** Illustrates a classic investigation into the effect of light intensity on the rate of photosynthesis. It shows a beaker with a plant, a ruler, and a stopwatch. Text: "Let's take a look at the classic investigation into the effect of light intensity on the rate of photosynthesis."
- Bottom Right Card (Green):** Illustrates a neutralisation experiment. It shows a beaker containing "Salt + Water" with "Acid" and "Base" being added. Text: "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.



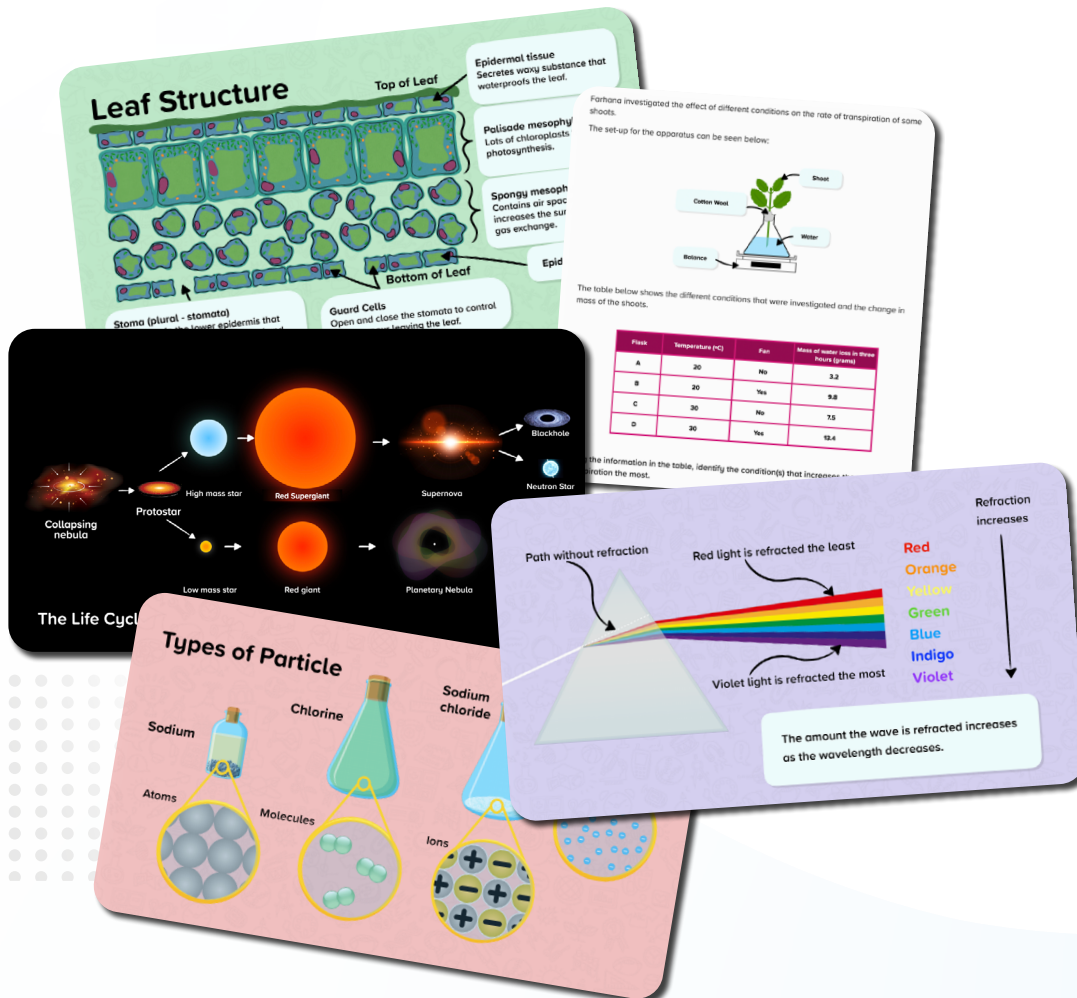
**Prepare for A-Level: Biology**



**Prepare for A-Level: Chemistry**



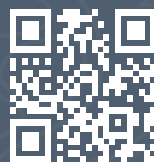
**Prepare for A-Level: Physics**



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**Questions?**  
Email [support@century.tech](mailto:support@century.tech)



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