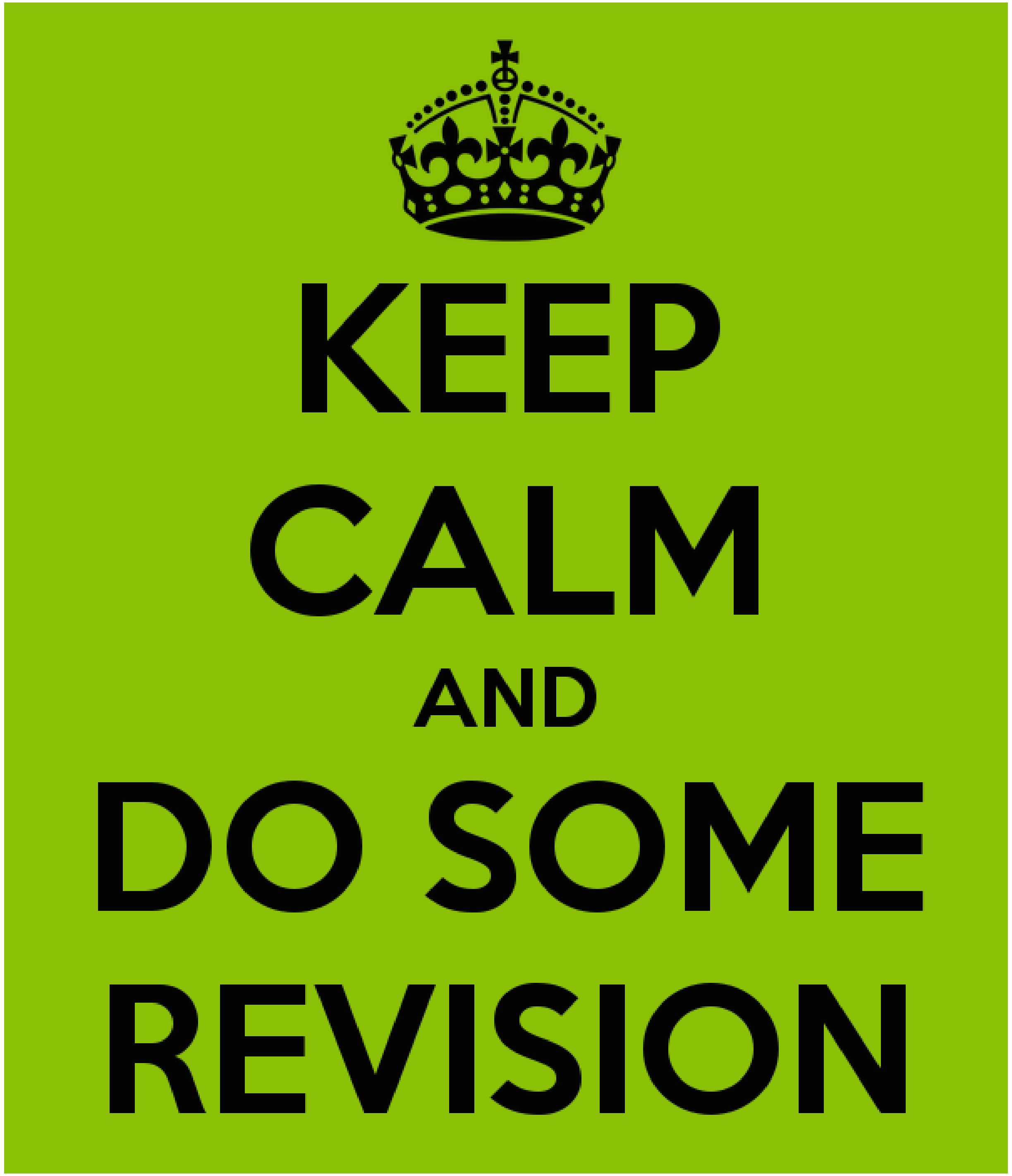
Science Revision

Triple and Trilogy



How to revise for Science

1. Plan

2. Understand

3. Learn

4. Practice

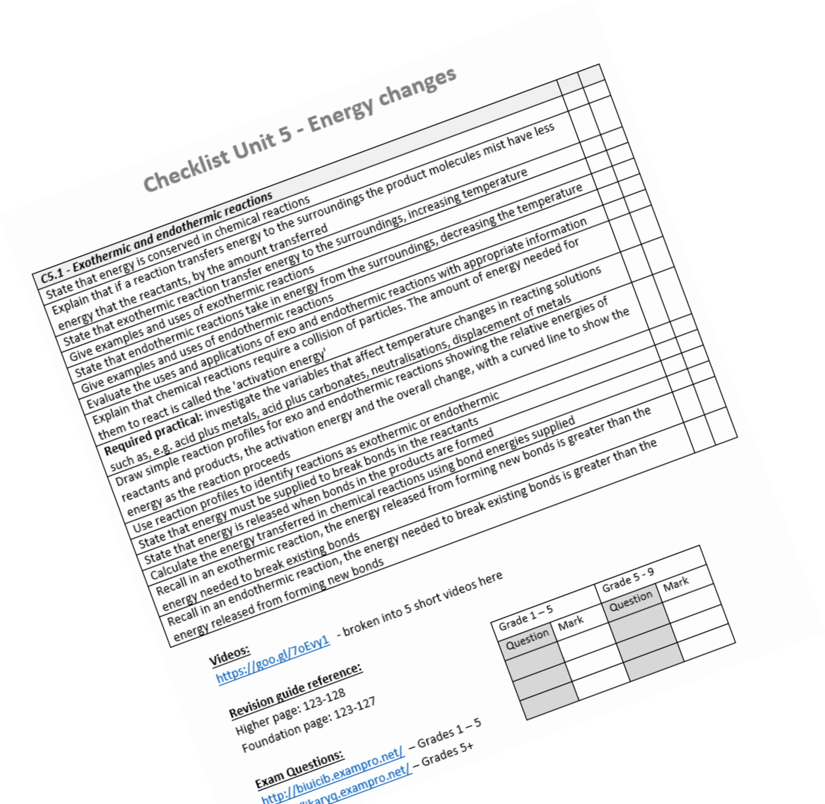
Year 11 Science Revision Timetable

Plan

Day	Biology	Chemistry	Physics	Exams
Mon 13th Nov	4.1.1 - Cell structure	5.1.1 - Atomic structure	6.1.1 - Energy changes 1	
Mon 20th Nov	4.1.2 - Cell division	5.1.2 - Periodic table	6.1.1 - Energy changes 2	
Mon 27th Nov	4.1.3 - Transport in cells	5.2 - Ionic bonding and properties	6.1.3 - Energy resources	
Mon 4th Dec	4.2.2 - Digestive system & enzymes	5.2 - Covalent bonding and properties	6.2.1 - Current & potential difference	
Mon 11th Dec	4.2.2 - Heart, blood vessels, blood & lungs	5.2 - Other types of bonding	6.2.1 - Resistance	

Understand

Use the resources at your disposal to get a good understanding of the content.



Checklist Unit 5 - Energy changes

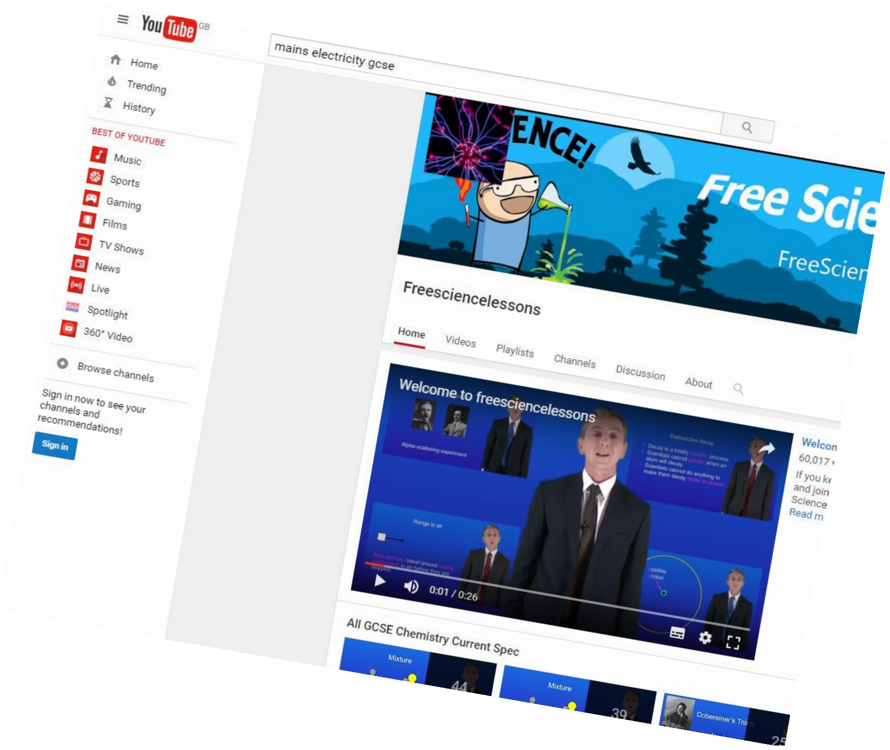
C5.1 - Exothermic and endothermic reactions		
State that energy is conserved in chemical reactions		
Explain that if a reaction transfers energy to the surroundings the product molecules mist have less energy that the reactants, by the amount transferred		
State that exothermic reaction transfer energy to the surroundings, increasing temperature		
Give examples and uses of exothermic reactions		
State that endothermic reactions take in energy from the surroundings, decreasing the temperature		
Give examples and uses of endothermic reactions		
Evaluate the uses and applications of exo and endothermic reactions with appropriate information		
Explain that chemical reactions require a collision of particles. The amount of energy needed for them to react is called the 'activation energy'		
Required practical: investigate the variables that affect temperature changes in reacting solutions such as, e.g. acid plus metals, acid plus carbonates, neutralisations, displacement of metals		
Draw simple reaction profiles for exo and endothermic reactions showing the relative energies of reactants and products, the activation energy and the overall change, with a curved line to show the energy as the reaction proceeds		
Use reaction profiles to identify reactions as exothermic or endothermic		
State that energy must be supplied to break bonds in the reactants		
State that energy is released when bonds in the products are formed		
Calculate the energy transferred in chemical reactions using bond energies supplied		
Recall in an exothermic reaction, the energy released from forming new bonds is greater than the energy needed to break existing bonds		
Recall in an endothermic reaction, the energy needed to break existing bonds is greater than the energy released from forming new bonds		

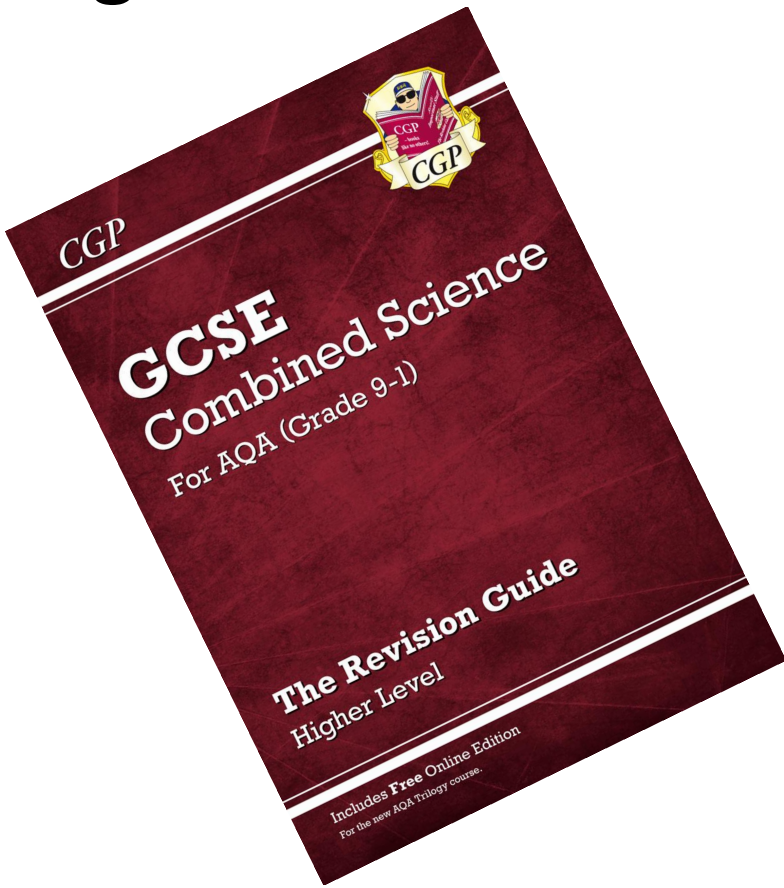
Videos:
https://goo.gl/7oEvy1 - broken into 5 short videos here

Revision guide reference:
Higher page: 123-128
Foundation page: 123-127

Exam Questions:
http://biuicib.exampro.net/ – Grades 1 – 5
likaryq.exampro.net/ – Grades 5+

Grade 1 – 5		Grade 5 - 9	
Question	Mark	Question	Mark

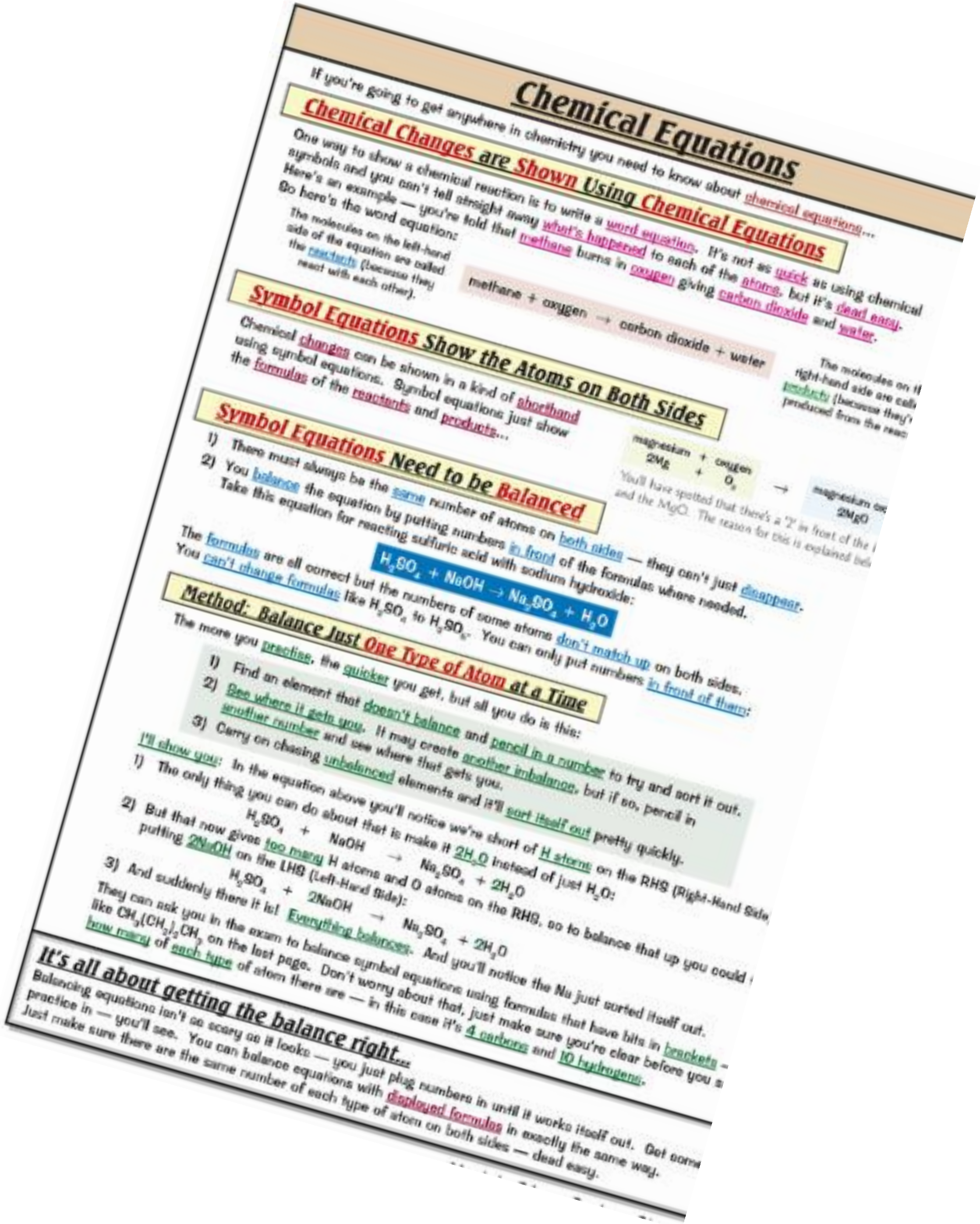




Learn

DO

1. Spend 15-20 mins reading specification / revision guides / watching videos, to learn the content
2. Spend 10-20mins re-writing the information until it has committed to memory
3. Come back to the same topic the day after to see how much you can remember



Chemical Equations

Chemical Changes are Shown Using Chemical Equations

Symbol Equations Show the Atoms on Both Sides

Symbol Equations Need to be Balanced

Method: Balance Just One Type of Atom at a Time

It's all about getting the balance right...

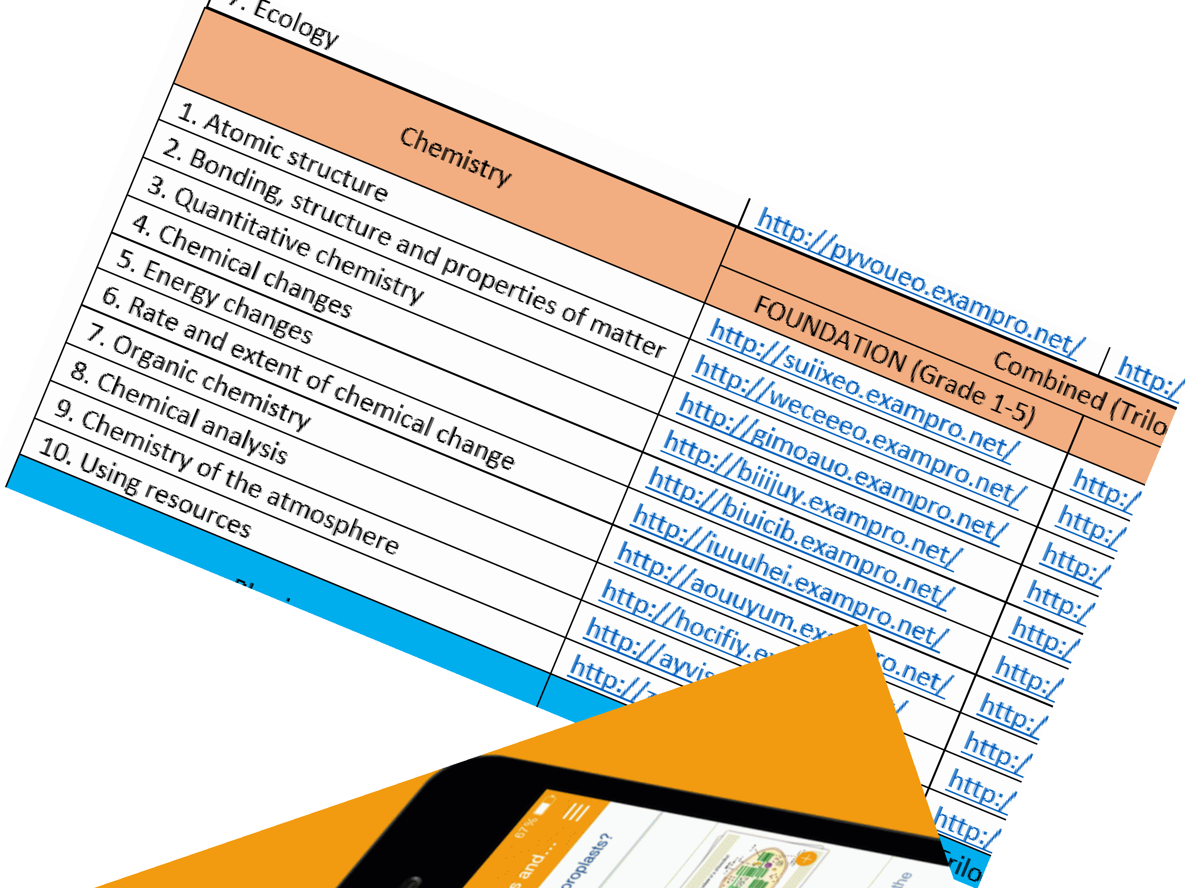
Learn

DON'T

1. Spend hours making pristine revision notes/cards and continually re-reading them without **testing** your memory
2. Spend 3 hours straight going over something again and again without a break
3. Learn things that are unnecessary. (check the checklist)
4. Have your phone in the same room while revising
5. Think it's too late to start revising

Practice

1. Keep testing yourself until you are confident you know the content.
2. Ask people to test you to check you know the stuff
3. Make flashcards – questions on the front, answers on the back
4. Keep revisiting it in forthcoming days to check you still **remember** it
5. Use practice exam questions and quizzes to check you can apply your learning



Ecology
Chemistry
FOUNDATION (Grade 1-5)
Combined (Trilo
1. Atomic structure
2. Bonding, structure and properties of matter
3. Quantitative chemistry
4. Chemical changes
5. Energy changes
6. Rate and extent of chemical change
7. Organic chemistry
8. Chemical analysis
9. Chemistry of the atmosphere
10. Using resources
http://pyvoueo.exampro.net/
http://suiixeo.exampro.net/
http://weceeeo.exampro.net/
http://gimoauo.exampro.net/
http://biiijuy.exampro.net/
http://biuicib.exampro.net/
http://iuuuhei.exampro.net/

Revision packs

What you have in your packs

Specification checklists

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Equation sheet

Exam	Word equation	Symbol equation	SI unit
Paper 1	kinetic energy = 0.5 × mass × (speed)^2	$E_k = ½\ m\ v^2$	Kinetic energy = joules (J) Mass = kilograms (kg) Speed = metres per second (m/s)
Paper 1	gravitational potential energy = mass × gravitational field strength × height	$E_p = m\ g\ h$	GPE = joules (J) Mass = kilograms (kg) g = newtons per kilogram (N/kg) Height = metres (m)
Paper 1	power = $\frac{\text{energy transferred}}{\text{time}}$	$P = E/t$	Power = watts (W) Energy = joules (J) Time = seconds (s)
Paper 1	power = $\frac{\text{work done}}{\text{time}}$	$P = W/t$	Power = watts (W) Work done = joules (J) Time = seconds (s)
Paper 1	efficiency = $\frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$		

What you |

	Combined (Trilogy)	Extra questions for Separate

exampro

1

Question | Mark Scheme | Examiner Remarks

1

2

Question | Mark Scheme | Examiner Remarks

(a) **A** nucleus

1

2

3

4

5

6

7

8

Question | Mark Scheme | Examiner Remarks

This question was expected to be a fairly straightforward introductory question for the majority of candidates, as cell structure will undoubtedly have been studied at several stages in the school career. However, there were more than the expected number of omissions and errors.

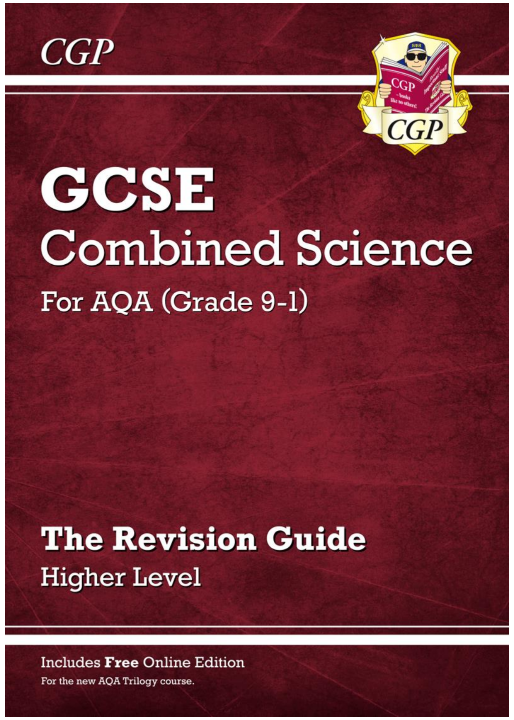
In part (a), the most common error was to confuse cytoplasm with chloroplasts. Other candidates, having decided that they had mislabelled the diagram, chose to alter the label lines or use arrows to indicate that answers should be exchanged. Both of these strategies can make it difficult for examiners to decide exactly what the candidate intends and it would be better if candidates were to be advised to cross through errors and rewrite the answers in the correct place.

The commonest error in part (b)(i) was mitochondria, although the correct response was given by only a little over 40%, suggesting that guesswork played a major role in selecting the answer for many candidates.

Similarly in part (b)(ii) with only three answers to choose from, less than one-third of candidates selected the correct one, with respiration being by far the most common error.

Key revision aids

1. https://www.youtube.com/freesciencelessons – short videos on all topics
2. http://www.gojimo.com/
3. CGP revision guides



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