

# Year 11 Science revision

# Key information

Exam board for science- Edexcel

Students are either completing separate science ([Link to specification](#)) or combined science ([Link to specification](#))

Separate Science- Students gain 3 GCSEs in Biology, Chemistry and Physics. The individual grades are not connected.

Combined Science- Combined Science a mixture of Biology, Chemistry and Physics worth 2 GCSEs (results averaged and within one grade of each other e.g. 5/5, 7/6, 3/2).

# Which course is my child on?

Students can clarify with their teacher if they are not sure:

<b>Class</b>	<b>Teachers</b>	<b>Course</b>
11TW1	Dr Sharpe, Mr Todd	Separate Science Higher
11TW2	Mrs Davies, Mr Dodds	Separate Science Higher
11TW3	Mrs Davies, Mr Dodds	Separate Science Foundation
11TW4	Mrs Graham, Mr Pattinson	Combined Science Foundation
11TW5	Miss Cowie, Dr Sharpe	Combined Science Foundation
11TW6	Mr Riley, Mr Todd	Combined Science Foundation
11TW7	Miss Anderson, Mr Welsh	Combined Science Foundation

# How are students assessed?

- Combined science: ***6 full exams each one 70 minutes long.***
- 3 exams for “paper 1” covering first sections of Biology, Chemistry and Physics in June 2021.
- 3 Exams for “paper 2” covering second sections of Biology, Chemistry and Physics in June 2021.
- Separate science: As above but each exam is ***1 hour 45 minutes long!***

# Assessment objectives

- AO1: 40% of content on the paper
- Demonstrate knowledge and understanding- this is knowing facts and being able to recall them. This allows students to achieve grades 1-3.
- AO2: 40% of content on the paper
- Apply knowledge and understanding- this is applying knowledge to new situations This allows students to achieve grades 5-6.
- AO3: 20% of content on the paper
- Analyse information and ideas. Interpret experimental data and write scientific methods. Required practicals. Grades 7+.

# Revision

Revision is essential for success. But it isn't easy. All of us learn in different ways. Students need to figure out the best way for them to revise and should use multiple strategies. The more and different ways which students process, retrieve and practice information the better they will understand it and be able to recall it.

Synthesis, or changing information, means you have to think about information, understand it and are able to put it in a different form.

Doing this means you not only fire off more neurons in your brain creating new pathways and memories you can use, you also reinforce the original memory.

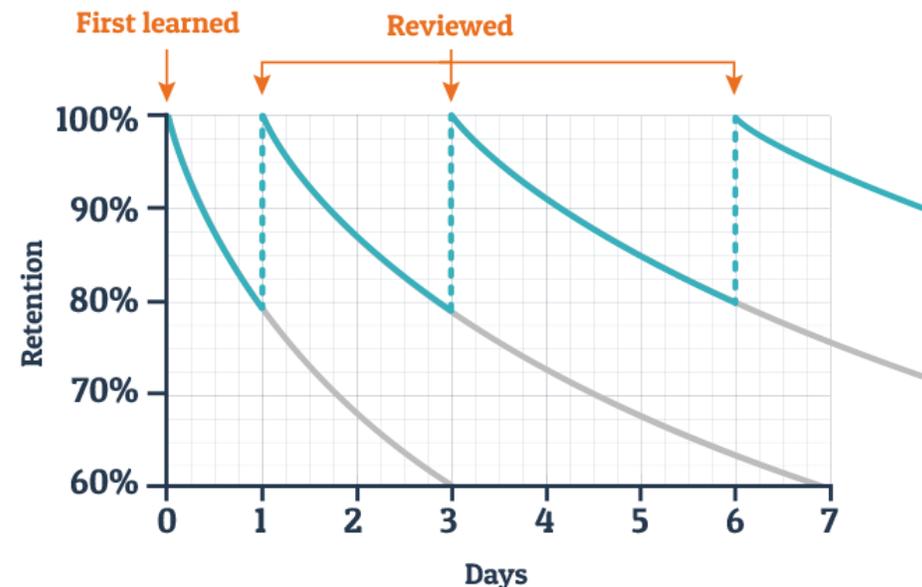


# Revision strategies

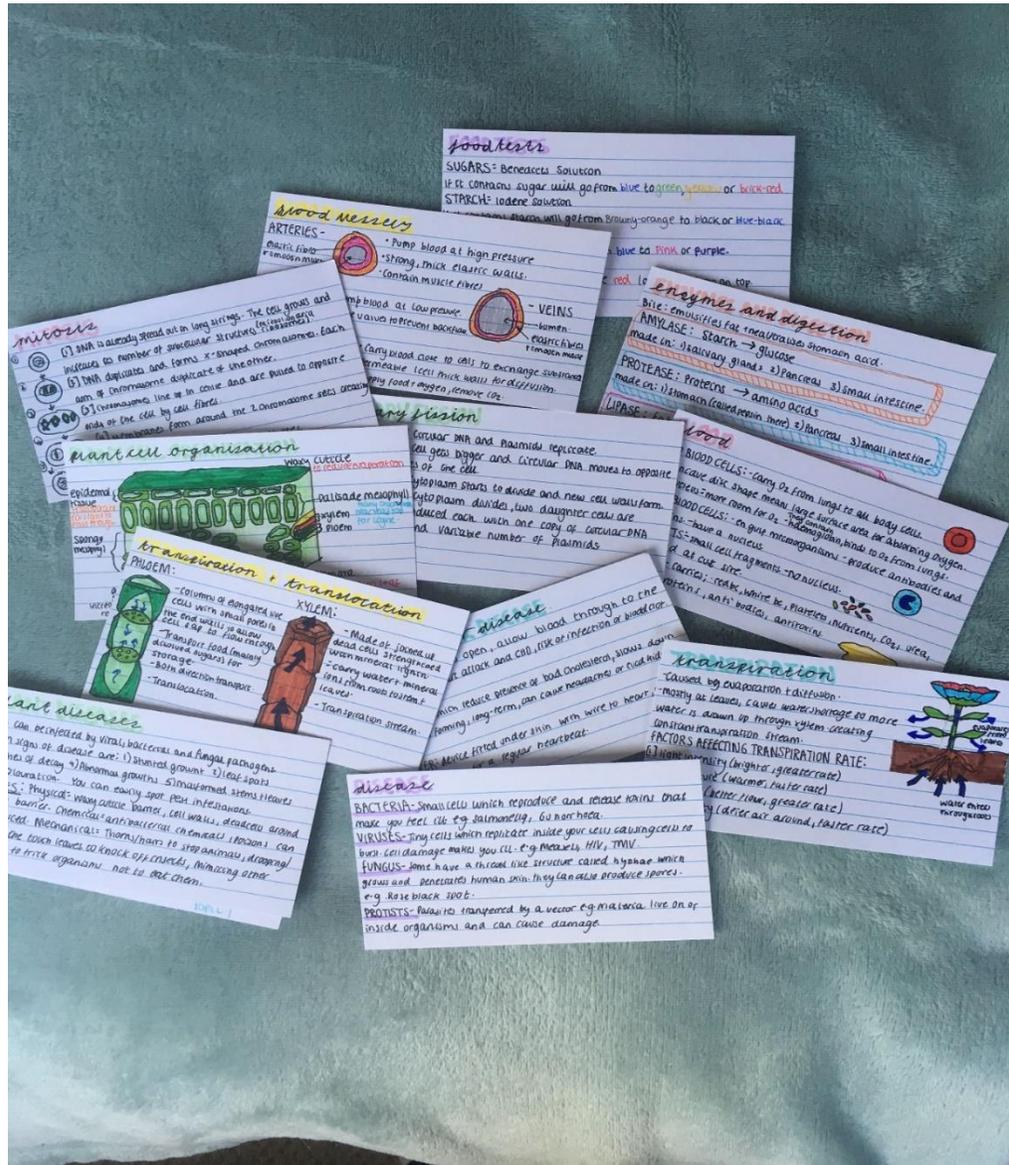
Revision strategies are personal to each individual- flash cards/ quizzes/ mind maps/ videos. So many different tools. But for revision to be successful it must be active- not just reading information and it needs to be repeated.

Making revision notes and then reviewing or quizzing them at spaced intervals e.g. After 1 day, after 3 days and then after 6 days has a great impact on memory and increases the amount of information which is remembered.

**Typical Forgetting Curve for Newly Learned Information**



# Flash cards



Get some small pieces of card or paper (approx A6 or 7 size).

Read the information you want to revise and then summarise it on to the front of one of your cards.

You can put a question on as well if you like.

Use colour and don't just copy the information. The more effort you put in the more you'll remember.

Once you have made a few of these you can then study them and then pass them on to someone and get them to ask you questions about each card. This helps your parents, friends, siblings feel like they are helping you.

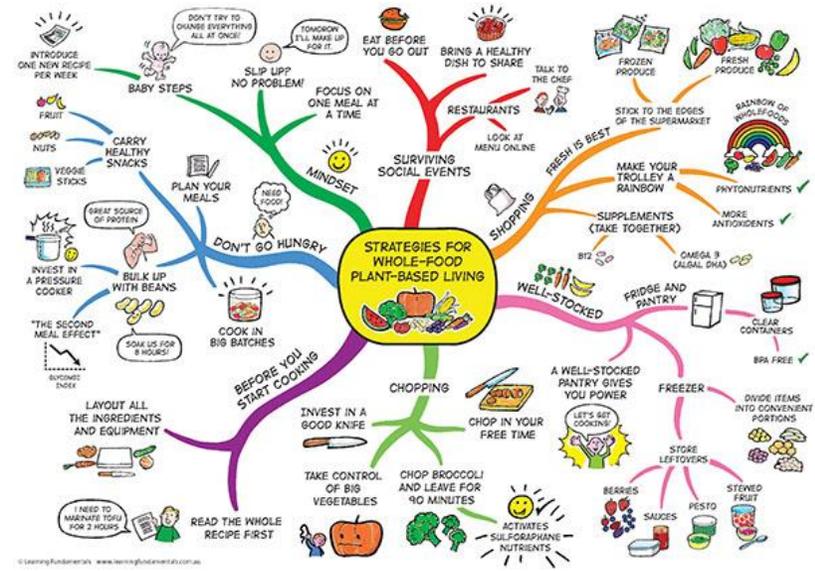
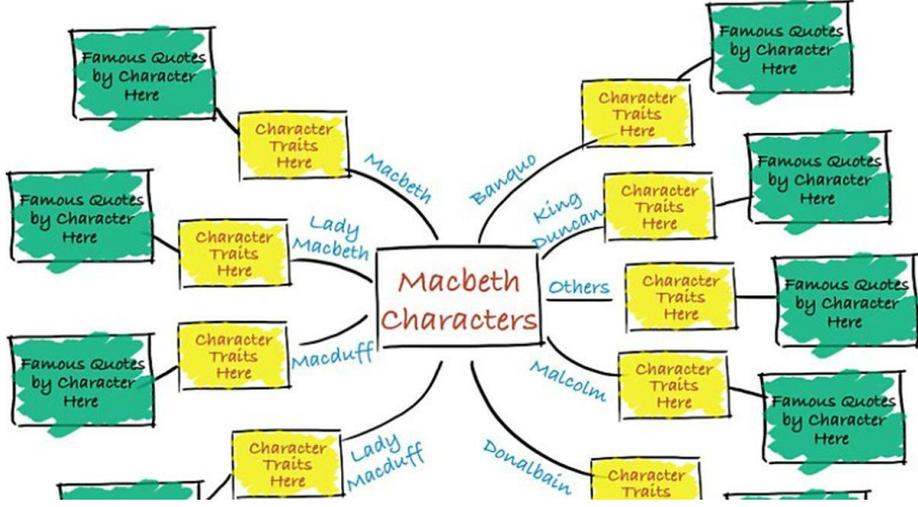
# Mind maps

You'll need some A4 or A3 paper. The bigger the better.

In the middle put your title and then start radiating out with key information about the title. You want between 4-10 lines.

Then break down each part of the key information in further lines. This makes you think about the topic in detail.

You can then take different colours and link different topics. This is really high level thinking as you are considering and evaluating why different topics may be linked. Write the link on each line.



# Physics formulae- Flash cards may be useful for learning these!

$$P = V \times I.$$

Power = Voltage x Current.

$$V = I \times R.$$

Voltage = Current x Resistance.

$$Q = I \times t.$$

Charge = Current x time.

$$E = V \times Q.$$

Energy = Voltage x Charge.

$$E = V \times I \times t.$$

Energy = Voltage x Current x time.

$$\frac{V_P}{V_S} = \frac{N_P}{N_S}$$

$$\frac{\text{Voltage across primary coil}}{\text{Voltage across secondary coil}} = \frac{\text{Number of turns on primary coil}}{\text{Number of turns on secondary coil}}$$

$$\text{GPE} = mgh.$$

Gravitational Potential Energy = mass x gravity x height.

$$\text{KE} = \frac{1}{2}mv^2.$$

Kinetic Energy = 0.5 x mass x velocity<sup>2</sup>.

$$W = F \times d.$$

Work done = Force x distance.

$$W = E.$$

Work done = Energy transferred.

$$s = d \div t.$$

speed = distance ÷ time.

$$a = (v-u) \div t.$$

acceleration = change in velocity ÷ time.

$$F = m \times a.$$

Force = mass x acceleration.

$$w = m \times g.$$

weight = mass x gravity.

$$p = F \div a.$$

pressure = Force ÷ area.

$$p = m \times v.$$

momentum = mass x velocity.

$$F = (mv - mu) \div t. \quad \text{Force} = \text{change in momentum} \div \text{time taken for the change.}$$

$$d = m \div v.$$

density = mass ÷ volume.

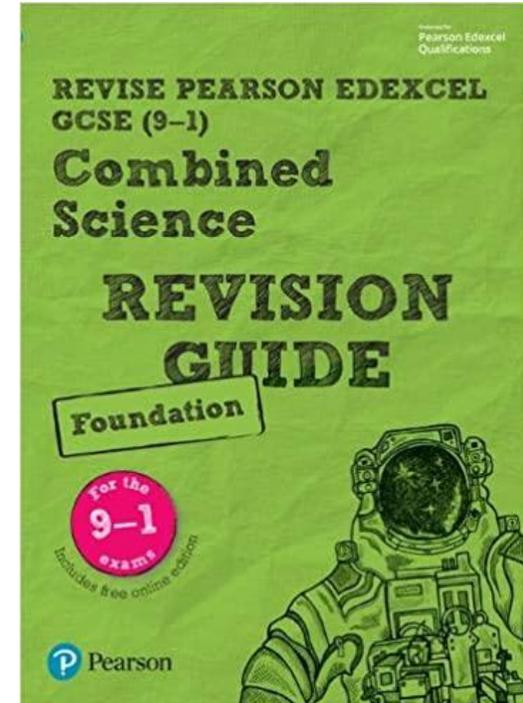
$$v = f \times \lambda. \quad \text{wave speed} = \text{frequency} \times \text{wavelength.}$$

# Useful resources

All students have been issued with a free revision guide for the course. This is theirs to keep and does not need to be returned. If they would like to highlight/ write in it that is absolutely fine and in fact encouraged!

Students complete “Take 5” at the beginning of every lesson. This is a retention and retrieval exercise to help them recall information which they have learnt previously.

Science homework every week is revision. Students complete an “end of topic test” for each topic each week. They can use their revision guide and GCSEpod to help them.



# Useful resources- GCSEpod

GCSEpod is a great tool for science. There are lots of short videos and then multiple choice questions which you can sit.

LINK

One great resource for this is “Check and Challenge”.

This allows you to answer multiple choice questions and then directs you to the GCSEpods which you need to watch to review that content.

Your child has received a document giving them a breakdown of the topics and a link to the website to review the topics.

Any issues with logins/ passwords please contact school to get this sorted.



# Useful resources

BBC bitesize- [BBC bitesize combined science](#), [Separate science](#) .

You can make a free account and personalise it with your subjects (not just science) and exam boards and it will automatically record your progress identifying areas you understand well and areas to improve.

Other resources which may be of use are:

[Seneca Learning](#)

[Oak Academy](#) lots of lessons and resources available here!

[Save my exams!](#) Free account can be made. Lots of past paper questions available.

# So what can parents/ carers do to help?

- Talk about science! The more topics in the newspaper, news, magazines, TV, radio are discussed the more links can be made to the topics being studied. You don't need to be an expert! The talking helps students to make links and reinforces knowledge.
- Make sure they study with you in the same room. Preferably without earphones in (either of you).
- Support staff with homework/ revision for assessments. Have you ever checked Show my Homework? Did you know you could?
- Know when assessments are and how your child has performed against their target.

# To do

- Students should make a revision timetable showing which subjects, when and for how long. Revision shouldn't be a last minute thing, it should be started NOW! 30 mins per night (spread across all subjects not just science), increasing this time after Christmas to 1 hour per night.
- BBC bitesize has videos explaining how to set up a revision timetable and also templates which may be of use. [BBC bitesize revision tools](#).



**Revision Timetable**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
07:00							
08:00							
09:00							
10:00							
11:00							
12:00							
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23:00							

SchoolStickers

These are strange times but there are plenty of opportunities.

- These exams are hard! There's a lot for students to learn.
- STEM subjects are valued by all employers.
- Approximately 20,000 science vacancies in the North East next year rising to over 40,000 in the next 3 years.
- Bursaries, apprenticeships, college and university places supported for many STEM subjects.