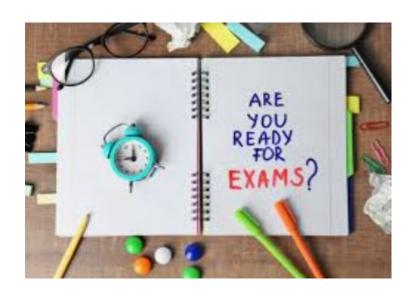


Studying for Success in Science



How to get the best grades at GCSE



Contents

1.	Understand the importance of exams	3
2.	Procrastination—your worst enemy	4
3.	Revision timetable	5
4.	Examiners reports	6
5.	What do I revise?	7
6.	Past papers and mark schemes	8
7.	Making Notes Useful	9
8.	Flashcards	10
9.	Command words	11
10.	How to use a revision guide	12
11.	Helpful apps and programmes	13
12.	Attendance	14
13.	Revision Blueprint	15
14.	Weekly Planner	16
15.	Subject Content Focus	17
16.	Science Overview & Specification Links	18

Understand the Importance of Examinations: Don't be thoughtless about your exams, think about how important they are. This is about having the right mindset, you will always have the choice to revise or to do 'something else'! You need to consider how important that 'something else' is. What difference will that 'something else' make in your life in 5 years time?

Consider the following questions about what passing your exams will mean to you:

- 1. What doors of opportunity will you open?
- 2. What will you be able to do that you can't do at the moment?
- 3. What financial difference will it make?
- 4. How proud will it make your family?
- 5. How proud will it make you?
- 6. What will your friends think?
- 7. What will your future employer think?
- 8. How will it change your life after a month, a year, after 5 years?



When to start: The best time to plant a tree was 20 years ago, the second best time is now.

It is best to start preparing for your exams as soon as you start your course, so the best time to start is now! The earlier you start the better, if you have only recently started your GCSEs then you need to be revisiting materials you have been taught regularly, just 10 minutes a day early on can have a massive impact. If you are nearer to your exams you will obviously need to be spending more time revising.

You have been provided with access to Tassomai and a knowledge organiser, both of these are great tools to use to keep revisiting course content and will help to secure that all important foundation of knowledge.

Your brain doesn't like to have lots of stuff to learn, the brain is like a muscle—it gets tired quickly. Doing little and often is a much more efficient and effective way of revising. You can never start preparing for exams too early! The sooner you start, the more you will get done and the easier it will be to get a better grade.

Procrastination: [noun] the action of delaying or postponing something

Procrastination, the art of putting something off until 'later', is probably more responsible for stopping people from getting what they want than anything else in the universe. If you want to succeed in life, procrastination is your worst enemy.



Ian Gibbs (23 Tips to Get Better Grades) explains really well what is wrong with procrastination:

Imagine 3 friends, Adam, Ben and Chris. These 3 friends have to carry 3 boxes - one box each. Each box is quite heavy, but not too heavy. Our 3 friends walk along the line, 1 behind each other, carrying their respective box.

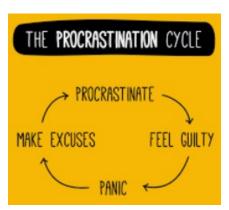
All is fine until Adam at the back and feeling a little lazy says, 'Oof, I do not want to carry this box anymore' and passes it to the person in front, Ben. Ben is now carrying twice the load, while Adam has nothing.

Ben is now carrying more than his fair share. He tires quickly. He has to give his 2 boxes to someone else, Chris. Chris now finds he has 3 boxes. It's to much. He collapses under the weight of his unfair and unbearable load.

Think of Ben as your present self. Adam as your past self and Chris as your future self. The boxes represent the work each 1 of you has to do. If you share the work, doing each day what you can, all is well. But once you put off until tomorrow tasks you could do today, you're naively overlooking that your future self will also have other things to do tomorrow, not just the things from today that you are delegating. Afterall, unforeseen tasks pop up, opportunities arise. The unexpected happens.

Top Tips to Tackle Procrastination:

- 1. Reward yourself with a small prize. If you are able to associate completing the task with a celebration, you'll have a more positive attitude towards it.
- 2. Make a revision timetable, you are more likely to do a task if it is written down.
- 3. Just focus on doing a little to get you started. It's the enormity f the task that's off-putting. By saying to yourself that you're just going to read 1 page r answer 1 question or make a revision card, its easier to get started. Once you've started it much easier to keep going.
- 4. Use positive peer pressure by teaming u with someone who will also be revising at the same time as you.
- 5. Don't break the chain. Get a calendar and cross off the day with a satisfying tick, see how many days you can go without missing a day.



Revision Timetable

You have a busy life, lots of stuff to do, lots of stuff to think about. This is why a revision timetable is important: it helps you to get organised without having to think too much.

It is important to understand that a revision timetable is a tool to help you to get more done. If you don't follow it perfectly, its not a problem, it only becomes a problem if you don't follow it at all. Deciding to start earlier or later, swapping subjects is fine As long as you are getting through the revision you'd plan to do it is fine!

Exam timetables are easy to make, simply draw up a table with 7 rows (one for each day of the week), firstly write in your commitments such as clubs that you attend, then populate your table with time slots to revise each subject.

It is recommended that you vary your subjects, it helps to keep your mind active and interested.

Don't overlook the opportunity of early morning revision. If you get up before everyone else, its quiet with no distractions. Why not include half hour revision as part of your bedtime routine? Regularly testing yourself by going through your flash cards just before you go to sleep is a good learning tactic. It gets your mind working on things while you sleep.



Mark Schemes and Examiners Reports

lan Gibbs (23 Tips to Get Better Grades) explains using mark schemes and examiners reports really well:

Let's imagine you'll soon be sitting an exam. But let's also imagine you have an uncle that is an examiner. He writes and marks exam papers an it just so happens he is the person who has written the exam you are about to sit. Let's call him Uncle X.

If Uncle X was corrupt or dishonest, he might pass you some inside information about what questions will be in your future exam. Frustratingly, your beloved Uncle X is as honest as the day is long and cannot be bought for love or money.

'However', he says with a twinkle in his eye, 'I could pass you some inside information about what common mistakes were made in last years exam. I could write you a little summary of where student's slipped up, the things they could have done to score a few extra points'.



'Okay', you mutter apprehensively, 'how much is it going to cost me?'

'Nothing at all!' he roars. 'I've even posted it online already so everyone can read it!'

You might not have a real Uncle X, but someone does and, true to his word, every year Uncle X writes a report assessing the previous exam, how it was received, where students slipped up and what got extra marks.

The report this is referring to is the examiners report. It's a collection of comments and observations made by the people who marked the exam about how candidates did. It is full of valuable nuggets of information about what the examiners are looking for, where students lost marks and where they gained them.

Themes where students did best

- Knowledge and understanding:
 At this level, many students demonstrated secure knowledge and understanding. They had a good understanding of the digestive system, food groups and enzymes. They demonstrated a good understanding of the majority of the content on leaf structure. Many students were very familiar with anaerobic respiration and answered these practical questions well. Students showed a good understanding of bacterial diseases, and how they could be prevented from spreading, as well as a good understanding of the role of antibiotics. The majority of students had an excellent knowledge and understanding of cell structure and function and knew at least one advantage of electron microscopes over light microscopes.
- Maths skills:
 Students were competent at calculating means and then using the data in further stepped calculations. The majority of students could measure accurately and apply their reading to calculate the magnification of a cell discrem.

Themes where students did less well

- Knowledge and understanding: Many students were not able to demonstrate a secure understanding of some basic biological content. This included identifying parts of the lungs, the function of stoma and how water is lost from leaves. On the standard demand questions (Q6) many students did not have a secure understanding of which organ system the heart is part of or the function of valves and which blood vessels contain valves. Generally students also did not have a secure knowledge of which pathogens caused malaria and what has been used to reduce the number of deaths from malaria each year.
- Scientific language:

There was evidence that some students find it challenging to use or understand the correct scientific language. For example the word ethanol is used rather than the commot term alcohol when referring to anaerobic respiration.

Command words:

In the extended response questions many students did not understand what is required for the command word 'compare'. Students performed better in the later extended response question where they had to describe the defence system of the human body. Possibly the most amazing thing about the examiners report is that most students don't even know it exists. So by studying it you are not only getting valuable inside knowledge, its also putting you ahead of the rest which surely will help you to get better grades.

What do I revise?

To be able to revise effectively, you will need to come up with a complete list of everything you've covered so far and everything you have yet to cover, not just in science. Making a list will help you to make sure that you have covered all areas and haven't forgotten anything important.

Your exam board produces a document explaining everything that should be covered in your course and in turn what could e on your exam. This document is called a specification and gives a detailed explanation of what the course you are taking is trying to achieve and what you can expect your exam to be measuring.

Get hold of a copy, print it off and go through it, ticking off everything you have done so far. Continue ticking things off as your course progresses. By the end of the course you should have covered everything, if there are gaps, now is he time to do something about it.

Use the table below to identify the examination boards used for each of your subjects, blanks need to be populated with your subjects (options, languages etc.):

Subject	Examination Board	Tier (higher or foundation) if applicable
Combined Science	AQA	
English		
English Language		
Maths		

Past Papers & Mark Schemes

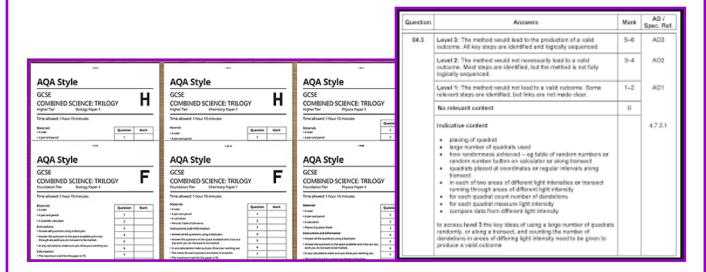
If you wanted to learn to swim, do you read about fluid dynamics, buoyancy and muscle fatigue? Or do you just jump in the water and have a go?

One of the best ways to learn how to do something is to try doing it, sitting an exam is no different. If you want to improve your exam skills, do exam questions.

- 1. The experience of sitting a mock exam is useful. It gives you a clear idea of what the real one will look like—the location, the time limit, the physical layout. It will make the experience of sitting the real exam more familiar. This has been shown to help reduce pre-exam anxiety.
- 2. It gives you a rough idea of what your marks will be if you carry on studying in the way you have been so far. This is useful too. If you get a grade 2, you know you have to change tactics if you want better grades.
- 3. It provides you with a very useful idea about what sort of exam questions are likely to turn up on your real exam paper, which ones you do well at and which ones need improving. Going over your wrong answers might feel like rubbing salt into a wound but it's the only way to analyse what went wrong and why.

Past exam papers usually come with a mark scheme and examiners report. A good mark scheme not only gives you the correct answers, it also tells you why its correct. It also tells you why its correct, what key word are needed and how all the marks for a particular questions are allocated.

- where did you fail to gain marks because you didn't know the answer?
- Where did you lose marks due to unavoidable mistakes?
- Where could you have gained extra marks but overlooked the opportunity?
- What would you have to add to get full marks?



Making Notes Useful:

One of the first things you need to do is to get your notes in order—you can't learn every note you have written so you need to condense them.

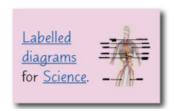
Start with your notes:

You'll need to start off with some useful notes, these could include:

- a CGP revision guide
- class notes
- text books
- revision sheets from your teacher

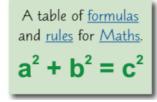
You will then need to condense them into your own words:

- simplify and summarise your notes into key points so they are easier to revise from
- Aim to get each topic on a single page
- Try to reorganise the material in some way, for example, by grouping it differently or linking topics together.
- How you present your notes depends on the subject:









Test yourself on what you have covered:

- cover up your notes and write down how much you can remember.
- Compare what you've written in your notes then fill in any gaps—use a different colour so you know what you have missed.
- Keep doing this until you remember everything on the topic

Thinking Maps:

Thinking maps are great for revising topics, organising material visually can make it easier to recall.

Colour and images can help topics and information to stick in your memory.

Mind maps can help you to identify the key ideas of a topic and find links between them, which can help you to see the topic in different ways.

Flash Cards

Flash cards are one of the most simplest but effective revision tool.

- Flash cards are small cards with a question or prompt on one side and the answer or information on the other.
- They are great for testing yourself and finding gaps in your knowledge.
- Flash cards ae useful for learning things like:
 - Important dates in history
 - Language vocabulary
 - Key words and definitions
 - Labelled diagrams



Command Words

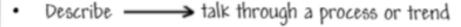
It is so important to read examination questions carefully. Read the question a few times (or until you understand it). Use the number of marks available as a guide for how long to spend on a questions. Underline or circle key phrases and command words.

Command words are key—they tell you what to do.

Common Science & Maths commands:

Command

Meaning







- Show prove something is true / false

Common English & Humanities commands:

Command

Meaning

- Discuss Talk about key points in detail
- How important is...

 discuss the significance of...
- How useful is... > weigh up the pros and cons of...
- Use evidence to show...
 support a view with examples



How to Use a Revision Guide

If you are just reading the revision guide, you are not revising!

MEDIUM IMPACT

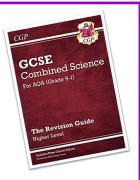
- Mind maps
- Key-words -Post It
- Highlighting

HIGH IMPACT

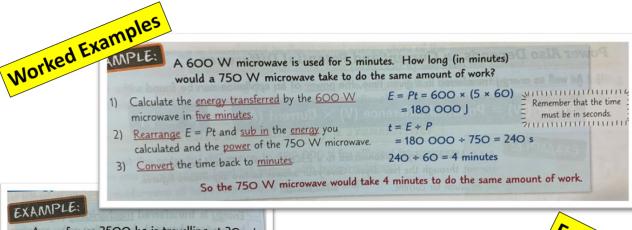
- Flash cards
- · Family and friends test

GREATEST IMPACT

· Applying the knowledge to exam questions and marking them

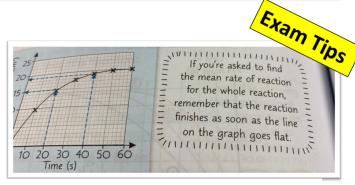


Extra Parts of a Revision Guide

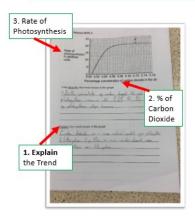


A car of mass 2500 kg is travelling at 20 m/s. Calculate the energy in its kinetic energy store.

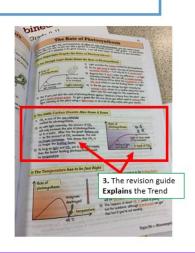
 $E_{L} = \frac{1}{2} \times 2500 \times 20^{2} = 500 000 \text{ J}$



Stuck on an Exam Question???







Useful Programmes & Apps

There are many useful apps and programmes out there, sometimes it can be a little overwhelming trying to decide which ones to use.

Flashcards and Revision:

Physics & Maths Tutor is a fantastic **free** resource that gives access to lots of revision resources including past papers and mark schemes, we highly recommend this site.

Anki App is a cross-platform mobile and desktop flashcard app. Study flashcards in your downtime. Make flashcards with text, sound, and images, or download pre-made ones.

Flashcards+ Flashcards+ is the world's most popular flashcard app! Designed in association with Harvard University faculty and students, Flashcards+ is an optimized way to learn and retain new information. It allows you to easily create and study flashcards without the hassle of having to buy and write on actual note cards.

Gojimo: Gojimo Revision is the free app that helps you pass exams. Access practice questions for **free**. Gojimo allows you to: download quizzes for offline use, track your progress, strengths and weaknesses, check off each topic as you learn it

Mind Mapping:

Coggle: The clear way to share complex information. *Coggle* is a collaborative mindmapping tool that helps you make sense of complex things.

SimpeMind: Analyze your thoughts and structure them with SimpleMind. The unique free lay-out allows you to organize your ideas exactly how you want it. Multiple Mind Maps on one page. Horizontal, Vertical, Top-down and List Auto layout, perfect for brainstorming. Virtually unlimited page size and number of elements.

Organisers & Planners:

Exam Coutdown: Exam Countdown is a free and simple app to keep track of exam and test dates. Store all your key exam and test dates in one place, stay focused with a daily countdown, colour code your exams and tests, choose from 400 icons, share your exam or test on Facebook and Twitter, -add notes to exams and tests, basic Notifications

iStudiez Pro Legend: The best choice for any student. Simple Yet Powerful · Quick Overview of Your Daily Schedule and Tasks

Attendance

The Department for Education (DfE) published research in 2016 which found that:

- Pupils with no absence are 1.3 times more likely to achieve level 4 or above, and 3.1 times more likely to achieve level 5 or above, than pupils that missed 10-15% of all sessions
- Pupils with no absence are 2.2 times more likely to achieve 5+ GCSEs graded 9-5, including English and mathematics than pupils that missed 15-20% of KS4 lessons

There's a clear link between poor attendance and lower academic achievement

DfE research (2012) on improving attendance at school found that:

- Of pupils with **absence over 50%**, only 3% manage to achieve 5 or more GCSEs at grades 9-5 including maths and English
- 73% of pupils who have over 95% attendance achieve 5 or more GCSEs at grades 9-5

Pupils with persistent absence are less likely to stay in education

Advice from the National Strategies (hosted on the National Archives) says that:

- The links between attendance and achievement are strong
- Pupils with persistent absence are less likely to attain at school and stay in education after the age of 16 years

My Revision Blueprint

Do Now Healthy Habits: Do you have a revision timetable? Y/N 1. Take breaks Seek advice 2. Do you eat breakfast? Y/N 3. Do you know the topics you need to focus on in each subject? Y/N Meet friends Eat well 4. Do you get 8 hours sleep a night? Y/N 5. Can you name at least 3 revision techniques? Y/N Exercise Sleep 6. Do you have your devices when you go to bed? Y/N My Revision Duties My TOP 5 plan... \underline{D} = DRINK 2 litres of water a day 1. <u>U</u> = UNPLUG turn off devices when revising 2. \underline{T} = TIMETABLE make and stick to your revision plan 3. I = INTERESTING switch between revision strategies 4. \underline{E} = EAT breakfast and 5 portions of fruit & veg a day 5. <u>S</u> = SLEEP get your 8 hours of sleep a night, MINIMUM Questions I need to ask / help I need to seek:

Sunday	Satu	8-9	7-8	6-7	5-6		
day	Saturday					Monday	Morni ng
						Tuesday	School Day
						Wednesday	After School
						Thursday	
						Friday	Additional

PHYSICS CHEMISTRY BIOLOGY PAPER 1: TOPIC TOPIC TOPIC **Subject Content Focus PHYSICS CHEMISTRY** BIOLOGY PAPER 2: TOPIC TOPIC TOPIC

Topics and Assessments

AQA - Combined Science GCSE Trilogy (8464)

The specification can be found here: http://filestore.aqa.org.uk/resources/science/specifications/AQA-8464-SP-2016.PDF

This documents explains how AQA writes the question papers

http://filestore.aqa.org.uk/resources/science/AQA-GCSE-SCIENCE-QUESTIONS-CLEAR.PDF http://filestore.aqa.org.uk/resources/science/AQA-GCSE-SCIENCE-EXAMS-EXPLAINED.PDF

There are **six papers** in total and this will gain you 2 GCSEs for the combined Science:

2 for biology, 2 for chemistry and 2 for physics these will all be taken at the **end of Year 11** in the Summer exams.

Each paper is 1hr 15mins – 70 marks (16.7% of the GCSE)

Biology Topics

Paper 1 – topics 1-4	Paper 2 – topics 5-7
Cell biology	Homeostasis and response
Organisation	Inheritance
Infection and response	Variation & evolution
Bioenergetics	Ecology

Chemistry Topics

Paper 1 – topics 8-12	Paper 2- topics 13-17
Atomic structure and the periodic table	The rate and extent of chemical change
Bonding, structure & properties of matter	Organic chemistry
Quantitative chemistry	Chemical analysis
Chemical changes	Chemistry of the atmosphere
Energy changes	Using resources

Physics Topics

Paper 1 – topics 18-21	Paper 2 – topics 22-24
Energy	Forces
Electricity	Waves
Particle model of matter	Magnetism
Atomic structure.	Electromagnetism