Go-To Guide to Achieve in Science

GCSE Combined Science

Higher Tier

Contents

Introduction and Subject content for AQA GCSE Combined Science: Trilogy

Specification at a glance

This qualification is linear. Linear means that students will sit all their exams at the end of the course.

Follow this link to find the full specification:
GCSE Combined Science: Trilogy Specification Specification for first teaching in 2016 (aqa.org.uk)

Biology

- 1. Cell biology
- 2. Organisation
- 3. Infection and response
- 4. Bioenergetics
- 5. Homeostasis and response
- 6. Inheritance, variation and evolution
- 7. Ecology

Chemistry

- 8. Atomic structure and the periodic table
- 9. Bonding, structure, and the properties of matter
- 10. Quantitative chemistry
- 11. Chemical changes
- 12. Energy changes
- 13. The rate and extent of chemical change
- 14. Organic chemistry
- 15. Chemical analysis
- 16. Chemistry of the atmosphere
- 17. Using resources

Physics

- 18. Energy
- 19. Electricity
- 20. Particle model of matter
- 21. Atomic structure
- 22. Forces
- 23. Waves
- 24. Magnetism and electromagnetism

Assessments

There are six papers: two biology, two chemistry and two physics. Each of the papers will assess knowledge and understanding from distinct topic areas.

Follow this link to download and print past papers and mark schemes:
AQA | GCSE | Combined Science: Trilogy | Assessment resources

Biology Paper 1

What's assessed

Biology topics 1–4: Cell Biology; Organisation; Infection and response; and Bioenergetics.

How it's assessed

- Written exam: 1 hour 15 minutes
- Foundation and Higher Tier
- 70 marks
- 16.7% of GCSE

Questions

Multiple choice, structured, closed short answer, and open response.

Biology Paper 2

What's assessed

Biology topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.

How it's assessed

- Written exam: 1 hour 15 minutes
- Foundation and Higher Tier
- 70 marks
- 16.7% of GCSE

Questions

Multiple choice, structured, closed short answer, and open response.

Chemistry Paper 1

What's assessed

Chemistry topics 8–12: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; and Energy changes.

How it's assessed

- Written exam: 1 hour 15 minutes
- Foundation and Higher Tier
- 70 marks
- 16.7% of GCSE

Questions

Multiple choice, structured, closed short answer, and open response.

Chemistry Paper 2

What's assessed

Chemistry topics 13–17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere; and Using resources.

How it's assessed

- Written exam: 1 hour 15 minutes
- Foundation and Higher Tier
- 70 marks
- 16.7% of GCSE

Questions

Multiple choice, structured, closed short answer, and open response.

Physics Paper 1

What's assessed

Physics topics 18–21: Energy; Electricity; Particle model of matter; and Atomic structure.

How it's assessed

- Written exam: 1 hour 15 minutes
- Foundation and Higher Tier
- 70 marks
- 16.7% of GCSE

Questions

Multiple choice, structured, closed short answer, and open response.

Physics Paper 2

What's assessed

Physics topics 22–24: Forces; Waves; and Magnetism and electromagnetism

How it's assessed

- Written exam: 1 hour 15 minutes
- Foundation and Higher Tier
- 70 marks
- 16.7% of GCSE

Questions

Multiple choice, structured, closed short answer, and open response.

Useful Revision Links – Higher Tier

Biology paper 1: duration: 1h 15m
4.1 Cell Biology • 9-1 GCSE Biology Paper 1 Cell Biology - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/E9ZiTAaRC-E • Whole topic summary https://youtu.be/sdpmVQooYS4
4.2 Organisation • 9-1 GCSE Biology Paper 1 Organisation - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/QnsRz0Xhup8 • Whole topic summary https://youtu.be/DJ0lZGkDx6A
4.3 Infection and Response • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/pq3B_sozPCo • Whole topic summary https://youtu.be/m7pxdTJ9NPI
4.4 Bioenergetics • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/1nuYpKaQ3jA • Whole topic summary https://youtu.be/1KIAWiHQ4sM
Required practical's • Freesciencelessons • GCSE Biology Required Practicals - YouTube • https://www.physicsandmathstutor.com/biology-revision/gcse-aqa/practical-skills

Biology paper 2: duration: 1h 15m
4.5 Homeostasis and Response • 9-1 GCSE Biology 2 Homeostasis - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/EMf0FbJI9BU • Whole topic summary https://youtu.be/xOfqw7MbU8k
4.6 Inheritance, Variation and Evolution • Freesciencelessons - Inheritance • Freesciencelessons - Variation and Evolution • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/IL-dUnKmksY • Whole topic summary https://youtu.be/npl10a6p8jQ
4.7 Ecology • Freesciencelessons - 9-1 GCSE Biology 2 Ecology - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/NorHSgd7Yyc • Whole topic summary https://youtu.be/SKDn90HK98Q
Required Practical's • Freesciencelessons • GCSE Biology Required Practicals - YouTube • https://www.physicsandmathstutor.com/biology-revision/gcse-aqa/practical-skills

Chemistry Paper 1: duration: 1h 15m
5.1 Atomic Structure and the Periodic Table • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/mjlIPJ_c018 • Whole topic summary https://youtu.be/bgyuXU97jaI
5.2 Bonding, Structure and the Properties of Matter • 9-1 GCSE Chemistry Paper 1 Structure and Bonding - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/9bbCFUyluWg • Whole topic summary https://youtu.be/YpEQ-NWxKBc
5.3 Quantitative Chemistry • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/8uqWdmlKd7c • Whole topic summary https://youtu.be/eAibVvhmsK0
5.4 Chemical Changes • 9-1 GCSE Chemistry Paper 1 Chemical Reactions - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/7Nrma6v0A8I • Whole topic summary https://youtu.be/KTmXEIiU_Go
5.5 Energy Changes • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions - PMT • BBC Bitesize • Quick fire questions https://youtu.be/PQtjfRolMAE • Whole topic summary https://youtu.be/L7829UGifpM
Required Practical's • Freesciencelessons • GCSE Chemistry Practicals - YouTube • https://www.physicsandmathstutor.com/chemistry-revision/gcse-aqa/practical-skills

Chemistry Paper 2: duration: 1h 15m
5.6 The Rate and Extent of Chemical Change • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/C-tHYZwisNs • Whole topic summary https://youtu.be/7i90fiz9SmY
5.7 Organic chemistry • 9-1 GCSE Chemistry Paper 2 Organic Chemistry - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/sE2DP0x48kE • Whole topic summary https://youtu.be/ZeUNWY7YDAo
5.8 Chemical analysis • 9-1 GCSE Chemistry Paper 2 Chemical Analysis - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/vMKAHdoc-g0 • Whole topic summary https://youtu.be/YyUQiUddBA4
5.9 Chemistry of the Atmosphere • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/DznhhA2QHUg • Whole topic summary https://youtu.be/gxCRsqXZzeU
5.10 Using Earth's Resources • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/xBUXqfa2gHo • Whole topic summary https://youtu.be/KyVf2bVLl08
Required Practical's • Freesciencelessons • GCSE Chemistry Practicals - YouTube • https://www.physicsandmathstutor.com/chemistry-revision/gcse-aqa/practical-skills

Physics Paper 1: duration: 1h 15m
6.1 Energy • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/q5CwATii6OA • Whole topic summary https://youtu.be/tDkBhy-Y1Z8
6.2 Electricity • 9-1 GCSE Physics Paper 1 Electricity - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/62RyyfKZoYg • Whole topic summary https://youtu.be/jSA4WaLSVEA
6.3 Particle Model of Matter • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/z9L6zfMVk3U • Whole topic summary https://youtu.be/cZz9oGgJOL0
6.4 Atomic Structure • 9-1 GCSE Physics Paper 1 Atomic Structure and Radioactivity - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/bRzRjfvoU-E • Whole topic summary https://youtu.be/YFVYUSvUBoo
Required Practical's • Freesciencelessons • GCSE Physics Required Practicals - YouTube • https://www.physicsandmathstutor.com/physics-revision/gcse-aqa/practical-skills/

Physics Paper 2: duration: 1h 15m
6.5 Forces • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/jfjb1pnH8zw • Whole topic summary https://youtu.be/Rz4XBSKNGXg
6.6 Waves • 9-1 GCSE Physics Paper 2 Waves - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/AEFwEDC6DkQ • Whole topic summary https://youtu.be/9JPNVJ_LC3E
6.7 Magnetism and Electromagnetism • Freesciencelessons - YouTube • Seneca Learning • Physics and maths tutor: Notes, definitions, mind maps, and practice questions – PMT • BBC Bitesize • Quick fire questions https://youtu.be/LyflUYL4FvM • Whole topic summary https://youtu.be/mnigg3MGslY
Required Practical's • Freesciencelessons • GCSE Physics Required Practicals - YouTube • https://www.physicsandmathstutor.com/physics-revision/gcse-aqa/practical-skills/

GCSE Practice Papers, video solutions and grade boundaries (2019)

Exam	Question paper	Mark scheme	Video solution
Biology paper 1	Link	Link	Link
Biology paper 2	Link	Link	Link
Chemistry paper 1	Link	Link	Link
Chemistry paper 2	Link	Link	Link
Physics paper 1	Link	Link	Link
Physics paper 2	Link	Link	Currently no video solution is available

Grade boundaries

Per paper	
Marks / 70	Grade
45	9-9
42	9-8
39	8-8
36	8-7
33	7-7
30	7-6
27	6-6
24	6-5
21	5-5
18	5-4
15	4-4
13	4-3

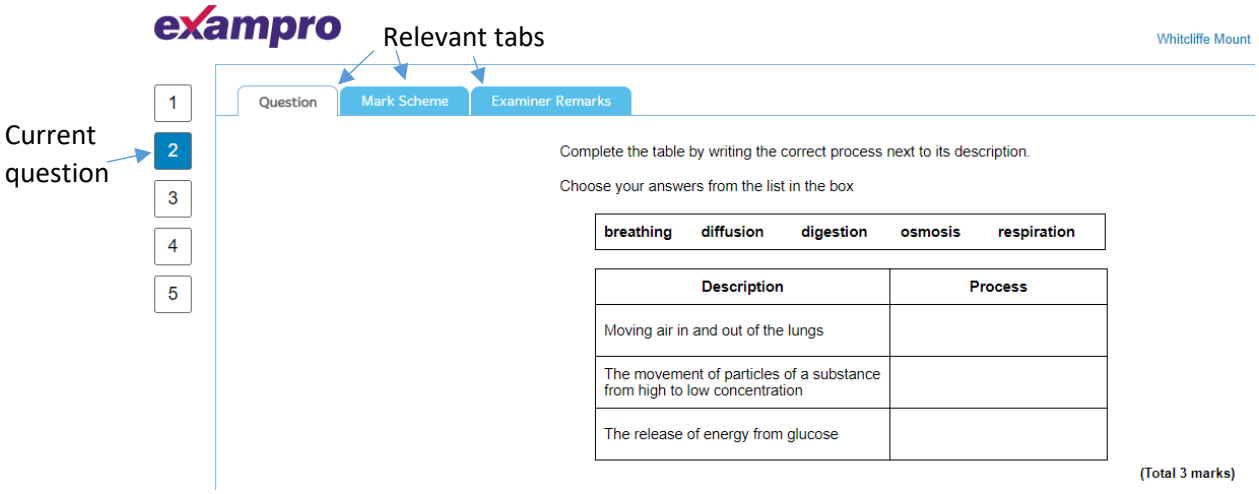
Overall (all papers)	
Marks / 420	Grade
269	9-9
251	9-8
233	8-8
216	8-7
199	7-7
180	7-6
161	6-6
142	6-5
123	5-5
105	5-4
87	4-4
78	4-3

The grade boundaries above are for the 2019 paper.
Grade boundaries do change each year and will be different this year.

Exam	Score	Grade
Biology paper 1	/ 70	
Biology paper 2	/ 70	
Chemistry paper 1	/ 70	
Chemistry paper 2	/ 70	
Physics paper 1	/ 70	
Physics paper 2	/ 70	
Overall	/ 420	

GCSE Practice Questions

These links will take you to a practice paper for each topic that features on each test. The link will take you to the exampro viewer where you will be able to attempt each question (in your book/scrap paper). You also will be able to click on the 'Mark Scheme' tab, please use this to self-assess. On some questions you will be able to click the 'Examiner Remarks' tab, this will give you an insight into how other students have done on this question and any common misconceptions.



Combined Science Biology Paper 1 – Higher Tier

Topic 1: Cell Biology https://SUQAAIQ.exampro.net

Topic 2: Organisation https://HIQOCOI.exampro.net

Topic 3: Infection and response https://WOHALUM.exampro.net

Topic 4: Bioenergetics https://WOBIFUL.exampro.net

Combined Science Chemistry Paper 1 – Higher Tier

Topic 1: Atomic Structure and the Periodic Table https://LYXYSIG.exampro.net

Topic 2: Bonding, Structure and the Properties of Matter https://DAWAZEG.exampro.net

Topic 3: Quantitative Chemistry https://MUTAEIE.exampro.net

Topic 4: Chemical Changes https://PESUPER.exampro.net

Topic 5: Energy Changes https://RUUAMIF.exampro.net

The first three topics from chemistry paper 1 may also be tested on chemistry paper2 : Atomic Structure and the Periodic Table, Bonding Structure and the Properties of Matter, and Quantitative Chemistry. These are known as the fundamentals of chemistry.

Combined Science Physics Paper 1 – Higher Tier

Topic 1: Energy https://IEJUEUC.exampro.net

Topic 2: Electricity https://XOJIFAU.exampro.net

Topic 3: Particle Model of Matter https://OYLEVAT.exampro.net

Topic 4: Atomic Structure and Radioactivity https://NOXUZOQ.exampro.net

Combined Science Biology Paper 2 – Higher Tier

Topic 5: Homeostasis and response https://PYPYDEQ.exampro.net

Topic 6: Inheritance, Variation, and Evolution https://AYQAUOS.exampro.net

Topic 7: Ecology https://MYKENOD.exampro.net

Combined Science Chemistry Paper 2 – Higher Tier

Topic 6: Rate and Extent of Chemical Change https://EUUESIK.exampro.net

Topic 7: Organic Chemistry https://VOZITOI.exampro.net

Topic 8: Chemical Analysis https://FISEWOW.exampro.net

Topic 9: Chemistry of the Atmosphere https://GOEIOUT.exampro.net

Topic 10: Using Resources

Combined Science Physics Paper 2 – Higher Tier

Topic 5: Forces https://PUVOIYL.exampro.net

Topic 6: Waves https://LEIEWOR.exampro.net

Topic 7: Magnetism and Electromagnetism https://HOHOPYC.exampro.net

Physics - equation sheet

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	$E = P t$

	energy transferred = charge flow × potential difference	$E = Q\,V$
HT	**potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil**	$\boldsymbol{V_p\,I_p = V_s\,I_s}$
	density = $\frac{\text{mass}}{\text{volume}}$	$\rho = \frac{m}{V}$
	thermal energy for a change of state = mass × specific latent heat	$E = m\,L$
	weight = mass × gravitational field strength	$W = m\,g$
	work done = force × distance (along the line of action of the force)	$W = F\,s$
	force = spring constant × extension	$F = k\,e$
	distance travelled = speed × time	$s = v\,t$
	acceleration = $\frac{\text{change in velocity}}{\text{time taken}}$	$a = \frac{\Delta v}{t}$
	(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance	$v^2 - u^2 = 2\,a\,s$
	resultant force = mass × acceleration	$F = m\,a$
HT	**momentum = mass × velocity**	$\boldsymbol{p = m\,v}$
	period = $\frac{1}{\text{frequency}}$	$T = \frac{1}{f}$
	wave speed = frequency × wavelength	$v = f\,\lambda$
HT	**force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density × current × length**	$\boldsymbol{F = B\,I\,l}$

AQA

The Periodic Table of 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											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	[97] 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	[267] Rf rutherfordium 104	[270] Db dubnium 105	[269] Sg seaborgium 106	[270] Bh bohrium 107	[270] Hs hassium 108	[278] Mt meitnerium 109	[281] Ds darmstadtium 110	[281] Rg roentgenium 111	[285] Cn copernicium 112	[286] Nh nihonium 113	[289] Fl flerovium 114	[289] Mc moscovium 115	[293] Lv livermorium 116	[293] Ts tennessine 117	[294] Og oganesson 118

Key: relative atomic mass / **atomic symbol** / name / atomic (proton) number

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted.

Relative atomic masses for **Cu** and **Cl** have not been rounded to the nearest whole number.

Insert for GCSE Chemistry (8462), Combined Science: Trilogy (8464), and Combined Science: Synergy (8465) papers v4

14 Essential Revision Tips

1. Start revising early — i.e. months, not days before the exam.

2. Plan your revision using a timetable - Planning out your revision means you can spend more time revising and less time worrying you've forgotten something. There's one found at the back of this booklet.

3. Don't spend ages making your notes look pretty - This is just wasting time. For diagrams, include all the details you need to learn, but don't try to produce a work of art.

4. Set up a nice, tidy study space - You'll need somewhere with good lighting, your pens close by, your phone out of sight and your TV unplugged. Try not to revise on your bed.

5. Vary your revision with different activities - Try a variety of different revision techniques — answering practice questions, writing down notes from memory, and using Revision Guides, Flash Cards, Exam Practice Workbooks etc.

6. Stick revision notes all around your house - So in the exam you think, "Aha, atomic structure, it was on the fridge..."

7. Do lots of practice papers and questions - You'll find it far easier to answer questions in the exam if you've tried similar ones at home beforehand.

https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/assessment-resources?f.Resource+type%7C6=Question+papers&f.Tier%7C0=Higher&sort=title&num_ranks=10

8. Set aside time to do fun things — Don't totally stop yourself from having fun. This'll help you stay motivated, relax, and allow you to keep up with your favourite hobbies.

9. Keep your phone and other distractions away. - Phones are great, but they're a one-stop shop for procrastination. Heed our warnings and stick it in a drawer while you're revising.

10. Don't just read your notes - You have to WRITE STUFF DOWN. This is really basic "how to revise" stuff.

11. Take your revision wherever you go

12. Sleep and eat properly - Sleep is more important than you'd imagine — it helps your brain store all the juicy information you've learned throughout the day. Drinking plenty of water and eating healthy foods will also boost your concentration throughout the day.

13. On exam day, make sure you arrive in plenty of time - Nothing adds extra pressure to exam day like the fear of being late. Just make sure you set off at a little earlier than usual. While you wait, if people around you seem stressed about the exam, try to relax and not let their worries affect you.

14. Dress as a medieval knight and demand ale - This is an old tradition, which states that anyone attending an examination in full knight's costume has the right to demand a tankard of ale. Unfortunately, you need to be carrying a sword and if you try this you'll be arrested and sent to prison.

Science Command Words

Command word	Definition
Describe	Candidates should recall some facts, events or process in an accurate way - for example an experiment they have done. They may need to give an account of what something looked like, or what happened, e.g. a trend in some data. (Hint: don't confuse with 'Explain')
Explain	You may be asked how or why something happens. Write a detailed answer that covers how and why a thing happens. The points in the answer must be linked coherently and logically. (Hint: don't confuse with 'Describe'. Students often miss out on marks because they've given a description rather than an explanation
Compare	Write about the similarities and differences between two things.
Evaluate	You will be given some facts, data or other information. Write about the data or facts and provide your own conclusion or opinion on them.
Determine	'Determine' is a specific calculation question where students need to refer to, or use, data and information taken from a table or graph. Students often miss out on marks because they don't understand that they need to refer to the source data in their answer
Suggest	Suggest' sometimes trips students up, because these questions are set in an unfamiliar context to which students need to apply their knowledge and understanding.
Write down	Give a short answer, without a supporting argument.
Outline	Give only the key facts of the topic. You may need to set out the steps of a procedure or process make sure you write down the steps in the correct order.
Calculate	Work out a number. You can use your calculator to help you. You may need to use an equation. The question will say if your working must be shown. (Hint: don't confuse with 'Estimate' or 'Predict'
Predict	Look at some data and suggest a realistic value or outcome. You may use a calculation to help. Don't guess – look at trends in the data and use your knowledge of science. (Hint: don't confuse with 'Calculate' or 'Estimate')
Estimate	Suggest an approximate (rough) value, without performing a full calculation or an accurate measurement. Don't just guess – use your knowledge of science to suggest a realistic value. (Hint: don't confuse with 'Calculate' and 'Predict')
Show	Write down the details, steps or calculations needed to prove an answer that you have been given.
Justify	Give some evidence or write down an explanation to tell the examiner why you gave an answer
Discuss	Write about the issues related to a topic. You may need to talk about the opposing sides of a debate, and you may need to show the difference between ideas, opinions, and facts

Revision techniques

Many students feel they are working as hard as they can. However, this booklet is hopefullygoing to show you, or remind you of some techniques which will help you work smarter.

Not everyone learns in the same way so choose what works for you, not a friend! Use this booklet alongside your subject notes, intervention sessions, study websites and apps.

Contents

Read, cover, write & check

Simple, good to use with spellings, defining key words andremembering facts.
Read the knowledge Cover up
the knowledge

Write down what is remembered in 1 colour

Check to see if it is correct, make any improvements in a different colour

Quizzing

For example:

Question: In what year was George V's coronation?

Answer: 1910

Ask a parent, carer, study partner to write you questions (or answers) and you write the answer (or possible question that would correspondto that answer).

You can also write your own questions, but if you do this leave it at

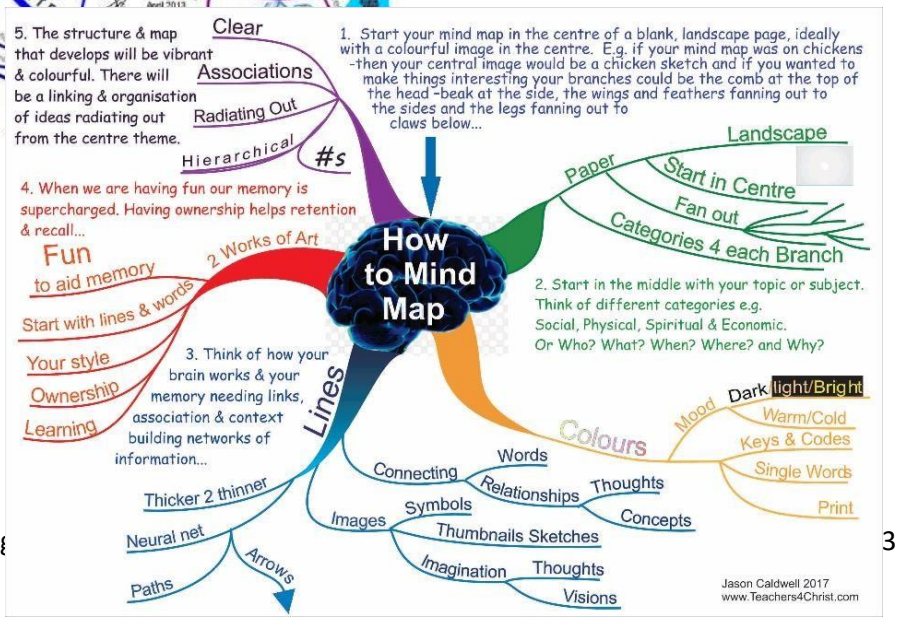
least a day until you answer them to see what you can remember aftera while.
Or write 10 questions that your teacher could use as a starter activitynext lesson.
(include the answers for your teacher too!)

Mind Mapping

Mind Mapping is a process that involves a distinct combination of imagery, colour and visual-spatial arrangement. The technique maps
out your thoughts using keywords that trigger associations in the brainto spark further ideas.

1. Start with the theme in the centre of the page and work outwards.
2. Then develop your main idea.
3. Each branch must relate to the branch before it.
4. Use only key words and images.
5. Key words must be written along the branches.
6. Print your keywords to make them more memorable.
7. Use highlighters and coloured markers to colour code the branches.
8. Make things stand out on the pages so they stand out in your mind.
9. Brainstorm Ideas. Be creative.
10. Design images you can relate to which will help you remember key information.

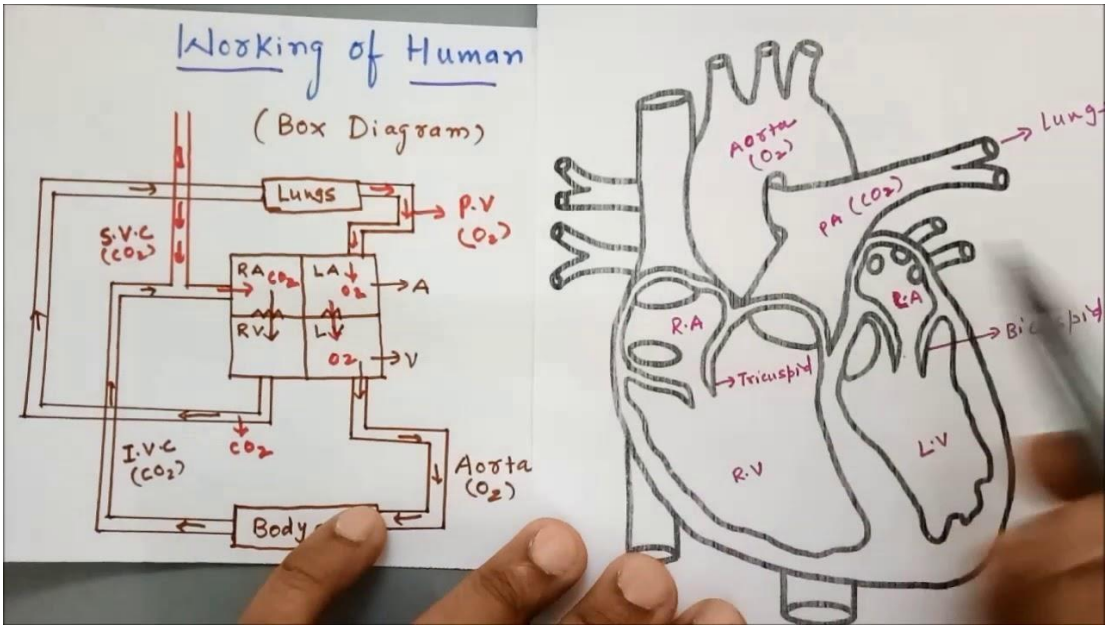
Once you have made your map, cover it and test yourself on different strands.

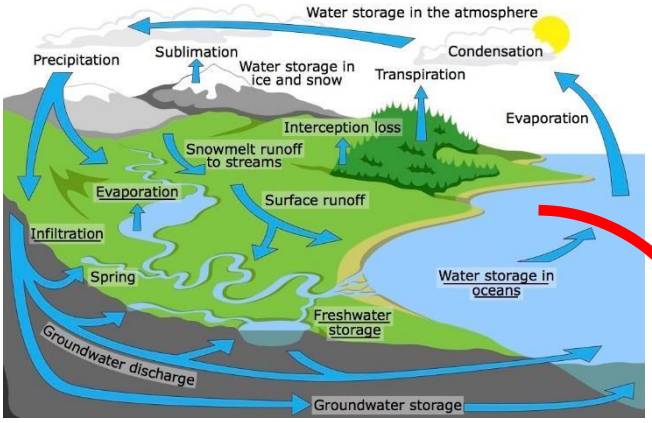


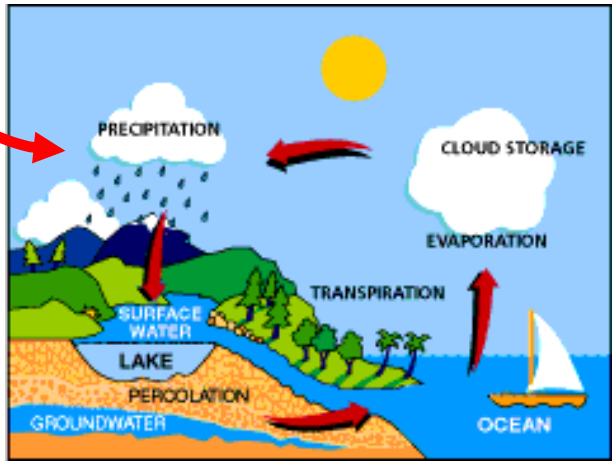
Diagram

Creating a visual diagram for key facts, ideas or just larger chunks ofknowledge is an effective way of making knowledge 'stick' in your brain.
Key words with some small images that link to the knowledge areimportant for the diagrams to be effective.

Simplifying a complex diagram into something more straight-forward.



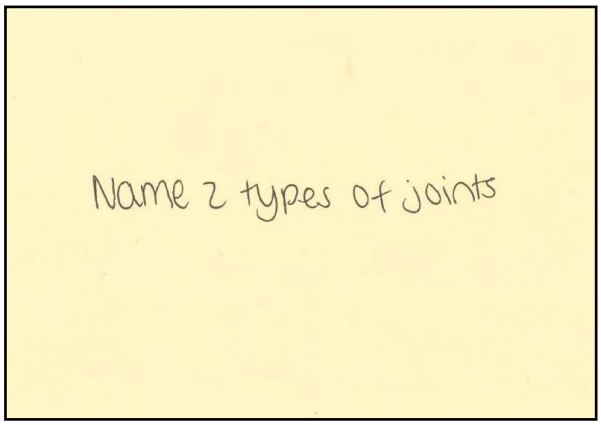


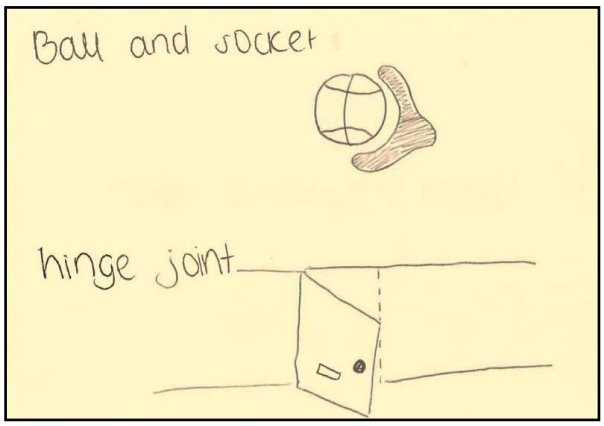


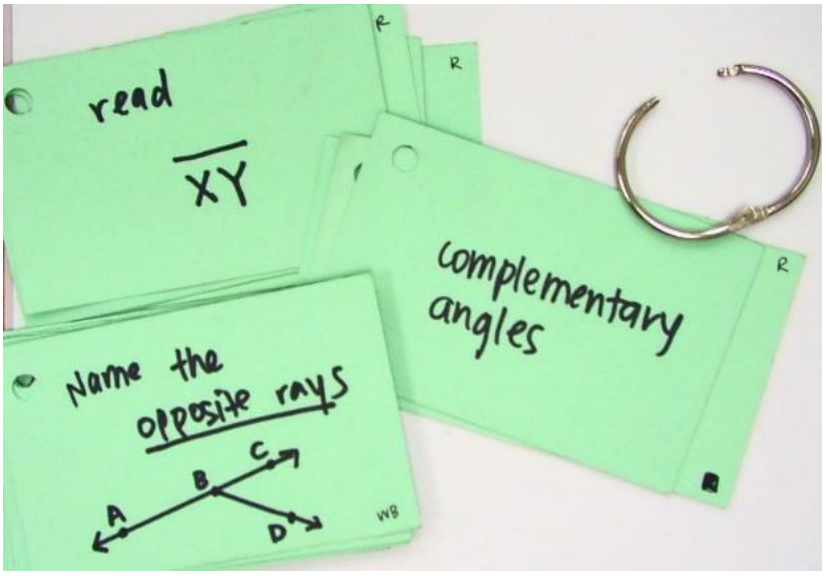
Flashcard

These are a very good and simple self-testing tool. They can be physicalor electronic. Quizlet's cards are good as they prioritise cards you havepreviously got wrong.

To make your own, take some card and cut into rectangles roughly 10cm x 6cm. You then write the keyword on one side and the definitionon the other. Then go through your cards looking at one side and seeing if you can remember the keyword/definition on the other side.You can put your flashcards in an envelope stuck into your workbook.





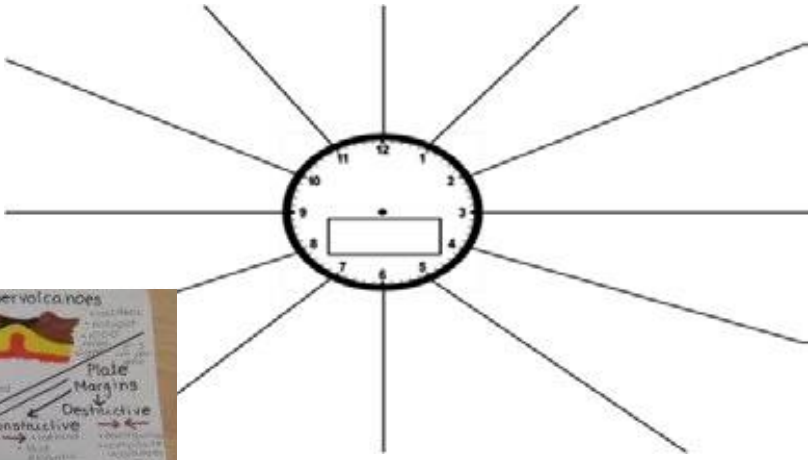


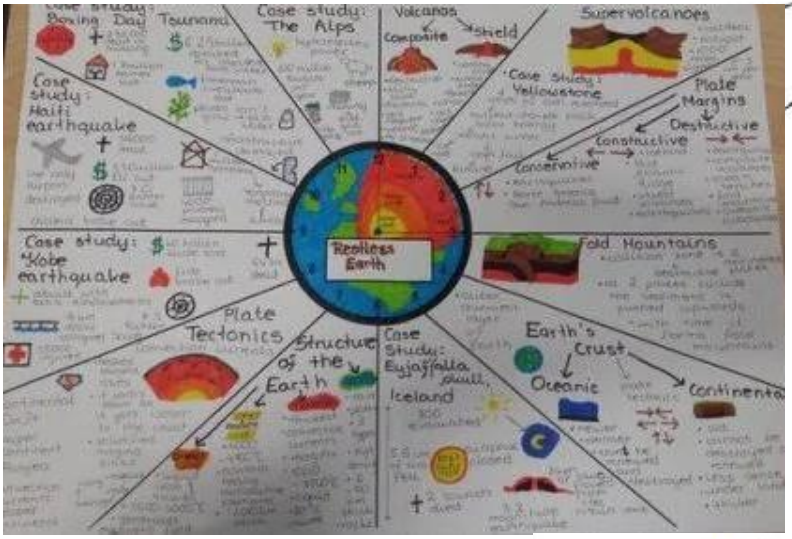
Clock Learning

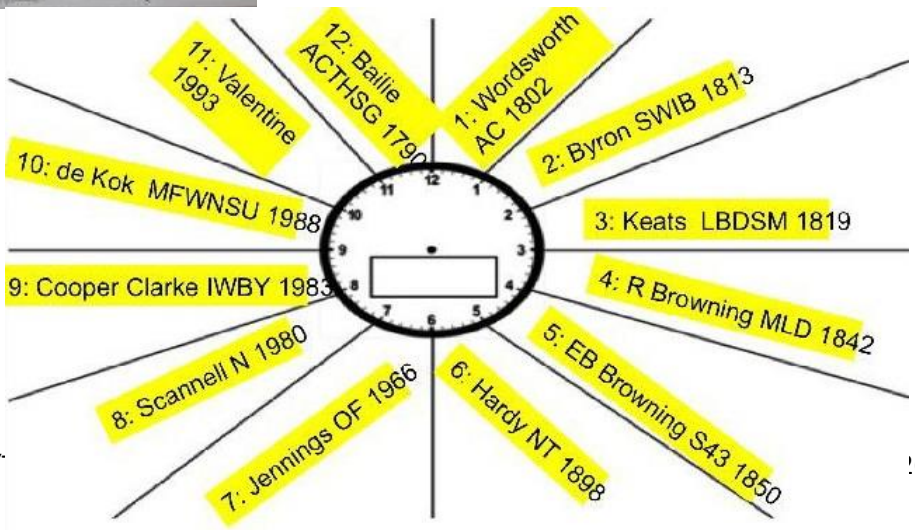
For this technique you draw a basic clock.

You can then take a subject or topic and break it down into 12 sub- categories. Make notes in each chunk of the clock. Revise each slot for5 minutes, turn the clock over and then try to write out as much information as you can from one of the segments. Eg. All the

information in the 2-3pm segment.

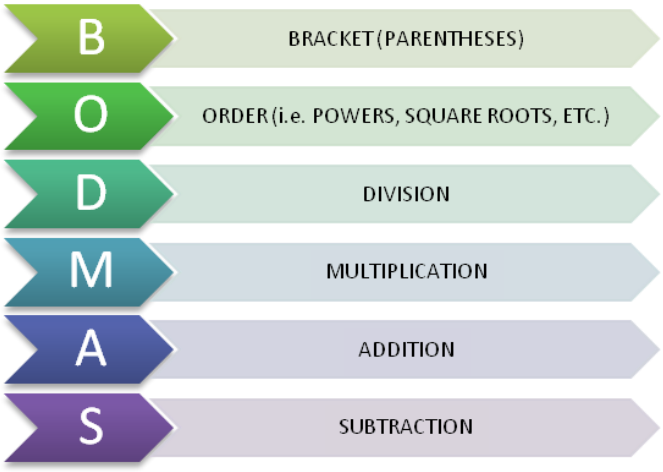


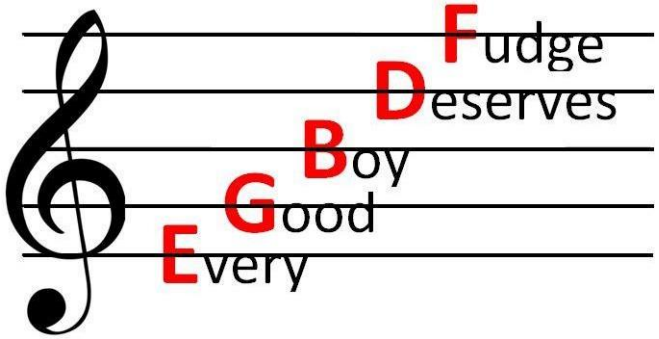




Keyword Mnemonics

Make up a sentence where each word starts with the same letter as thewords you need to remember.





'Never Eat Shredded Wheat'

OR

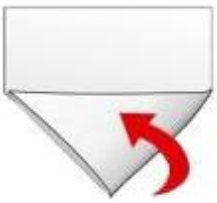
'Naughty Elephants Spray Water'

Chatterbox

Making a chatterbox helps you test yourself on important topics.

Start with an A4 sheet of paper.

Fold in half to make a triangle.

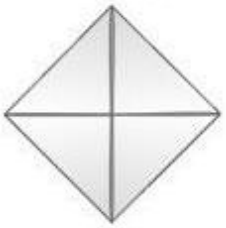


Fold again to make a smaller triangle.

Cut of extra paper.

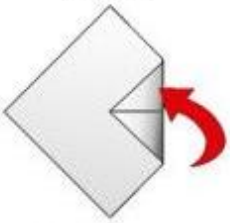
Unfold paper. You should have a square.

Fold all corners in to the centre.



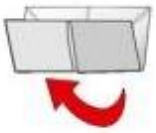
It should look like this.

Turn your paper over.



Fold all corners in to the centre again.

It should look like this.



Crease in half both ways.

Use your fingers to pinch it together.

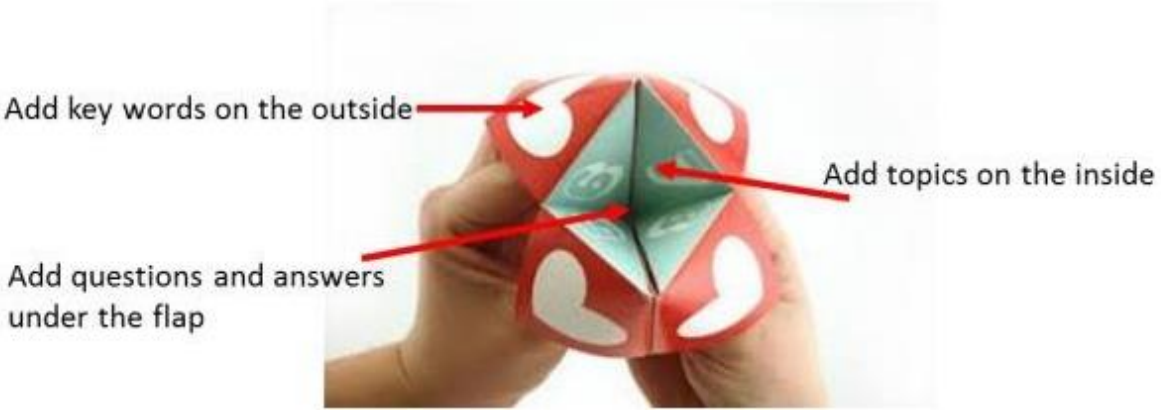


Image Chain

Create a cartoon-like image in your mind. Make it colourful, lively andfun. The more unusual, the more you will remember it.

Let's say you're at a party and you've been introduced to some newpeople and want to remember their names.

You've just met David, Jack, William, Gemma, Sophie and Hannah.

In your imagination, you need to create a link to that person and their name. The pictures you think up have to be memorable, so make them colourful, funny, lively and strange.

David → (Wearing a football shirt aka Beckham)

Jack → (Climbing up a bean stalk)

William → (Prince William wearing a crown)

Gemma → (Wearing lots of jewellery with shiny gems)

Sophie → (Is sat on the sofa singing)

Spellings

Ask a parent, carer, brother, sister or study partner to test you on some key spellings

Write a song, rap or poem

How often does a song get into your head and you end up singing it all day? Why not find some of your favourite tunes and change the words. Write a poem that tells a story or includes particular keywords

Some more ideas…

Memory challenge - Look at a labelled version of a text for 30 seconds. Thencover it up and try to draw what you have seen.

Dominoes - Create cards with a definition on one end and a keyword on the other. You then have to complete the domino train. Time yourself completing itand try beat your friend.

Jeopardy - Write lots of answers/ keywords down then challenge your partner to write the question.

Guess who - Stick Post-It notes to your foreheads and try guess the keywords by asking yes/no questions.

Text - How many text messages do you send a day or week? Make a plan with your friends to add a fact to the end of every text message you send to build upyour knowledge and add to your revision efforts.

Games - Making a popular game into a study aid is fun. Even making the game makes you revise your work. Trivial pursuit, bingo, blockbusters and battleships work really well. You can learn with a group of friends and have fun doing it.

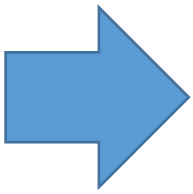
Revision timetable

How to create a revision timetable

1. List all the subjects that you need to do revision for.
2. Now rank them in order, with the first being the subject in which you need to do the most revision. Think about your target grades and current attainment to work this out. Discuss with teachers if you need to.
3. See example on next slide.

Subjects to revise for:

- Maths
- English
- Science
- Geography
- RE
- Music
- Business Studies



Rank order (most revision needed)

1. Science
2. Maths
3. Geography
4. English
5. Business Studies
6. Music
7. RE

So this student needs to make sure that they spend more time revising subjects like science, maths and geography.

Now it's time for you to think about planning your own timetable.

- Try colour-coding your subjects so that your timetable is easy to read and you can glance at it quickly and know what you're doing.
- Make sure you put sessions in that allow you to relax and unwind. Try to find time to see friends and family and do the things that you enjoy.
- Be realistic! For example: Don't plan to revise maths for 12 hours solid on a Saturday, because it won't happen and you won't benefit from it. Break the day up into manageable pieces and do spend hours trying to do the same thing – it won't help you.
- Have your revision timetable somewhere where you will see it everyday, so it acts as a reminder of what you need to do.
- Put a copy on your phone or set alarms/reminders that will help you stick to your plan.

Example Timetable

Day	8:30 – 10:00	10:00 – 11:00	11:00 – 12:00	12:00 – 1:00	1:00 – 2:35	2:35 – 4:00 (Revision / Intervention)	4:00 – 5:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	9:00 – 10:00
Monday						English	RE	Break	Music	English	Relax	Relax
Tuesday						Science	Break	Break	Maths	Geography	Relax	Relax
Wednesday						Break	Geography	English	Break	Maths	Music	Relax
Thursday						Maths	Science	Break	Business Studies	Relax	Relax	Relax
Friday						Play football	Break	English	Break	Maths	Business Studies	Relax
Saturday	Science	Maths	Geography	Science	Football	Football	Football	Football	Relax	Relax	Relax	Relax
Sunday	Geography	Football	Football	Relax	Relax	Science	maths	Break	Geography	RE	Relax	relax

School Day

Day	8:30 – 8:55	9:00 – 10:00	10:05 – 11:05	11:25 – 12:25	1:00 – 2:00	2:00 – 3:00	3:00 – 4:00 Achieve	4:00 – 5:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											

School Day

***Remember: make sure you give yourself breaks and allow time to relax and do the things your want to do and enjoy doing.*

*** revise little and often. 20 minute sessions followed by breaks*