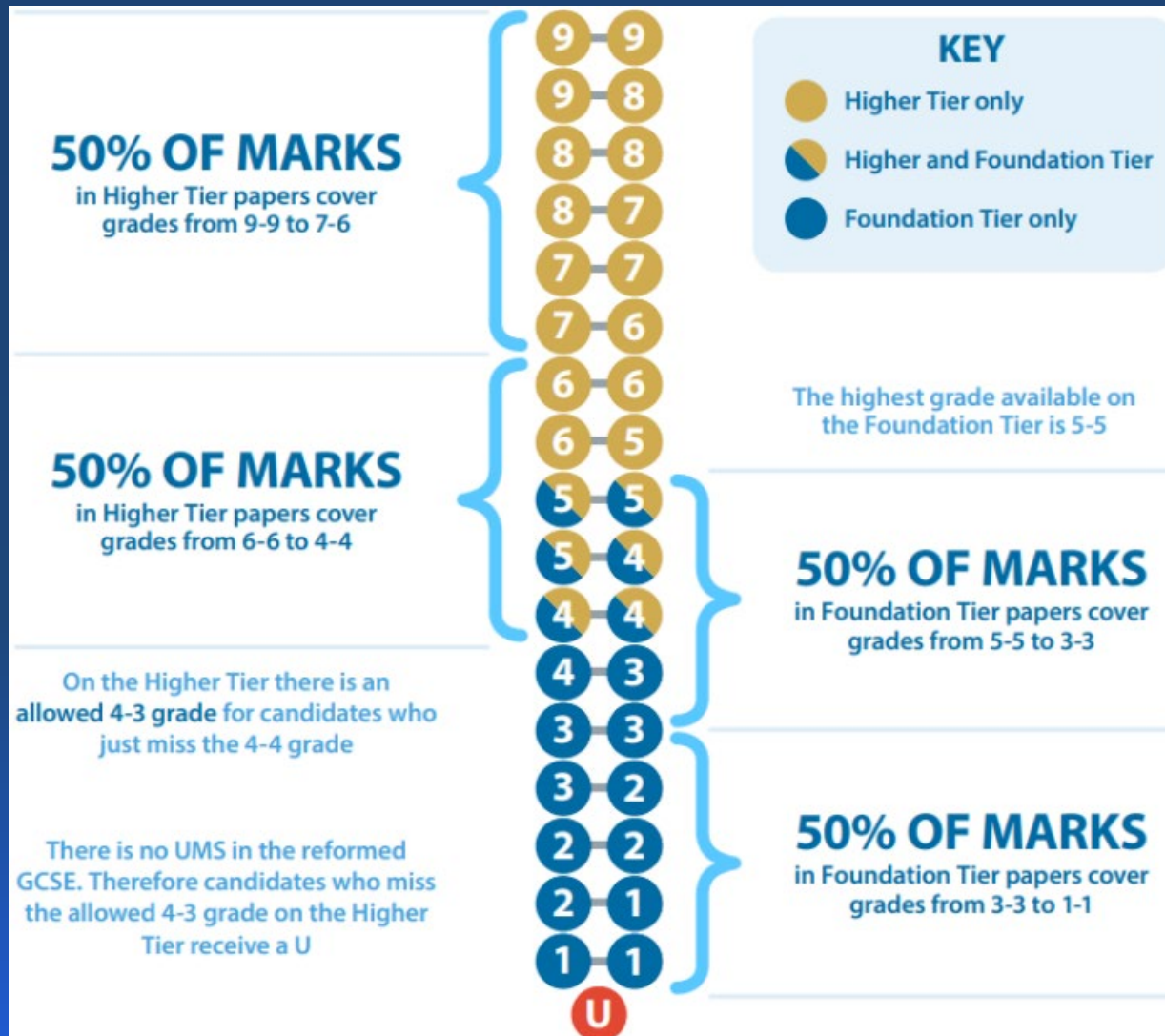


GCSE Combined Science

BIOLOGY	CHEMISTRY	PHYSICS
1. Cell Level Systems	1. Particles	1. Matter
2. Scaling up	2. Elements and Bonding	2. Forces
3. Organism Level Systems	3. Chemical Reactions	3. Electricity and magnetism
4. Community Level systems	4. Predicting Chemical Reactions	4. Waves and Radioactivity
5. Genetics	5. Rate of Change	5. Energy
6. Global Challenges	6. Global Challenges	6. Global Challenges

Biology Paper 1 Units 1-3 70 minutes 60 marks	Chemistry Paper 1 Units 1-3 70 minutes 60 marks	Physics Paper 1 Units 1-3 70 minutes 60 marks
Biology Paper 2 Units 4-6 70 minutes 60 marks	Chemistry Paper 2 Units 4-6 70 minutes 60 marks	Physics Paper 2 Units 4-6 70 minutes 60 marks

GCSE Combined Science - Tiers



GCSE Combined Science - Tiers

Will my certificate show the tier I sat?

Certificates do not show the tier of entry; they only show the grade achieved.

Is it easier to get a 5-5 on Higher Tier?

Each tier contains 20% common questions. This is used by exam boards to align the standards between tiers. This ensures that it is not easier to get a 4-4 or 5-5 on one tier than another.

What is recommended?

Ofqual recommend that if a student is expected to get a 4-4 or 5-5, they should take the Foundation tier papers.

Which tier should I be entered for if I just achieve a 5-5 in my mock?

If you only just got enough marks for a 5-5, it is recommended that you should take Foundation tier papers. Students who are aiming for a 5-5 are able to access at least twice as many marks in the Foundation Tier papers.

GCSE Science – opportunities

Course	Peter Symonds	QMC	Alton College	Barton Peveril
Biology	6-6 or 6-5	6-6	6-6	6-6
Chemistry	7-6 or 6-6	6-6	6-6	6-6
Physics	7-6 or 6-6	6-6	6-6	6-6

These are the big three, but there are **MANY** more...

GCSE Science – opportunities

Course	College	Pre-requisite Grades
Medical Science	Barton Peveril Alton College	4-4 5-5
Environmental Science	Peter Symonds QMC	6-5 or 5-5 5-5*
Physical Education	Barton Peveril Alton College	4-4 (5*) 5-5
Electronics	QMC	6-6 (recommended)
Applied Human Biology	Peter Symonds	4-4
Health & Science (L2) Health & Nursing T-level	Alton College	3-3 5-5 or 5-4
Engineering (L3)	Alton College	4-4

GCSE Science - tools

- Pens – black for exams (these are scanned)
- Pens, pens, pens! – bring spares to school

Maths skills in science:

- Calculator – 'Scientific' helps
- Students can access more marks with ease
- Pencil and rubber – plotting graphs
- Ruler – taking measurements in questions



Perins Values – Science

P	Participation	<ul style="list-style-type: none"> • Bring everything you need to learn • Do what you can to take part and contribute to a lesson
E	Excellence	<ul style="list-style-type: none"> • Challenge yourself every lesson • If at first you don't succeed, try and try again
R	Respect	<ul style="list-style-type: none"> • Be silent for the teacher and other learners while they are speaking • Listen and act responsibly on any help offered
I	Independence	<ul style="list-style-type: none"> • Use the 'Brain – Book – Buddy – Boss' method to accomplish tasks • Regularly review classwork and read around the subject area at home
N	Nurture	<ul style="list-style-type: none"> • Offer help to other learners on tasks • Complete practical work in groups • Share equipment sensibly
S	Safe	<ul style="list-style-type: none"> • Do not eat or drink in a lab • Follow instructions given by the teacher • Tidy-up practical work in a timely manner

What effort looks like in science

Basics:

- On time
- Prepared to learn – book out, pen out, bags and coats in the bag store
- Full focus on the information presented
- Ask for clarity

PERINS Values:

- Recognised by achievement points
- Chat with your teacher

What does it mean to study GCSE science?

"...the process of building upon and deepening scientific knowledge and the understanding of ideas developed in earlier key stages..."

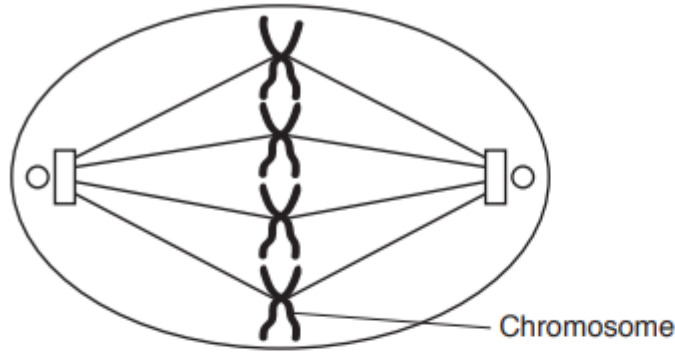
"...provides the platform for more advanced studies, establishing the basis for a wide range of careers."

**From the
National
Curriculum**

"For others, it will be their last formal study of subjects that provide the foundations for understanding the natural world and will enhance their lives in an increasingly technological society."

RECALL QUESTION

12 (a) The diagram shows a cell during one stage of mitosis.



(i) Describe **two** things that happen to the chromosomes in the next stage of mitosis.

(chromosomes) separate / split / divide / pulled apart ✓

2

2x1.1

WHERE A CANDIDATE USES A DIAGRAM
LOOK FOR THE CORRECT IDEAS LABELLED
ON THE DIAGRAM

(chromatids) move to opposite ends / by spindle fibres ✓

IGNORE just by fibres

ALLOW AS AN EXTRA MARKING POINT

(two) **new** nuclei form / membrane forms around
them / nuclear envelope forms around them ✓

IGNORE cell membrane splits

IGNORE references to DNA replication

IGNORE cytokinesis / cell splitting

[2]

(ii) Chromosomes are made of DNA.

Describe the structure of DNA.

double helix ✓

polymer ✓

ALLOW polynucleotide ✓✓

ALLOW AS EXTRA MARKING POINTS

contains (four) bases ✓

reference to ATCG ✓

(made up of) nucleotides ✓

contains sugar / deoxyribose / phosphate group ✓

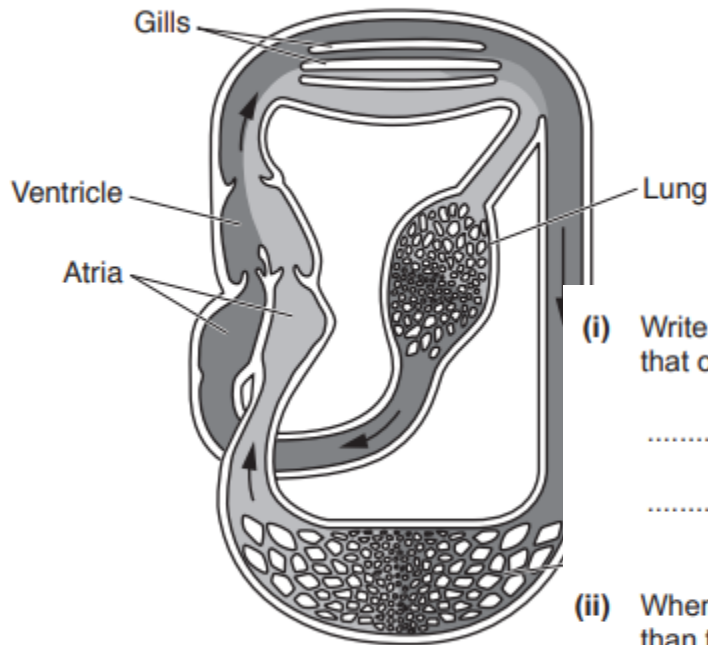
IGNORE deoxyribonucleic acid

APPLY QUESTION

(b) Lungfish are fish that have both gills and a lung.

When in water, the blood flows through the gills. When on land, blood flow to the gills is stopped and the blood enters the lung instead.

The diagram shows the circulatory system of a lungfish.



(i) Write down one **other** way the **structure** of the lungfish circulatory system is different to that of humans.

- (heart has) three chambers / not four chambers ✓
- (heart has) one ventricle / not two ventricles ✓
- only one artery leaving (heart) ✓

[1]

(ii) When lungfish and humans are on land, the human circulatory system is more efficient than that of lungfish.

Suggest why the human circ.....
 (in humans) oxygenated and deoxygenated blood kept separate ✓

-
-
- (so) more **oxygen** is carried around the body / more **oxygen** is supplied to the body cells ✓

[2]

The lungfish circulatory system is different to

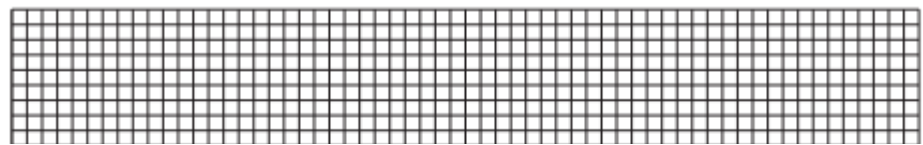
Blood in the lungfish can flow through gills :

PRACTICAL SKILLS

(b) The table shows his results.

Concentration of sugar solution (mol/dm ³)	Mass of potato chip	
	At	After
0.0	2.0	2.2
0.2	2.0	2.0
0.4	2.0	1.8
0.6	2.0	1.6
0.8	2.0	1.4
1.0	2.0	1.2

(c) Plot a graph of the percentage change in mass against concentration of sugar solution and draw a line of best fit.



Use ideas about osmosis to explain the patterns in the results.

(chips) get bigger/gain mass when **water moves in**
OR
 (chips) get smaller/loses mass when **water moves out** ✓

Calculate the p

Record your an

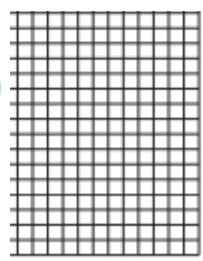
and **any two from:**

chip in low(er) concentration (of solution) **or** 0 (mol/dm³) **or** 0.2 (mol/dm³) the water potential inside (cells) is **less** ✓

(so) water moves in when the water potential inside (cells) is **less** ✓

chip in high(er) concentration (of solution) **or** more than 0.2 mol/dm³ the water potential inside (cells) is **greater** ✓

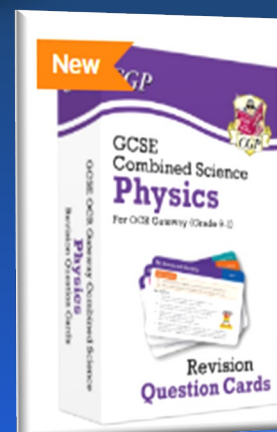
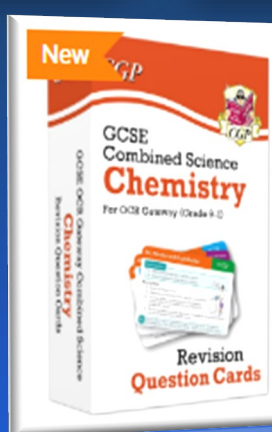
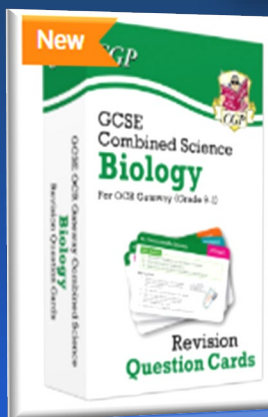
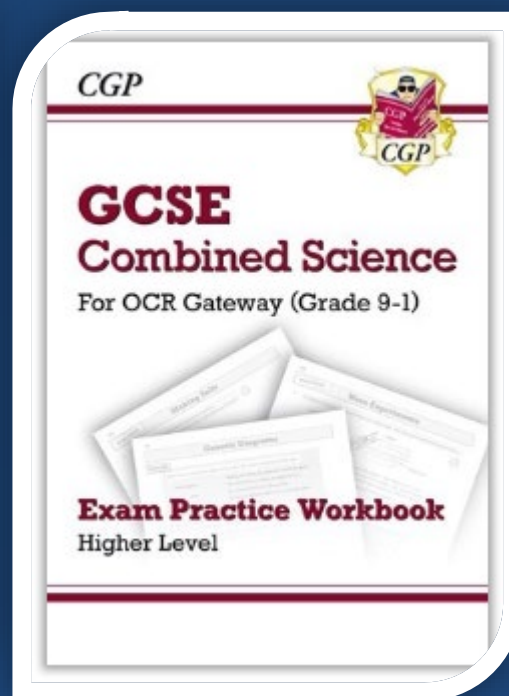
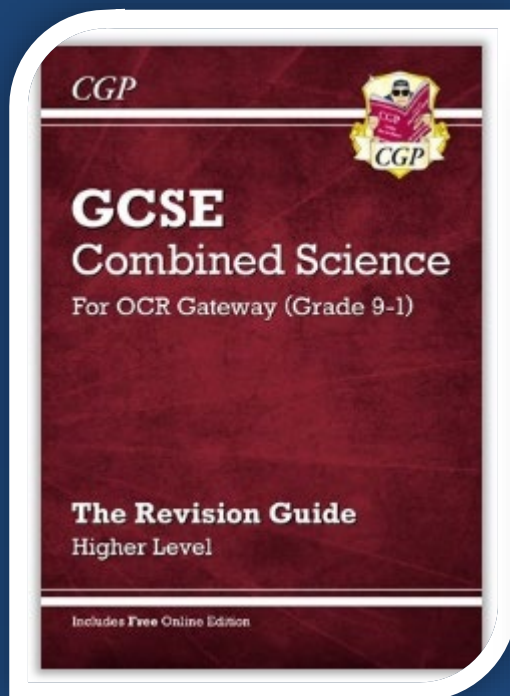
(so) water moves out when the water potential inside (cells) is **greater** ✓



[3]

[4]

WHAT CAN YOU DO?



CGP



GCSE Combined Science

For OCR Gateway (Grade 9-1)

The Revision Guide
Foundation Level

Includes **Free** Online Edition

CGP



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Exam Practice Workbook
Foundation Level

For the new course starting September 2016

CGP



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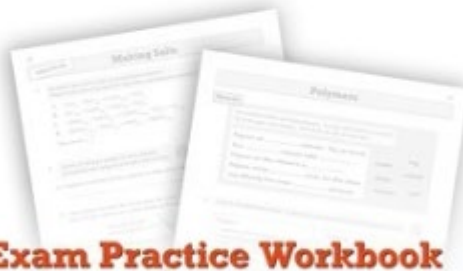
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Exam Practice Workbook



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GCSE Biology

For OCR Gateway (Grade 9-1)

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GCSE Biology

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Exam Practice Workbook



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Bitesize

Change language -

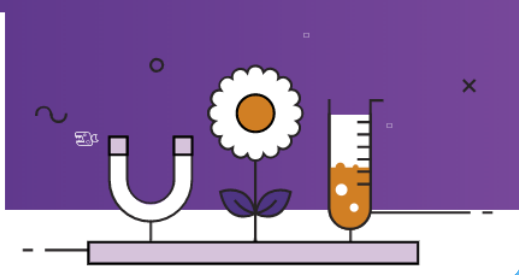
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My Bitesize | All Bitesize

GCSE OCR Gateway

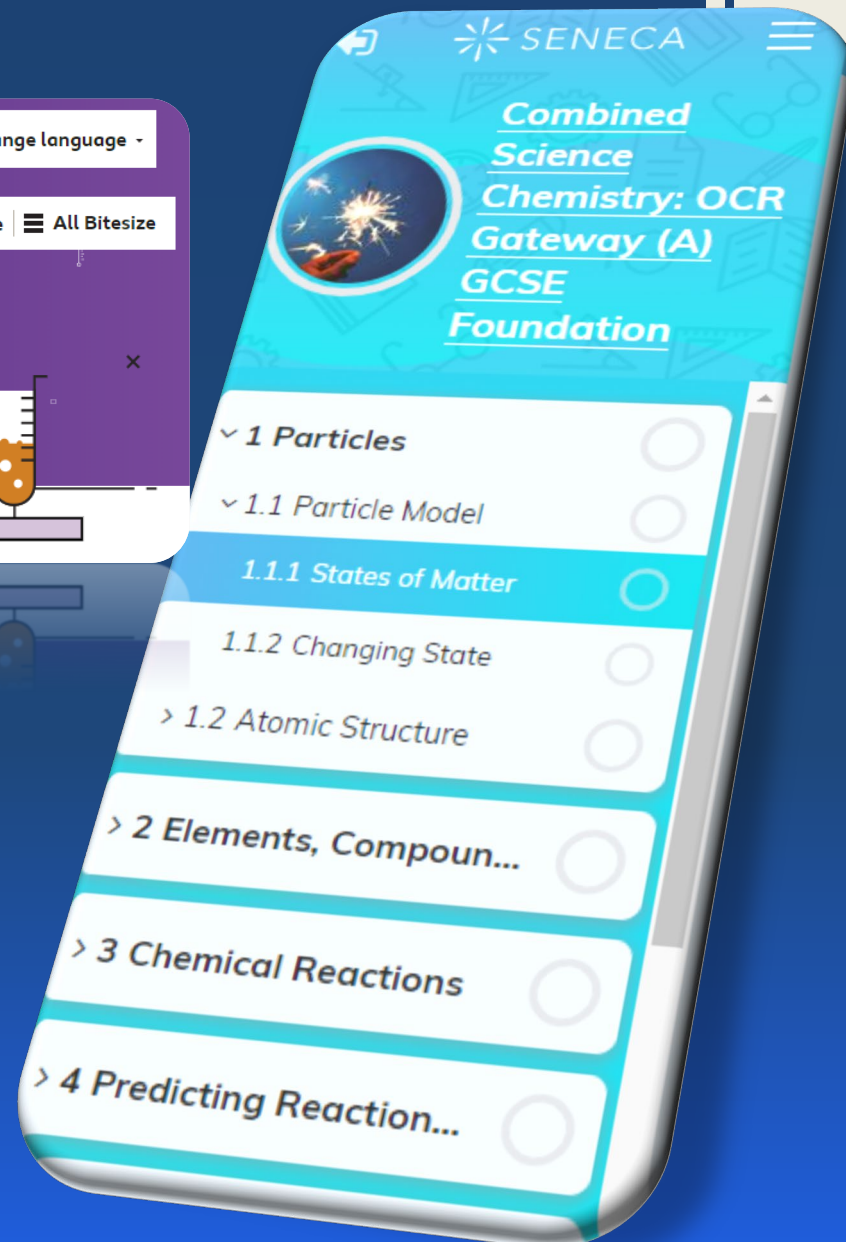
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Topic

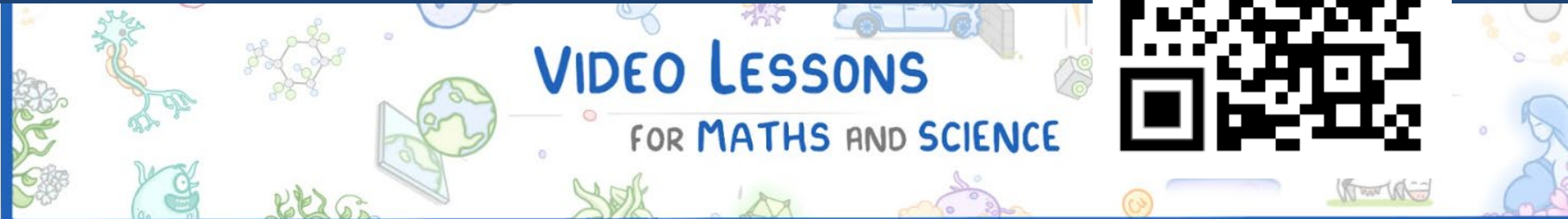
kerboodle



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- Shorts
- Subscriptions
- Library



Cognito ✓

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Hi - we make video lessons for GCSE science and maths. The lessons give... >

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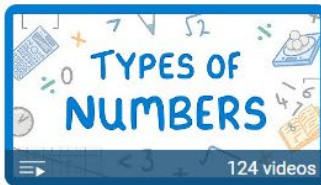
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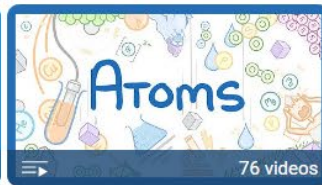
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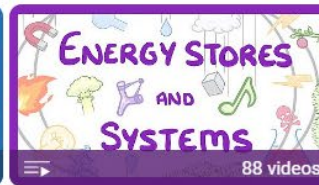
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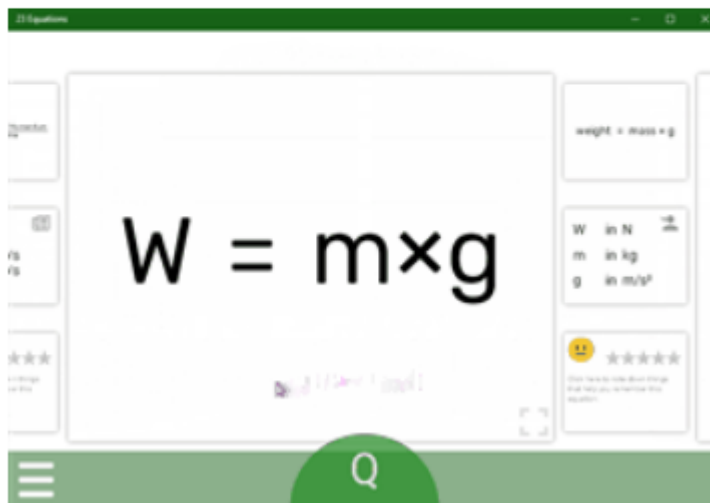
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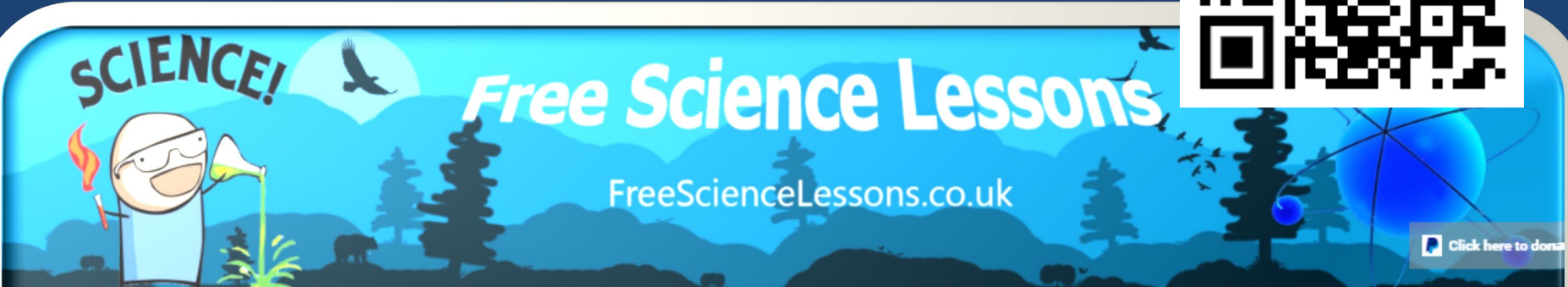


Learning Equations



The app works a like a pack of index cards. Tap on a section to expand it. There are word and symbol version and information about units, including common alternatives.

WHAT CAN YOU DO?



Freesciencelessons ✓

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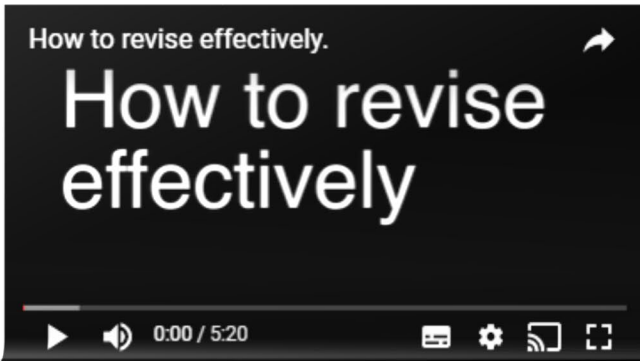
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In this video, I'm going to take you through ten top tips for effective revision. If you follow my advice, you'll put yourself in a great position to get the grades that you need.

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Thank you!



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BBC Bitesize
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23 Equations



freesciencelessons

How can you help at home?

- Look through your child's exercise books with them
- What have they been studying?
- Are they correcting their own work & modelling answers?
- Are loose sheets stuck in? (some students struggle to complete this in class where teaching time is a premium)
- If possible, provide a quiet space for revision
- If possible, print out revision lists and past papers
- It's helpful to practice writing/typing answers
- Make sure they come to school with the right equipment