SCIENCE

Miss Hawke

Combined Science

Separate Science

Exam board AQA

Assessment consists of 6 papers altogether, two biology, two chemistry and two physics

Foundation and Higher.

Question types: multiple choice, structured, closed short answer and open response. 15% of GCSE marks in exams come from questions relating to practicals.

1 hour 15 minutes

Double award

2 GCSEs

1 hour 45 minutes

3 separate GCSEs

Biology, Chemistry, Physics

GCSE grades Combined Science

H	F
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98	
88	
87	
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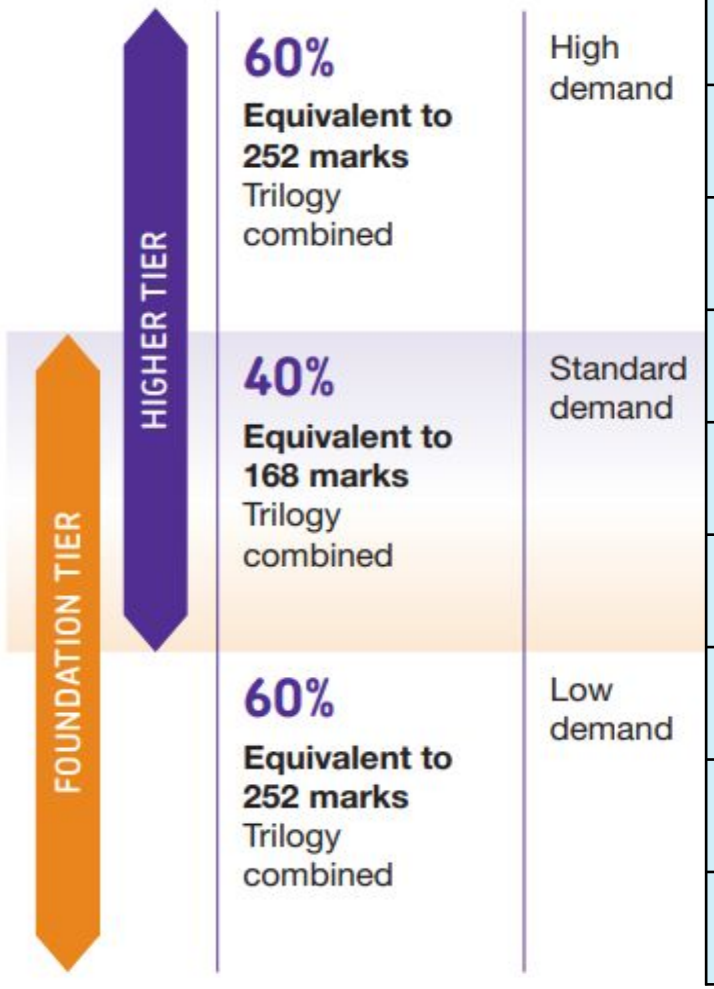

H	F
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GCSE grades Separate Science

EXAM DATES

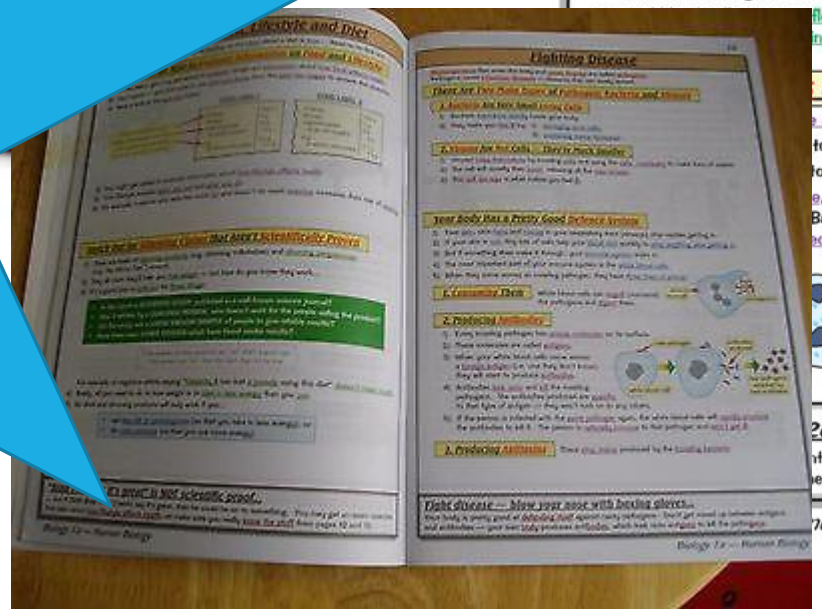
Combined Science and Triple Science

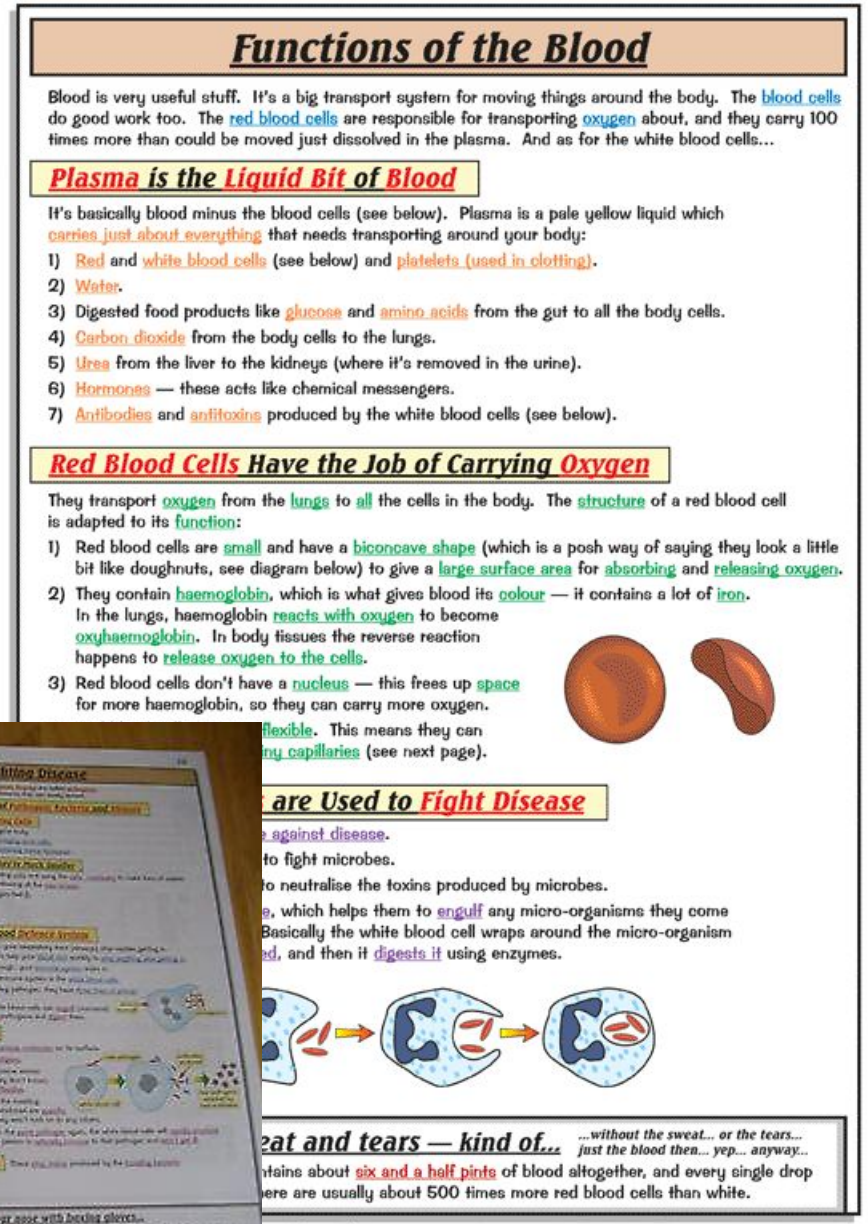
Biology	Paper 1/1	B1-4	Tuesday 13th May 2024
Chemistry	Paper 2/1	C1-5	Monday 19th May 2024
Physics	Paper 3/1	P1-4	Thursday 22nd May 2024
Biology	Paper 4/2	B5-7	Monday 9th June 2024
Chemistry	Paper 5/2	C6-10	Friday 13th June 2024
Physics	Paper 6/2	P5-7 or 8	Monday 16th June 2024

REVISION GUIDES

Purchase a science specific revision guide (from school shop - if you haven't already done so)

Comes with free online access





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Functions of the Blood

Blood is very useful stuff. It's a big transport system for moving things around the body. The blood cells do good work too. The red blood cells are responsible for transporting oxygen about, and they carry 100 times more than could be moved just dissolved in the plasma. And as for the white blood cells...

Plasma is the Liquid Bit of Blood

It's basically blood minus the blood cells (see below). Plasma is a pale yellow liquid which carries just about everything that needs transporting around your body:

1) Red and white blood cells (see below) and platelets (used in clotting).
2) Water.
3) Digested food products like glucose and amino acids from the gut to all the body cells.
4) Carbon dioxide from the body cells to the lungs.
5) Urea from the liver to the kidneys (where it's removed in the urine).
6) Hormones — these acts like chemical messengers.
7) Antibodies and antitoxins produced by the white blood cells (see below).

Red Blood Cells Have the Job of Carrying Oxygen

They transport oxygen from the lungs to all the cells in the body. The structure of a red blood cell is adapted to its function:

1) Red blood cells are small and have a biconcave shape (which is a posh way of saying they look a little bit like doughnuts, see diagram below) to give a large surface area for absorbing and releasing oxygen.
2) They contain haemoglobin, which is what gives blood its colour — it contains a lot of iron. In the lungs, haemoglobin reacts with oxygen to become oxyhaemoglobin. In body tissues the reverse reaction happens to release oxygen to the cells.
3) Red blood cells don't have a nucleus — this frees up space for more haemoglobin, so they can carry more oxygen.

flexible. This means they can
ny capillaries (see next page).

are Used to Fight Disease

against disease.
to fight microbes.
o neutralise the toxins produced by microbes.
, which helps them to engulf any micro-organisms they come
Basically the white blood cell wraps around the micro-organism
d, and then it digests it using enzymes.

eat and tears — kind of...

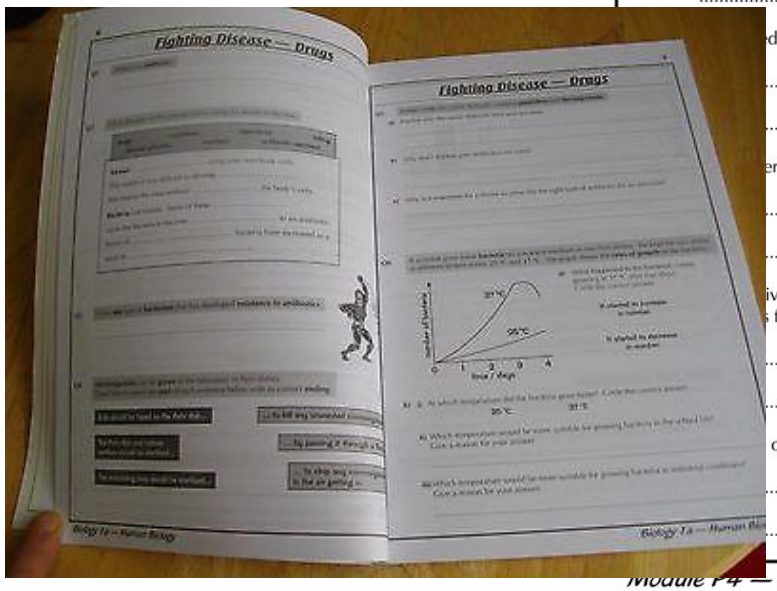
...without the sweat... or the tears... just the blood then... yep... anyway...

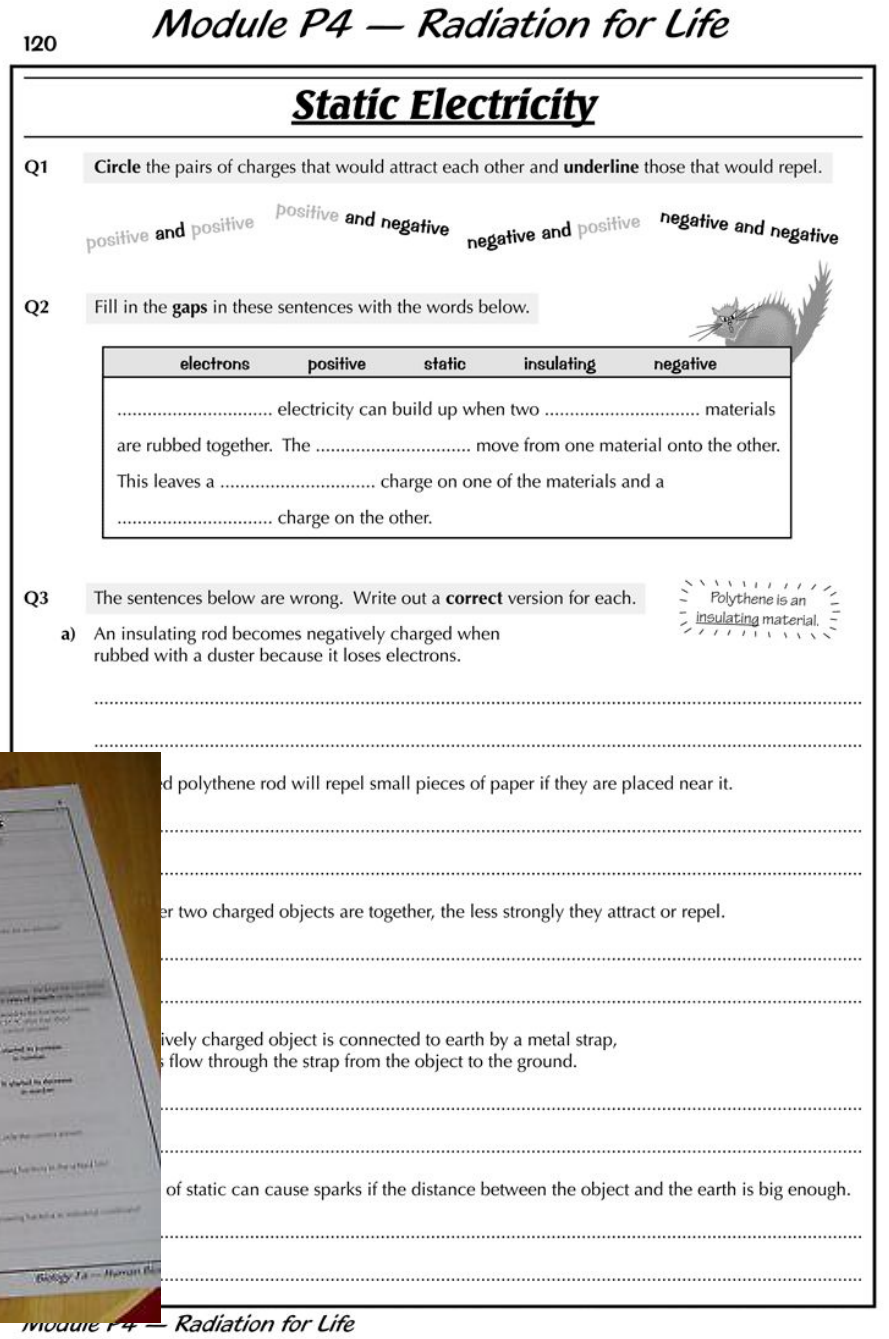
tains about six and a half pints of blood altogether, and every single drop
ere are usually about 500 times more red blood cells than white.

nd Growing

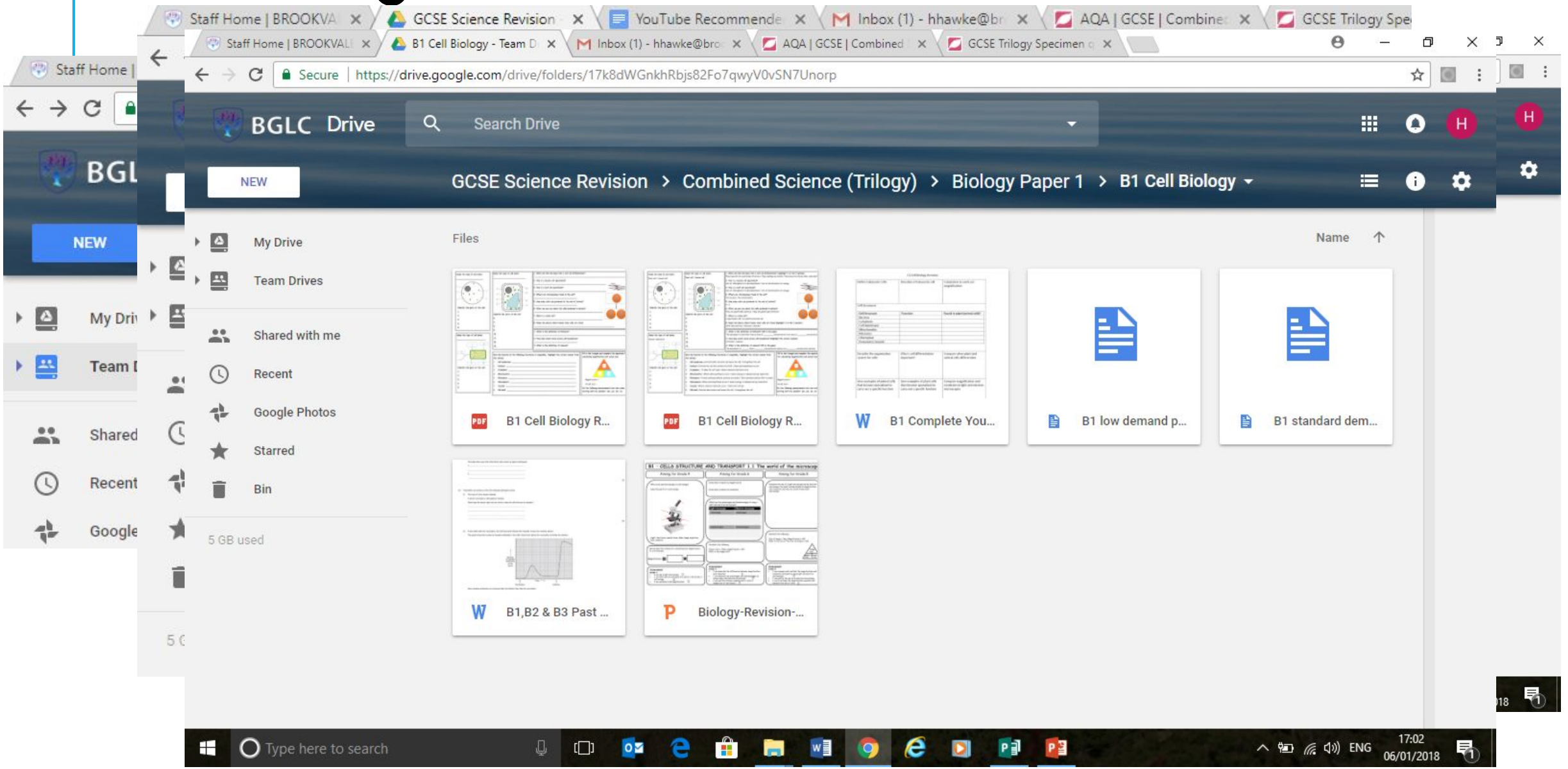
REVISION WORKBOOKS

Some students may benefit from using a dedicated science specific workbook (available with answer booklet from the school shop)





Google drive – revision materials



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SENECA BETA

Biology: AQA
GCSE Higher

- 2 Organisation
  - 2.1 Principles of Organis...
  - 2.2 Enzymes
  - 2.3 Circulatory System
    - 2.3.1 Blood Vessels
    - 2.3.2 Blood Vessels 2
    - 2.3.3 The Heart
    - 2.3.4 Circulatory System & Gas Exchange
    - 2.3.5 Blood
    - 2.3.6 Blood Cells
  - 2. Share Free Teacher CPD Cours
  - 2.

PHYSICS & MATHS TUTOR

HOME | REVISION COURSES | PAST PAPERS | GCSE / IGCSE | A-LEVEL | UNI ADMISSIONS

Home › Biology Revision › AQA GCSE

AQA GCSE Biology Revision

Paper 1

- Topic 1: Cell Biology
- Topic 2: Organisation
- Topic 3: Infection and Response
- Topic 4: Bioenergetics

Paper 2

- Topic 5: Homeostasis and Response
- Topic 6: Inheritance, Variation and Evolution
- Topic 7: Ecology

Practical Skills

pumps
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YouTubers recommended for Science topics and revision tips:

Free Science Lessons https://www.freesciencelessons.co.uk/

Primrose Kitten https://www.primrosekitten.com/

Christopher Thornton https://www.youtube.com/user/ChrisThorntonUK

Science practical's https://www.youtube.com/@MalmesburyEducation/featured

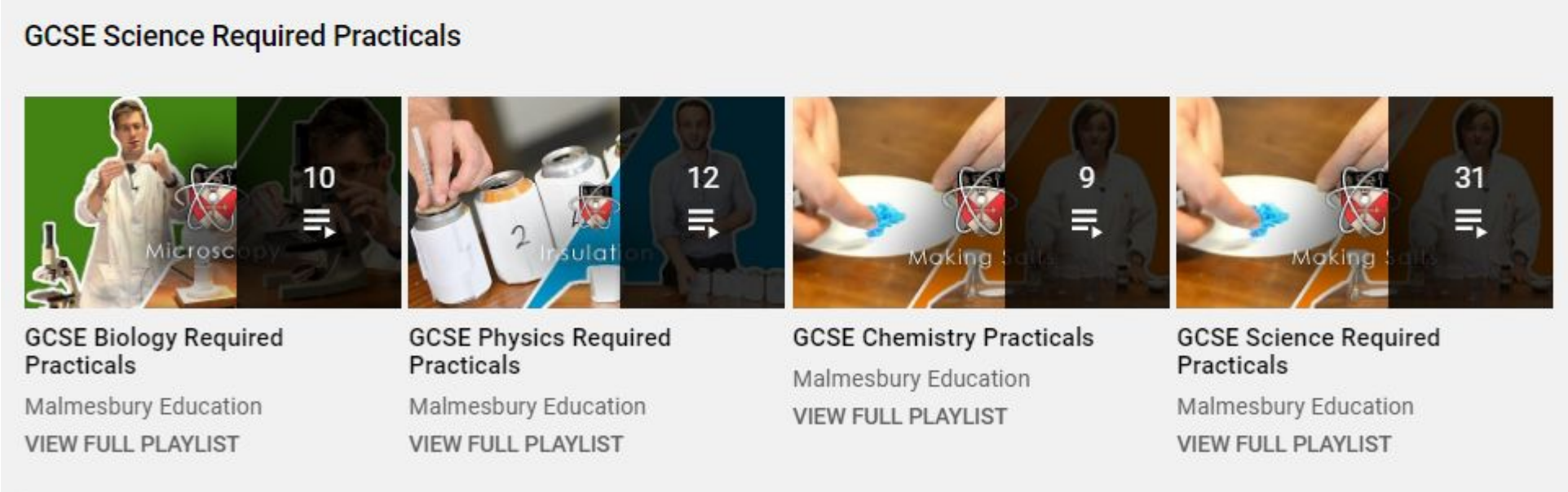
Useful website for exam questions

Physics and Maths tutor https://www.physicsandmathstutor.com/

Grade Gorilla https://www.gradegorilla.com/

GCSE REQUIRED PRACTICALS

https://www.youtube.com/c/MalmesburyEducation/playlists



TASSOMAI

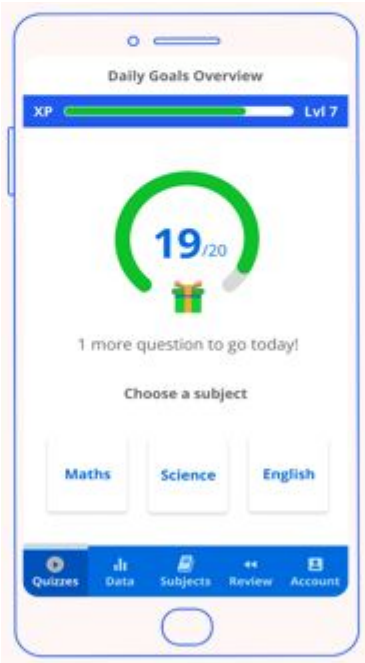
Online learning and revision platform
Multiple choice quizzes
Daily goals: 3X per week Comb Sci
4X for Sep Sci
Organises and spreads out learning
Personalises content
Builds knowledge
Generate a virtual tree to represent learning

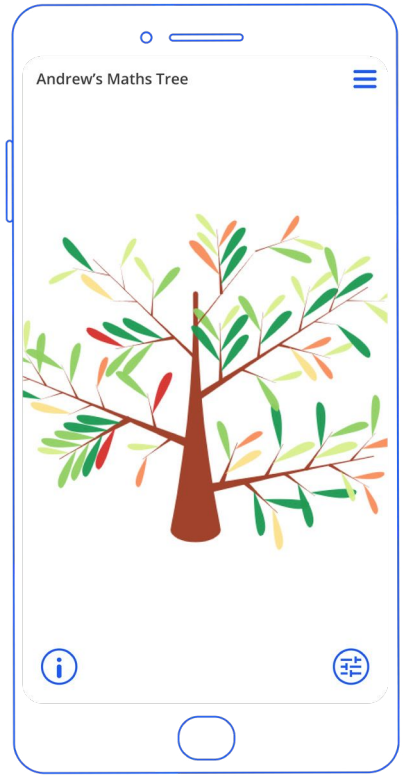
TASSOMAI

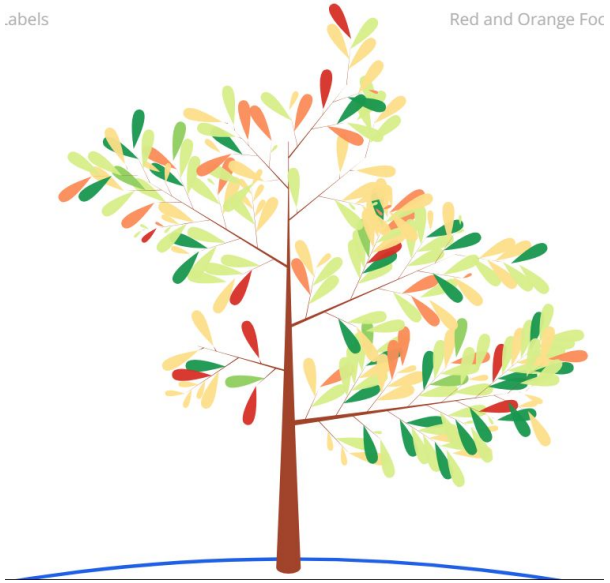
The scientific way to study

Welcome to Tassomai

(pronounced Tass-oh-my)







REVISION IN SCHOOL

Most classes will finish formal teaching of content by mid march

Preparation formal assessments

Revision in class:

Recap-teaching of difficult topics

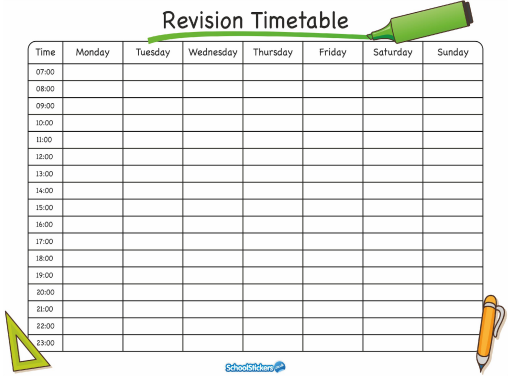
Focussed exam question prep

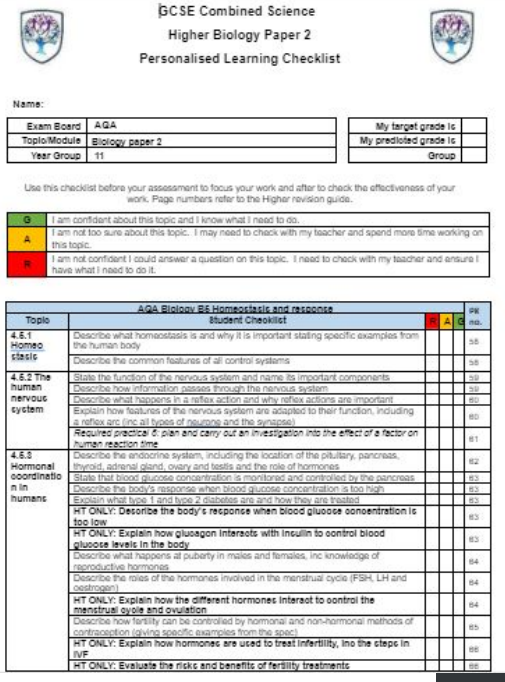
Independent study

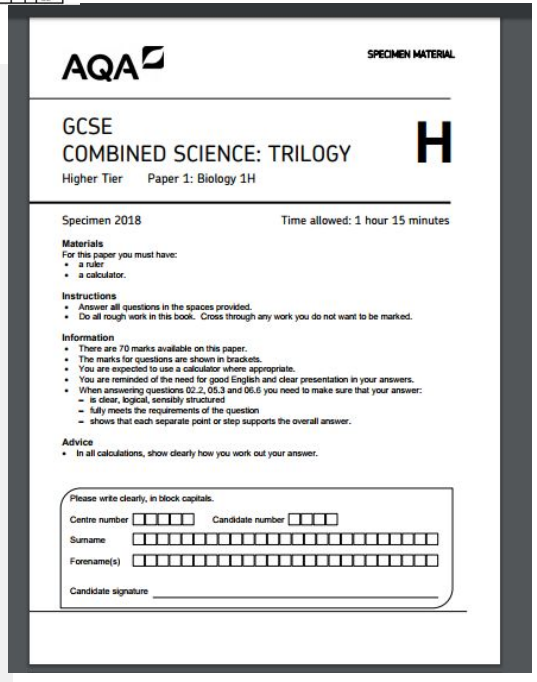
NO HEADPHONES WILL BE ALLOWED

PLAN AHEAD

- Revision timetable
- PLCs to understand the areas of weakness
- Make mind maps for each topic or use the ones on the google drive
- Make revision cards with key ideas
- Practice past paper questions
- Ask your teacher for help!!!



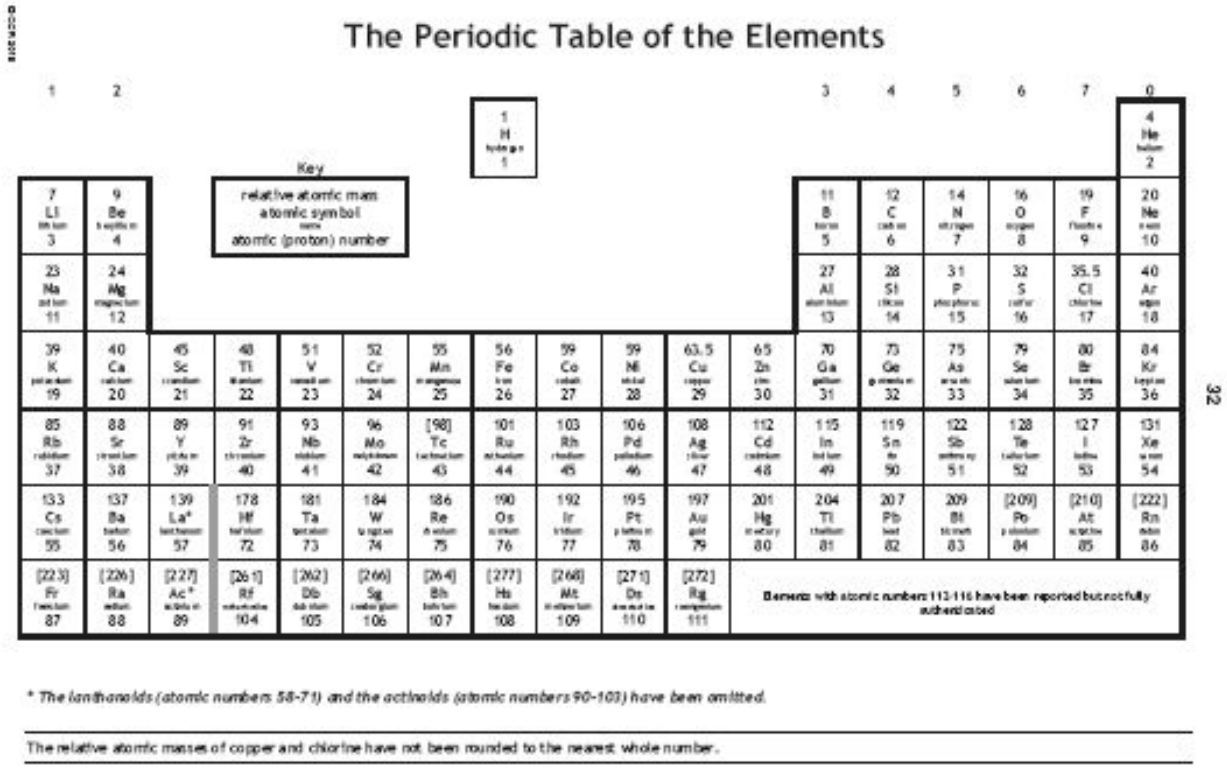




EXAM TIPS

For this year the physics equations are provided for the physics exams

A periodic table is provided for the chemistry exams



The Periodic Table of the Elements

1	2											3	4	5	6	7	0
							1 H hydrogen 1										4 He helium 2
7 Li lithium 3	9 Be beryllium 4	Key: relative atomic mass; atomic symbol; name; atomic (proton) number										11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[98] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg roentgenium 111	Elements with atomic numbers 113-116 have been reported but not fully authenticated						

* The lanthanoids (atomic numbers 58-71) and the actinoids (atomic numbers 90-103) have been omitted.

The relative atomic masses of copper and chlorine have not been rounded to the nearest whole number.

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AQA

Physics Equations Sheet

GCSE Combined Science: Trilogy (8464) and GCSE Combined Science: Synergy (8465)

FOR USE IN JUNE 2022 ONLY

HT = Higher Tier only equations

kinetic energy = 0.5 × mass × (speed)²	$E_k = \frac{1}{2} m v^2$
elastic potential energy = 0.5 × spring constant × (extension)²	$E_e = \frac{1}{2} k e^2$
gravitational potential energy = mass × gravitational field strength × height	$E_p = m g h$
change in thermal energy = mass × specific heat capacity × temperature change	$\Delta E = m c \Delta\theta$
power = $\frac{\text{energy transferred}}{\text{time}}$	$P = \frac{E}{t}$
power = $\frac{\text{work done}}{\text{time}}$	$P = \frac{W}{t}$
efficiency = $\frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$	
efficiency = $\frac{\text{useful power output}}{\text{total power input}}$	
charge flow = current × time	$Q = I t$
potential difference = current × resistance	$V = I R$
power = potential difference × current	$P = V I$
power = (current)² × resistance	$P = I^2 R$
energy transferred = power × time	$E = P t$

EXAM TIPS

Rough guide is 1 mark per minute!

Have a go, if in doubt put something it down (no answer = no mark)

9 Enzymes have many industrial uses.

(a) Draw straight lines to join each **enzyme** with the correct **use of the enzyme**.

Draw only **three** lines.

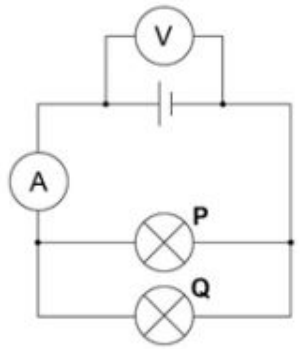
Enzyme	Use of the enzyme
	used in the production of milk for people with intolerance to dairy products
sucrase	
	used on reagent strips to detect lactose
lactase	
	used to join strands of DNA together
ligase	
	used to produce sweeter sugars for food

[2]

0 1 **Figure 1** shows a circuit diagram containing two identical lamps arranged in parallel.

The reading on the ammeter is 186 mA.

Figure 1



0 1 . 1 Which statement about the current through the lamps is true?

[1 mark]

Tick **one** box.

- The current through both lamp **P** and lamp **Q** is **0.093 A** ☐
- The current through both lamp **P** and lamp **Q** is **0.186 A** ☐
- The current through both lamp **P** and lamp **Q** is **0.93 A** ☐
- The current through both lamp **P** and lamp **Q** is **1.86 A** ☐

LONGER ANSWER QUESTIONS

Don’t be daunted by the 4 - 6 mark questions.

Read the stem of the question, it often has vital information.

Read the command words carefully – describe, explain, compare, evaluate

If data- table/graph is given, use it!

It is OK to bullet point your answer.

Read through what you have written!!!

Dare to have a go!

3 Look at the picture of a firefly.

The firefly is able to give out flashes of bright light to attract a mate.

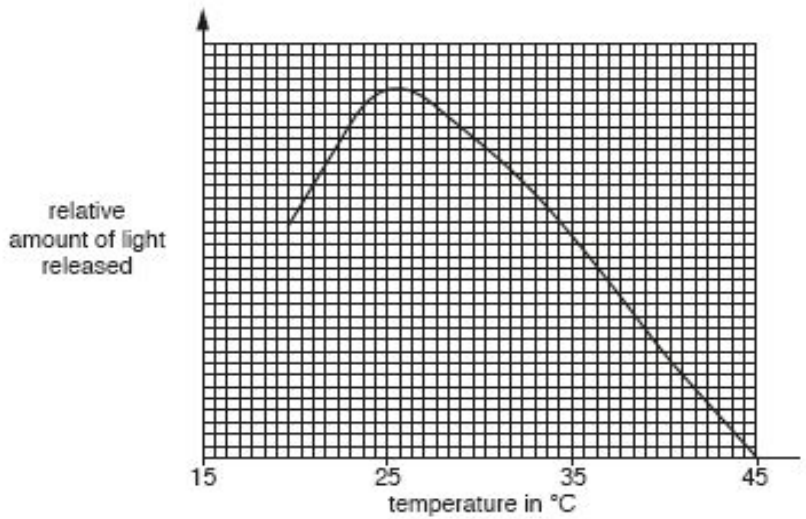
Just after dark is the best time to see fireflies flashing light.

The reaction that releases the light involves the breakdown of a chemical.

An enzyme called luciferase is needed for this reaction.

Look at the graph.

It shows how temperature affects the reaction that releases light.



(a) Use data from the graph to **explain** the effect of temperature on luciferase and explain why it is **only** luciferase enzyme that will catalyse this reaction.

If data is given, use it!

.....

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..... [6]

0 5 . 3 In coronary heart disease (CHD) layers of fatty material build up inside the coronary arteries. This can cause a heart attack.

Statins and stents can be used to reduce the risk of a heart attack in people with CHD.

Evaluate the use of statins and stents in people with CHD.

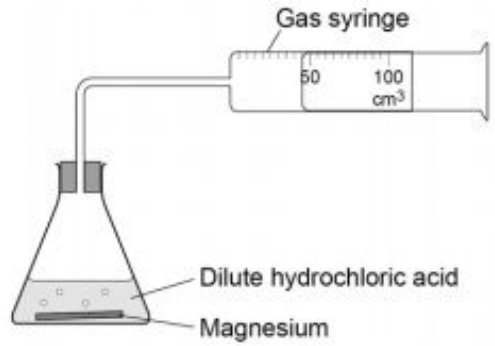
Remember to include a justified conclusion.

[6 marks]

Evaluation – remember to give balanced arguments and a **conclusion**

0 3 A student investigated the rate of the reaction between magnesium and dilute hydrochloric acid.
The student used the apparatus shown in **Figure 4** to collect the gas produced.

Figure 4



0 3 . 1 Outline a plan to investigate how the rate of this reaction changed when the concentration of the hydrochloric acid was changed.

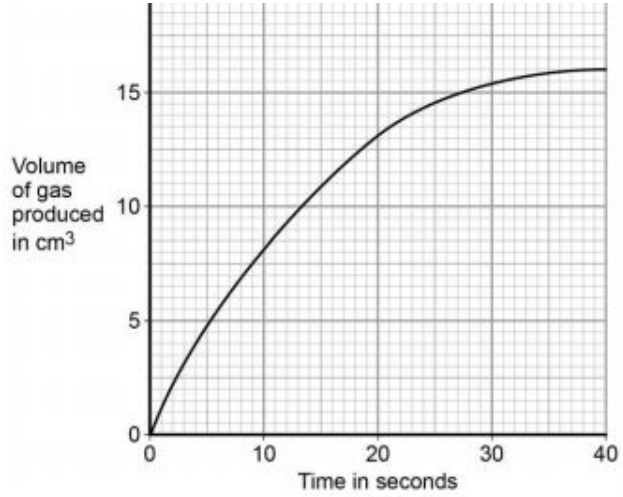
- Describe how you would do the investigation and the measurements you would make.
- Describe how you would make it a fair test.

You do **not** need to write about safety precautions.

[6 marks]

15% of GCSE marks in exams come from questions relating to practicals.

DATA ANALYSIS AND EVALUATION



Draw a tangent to the curve at 20 seconds.

Determine the rate of the reaction at 20 seconds by calculating the gradient of the tangent.

Give the unit.

[4 marks]

Rate of reaction = _____

Unit = _____

If data is given, use it!

0 2 . 5 A driver wishes to buy a new car.

Table 1 gives some data about an electric car and one with a petrol engine.

Table 1

	Electric car	Petrol engine car
Cost (£)	27 000	15 000
Running cost per year (£)	250	2 000
Average lifetime (years)	12	12

Which car would be the most economic over its 12 year lifetime?

Use data from **Table 1** to support your answer.

You should include the difference in cost in your answer.

[4 marks]

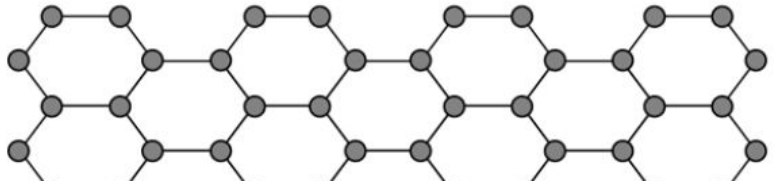
The exam paper

Do not write outside the box

0 1 This question is about structure and bonding.

0 1 . 1 **Figure 1** shows part of one layer of graphene.

Figure 1



Do not write outside the box, exam papers are scanned and therefore any writing outside of the box may be missed and will not get marked

AQA - INSIGHT FROM THE LAST PREVIOUS EXAMS

Prepare for unfamiliar contexts

GCSE biology students are sharing their horror at a tough, carrot-based question

These students are numbing the pain of a difficult exam with hilarious Tweets.

Biology students weren't expecting a question about carrots in their GCSE exam

AQA - INSIGHT FROM PREVIOUS EXAMS

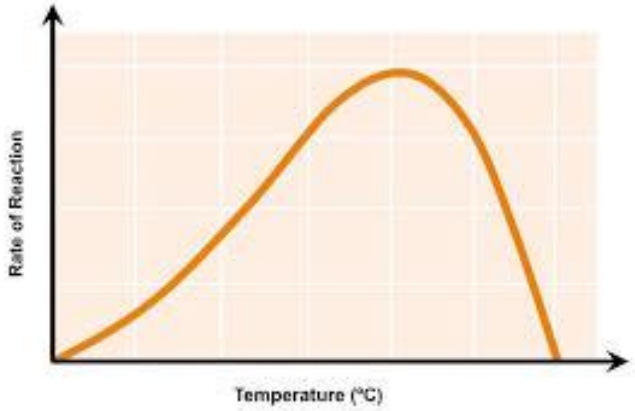
Prepare for unfamiliar contexts

Read the question carefully to ensure you know what is being asked, understand the command words

Don't waste space repeating the question

Read through your work to check for errors

Be specific in your responses don't use 'it' or 'they'



Make sure you understand why each step in the practical is important

Maths - **Show your working** out in maths questions

- Check for significant figures
- Don't round answers until you reach the final answer

General tips

Plan revision – small chunks

Take a break – do something active

Revise in a calm environment…….. remove distractions

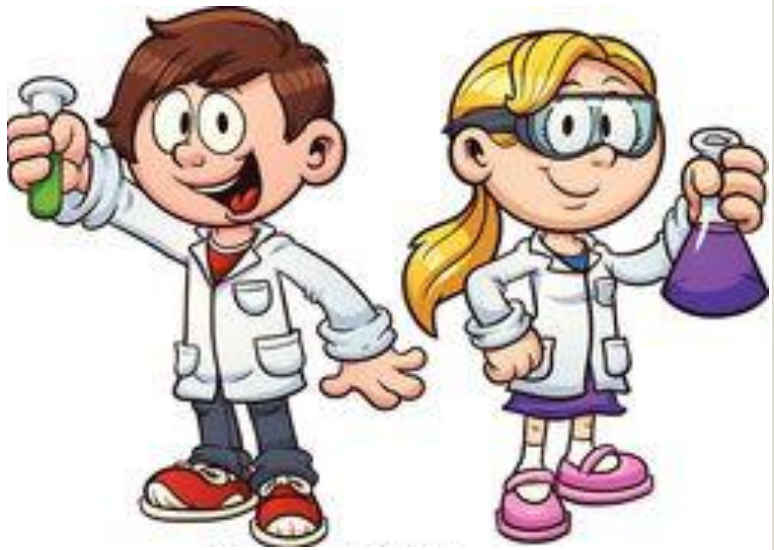
Controlled access to electronic devices

Sleep!

Breakfast before exams!

Right equipment on the day:

- Black pen (and spare)
- Pencil, ruler and rubber for graphs
- Calculator!



Good Luck in your EXAMS!

You'll be AMAZING,
I asked around -
we all agreed!