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Guidance for tutors

The following slides are to be spread across two tutor times. We have left this as one continuous presentation as we anticipate that each tutor group will move at different speeds - you can move through the tasks as you see fit.

The purpose of the sessions is to:

1) Ensure students understand how to create a revision timetable
2) Give students some basic revision strategies that they can then use.

Each student has a small revision pack containing, highlighter, a pen, a good luck card, some flash cards and a blank revision card template.

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Year 10
Revision skills

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Mock exams

- Subjects have given you topic lists of what will be covered
- Your books are good sources of information
- Use Carousel and Sparx to help
- Try Practice Questions from exam papers
- Build your revision timetable
- Chunk your revision over weeks - don’t cram it just before (it won’t go in)

How to revise: Biology

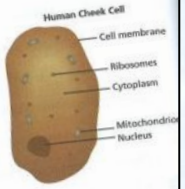
Cell Structure

You must be able to:
- Describe the structure of a typical animal cell
- Describe how a plant cell differs from an animal cell
- Recall the main differences between prokaryotic and eukaryotic cells
- Describe the structure of a typical bacterial cell.

Typical Animal Cell

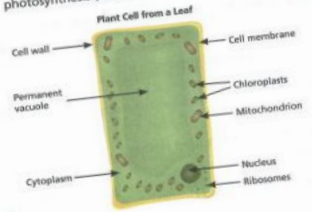
All cells have structures inside them – these are called **sub-cellular structures**.

In an animal cell, the sub-cellular structures include:
- a **nucleus**, which controls the activities of the cell and contains the genetic material
- **cytoplasm**, in which most of the chemical reactions take place
- a **cell membrane**, which controls the passage of substances into and out of the cell
- **mitochondria**, where aerobic respiration takes place
- **ribosomes**, where proteins are synthesised (made).



Plant Cells

- Plant cells and algal cells contain all the sub-cellular structures found in animal cells.
- They also have:
  - a **cell wall** made of **cellulose**, which strengthens the cell
  - a permanent **vacuole** filled with cell sap, which supports the plant.
- Plants need to make their own food, so some of their cells contain chloroplasts.
- **Chloroplasts** absorb light to make food (glucose) by photosynthesis (see pages 46–47).



Key Point

Not all plant cells ha chloroplasts. For exa they are not presen in root cells becaus those cells do not any light.

Prokaryotic and Eukaryotic Cells

Revise

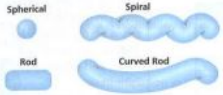
- There are two main types of cell:
  - **prokaryotic**
  - **eukaryotic**.
- Plant, animal and fungal cells are all eukaryotic.
- Bacterial cells are prokaryotic.
- There are a number of differences between the two types of cell.
- Prokaryotic cells are much smaller in size and:
  - the genetic material is not enclosed in a nucleus
  - the genetic material is a single DNA loop and there may be one or more small rings of DNA, called **plasmids**
  - they do not contain mitochondria or chloroplasts.

Key Point

Prokaryotic cells are much simpler in structure than eukaryotic cells. That is why scientists think that they developed before eukaryotic cells.

A Typical Bacterial Cell

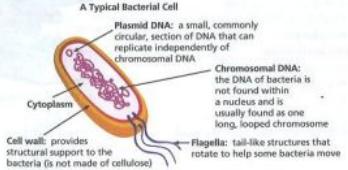
- Bacterial cells have many different shapes – some are round, some are rod-shaped and some are spiral – but they are all prokaryotic cells.



- In bacterial cells, the roles of mitochondria and chloroplasts are taken over by the cytoplasm.
- There may be one or more **flagella**, which are tail-like structures that move the bacterium.
- Plasmids are present, which are loops of DNA that can be transferred from one cell to another.
- Plasmids allow bacterial cells to move genes from one cell to another.

Key Point

Plasmids have become very useful to scientists. They allow genes to be inserted into bacteria in genetic engineering (see pages 70–71).



Key Words

sub-cellular structure
nucleus
cytoplasm
cell membrane
mitochondria
ribosomes
cell wall
cellulose
vacuole
chloroplast
prokaryotic
eukaryotic
plasmid
flagella

Quick Test

1. Which sub-cellular structure controls the activities inside the cell?
2. Where are proteins made in a cell?
3. Write down **three** structures that are found in plant cells but not in animal cells.
4. What is the function of cell sap?
5. Where is DNA found in a bacterium?

Cell Biology

Investigating Cells

You must be able to:
- Use different units of measurement to describe the size of cells
- Describe the advantages of using an electron microscope to view cells
- Analyse images of cells and perform calculations involving magnification, actual size and image size.

The Size of Cells

- A typical plant cell may be about 0.1mm in diameter and an animal cell 0.02mm in diameter.
- Prokaryotic cells are smaller – often about 0.002mm long.
- To describe the size of cells and sub-cellular structures, scientists use units that have different prefixes.

Unit	Number of Units in One Metre (1m)	
centimetre (cm)	100	1×10^2
millimetre (mm)	1 000	1×10^3
micrometre (µm)	1 000 000	1×10^6
nanometre (nm)	1 000 000 000	1×10^9

Key Point

The size of cells is often given in micrometres, e.g. a plant cell may be 100µm, an animal cell 20µm and a bacterium 2µm in size.

Using Microscopes to Look at Cells

- It is not possible to see cells as separate objects using the naked eye.
- The ability to see two or more objects as separate objects is called **resolution**.
- The light microscope was developed in the late 16th century and gave a greater resolution than the human eye.
- It allowed scientists to see plant, animal and bacterial cells.
- Some sub-cellular structures are even smaller than the resolution achieved by a light microscope and cannot be seen using this method.
- In 1933, scientists first used an **electron microscope**.
- An electron microscope passes electrons, rather than light, through the specimen and can give much better resolution.
- Cells can be seen in much finer detail, e.g.
  - the structures inside mitochondria and chloroplasts can be studied and this has helped scientists to find out how they work
  - ribosomes can be seen and their role in making proteins can be studied.

A Light Microscope

An Electron Microscope

REQUIRED PRACTICAL

Use a light microscope to observe, draw and label a selection of plant and animal cells.

Sample Method
1. Place a tissue sample on a microscope slide.
2. Add a few drops of a suitable stain.
3. Lower a coverslip onto the tissue.
4. Place the slide on the microscope stage and focus on the cells using low power.
5. Change to high power and refocus.
6. Draw any types of cells that can be seen.
7. Add a scale line to the diagram.

Considerations, Mistakes and Errors
- The scale line can be added by focusing on the millimetre divisions of a ruler.

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How much can you remember?

You have 2 minutes to read through the information provided.

Now, turn the pages over the try and write down as much as you can remember in 2 minutes.

Now check - what did you get right/wrong? How much did you miss out? Why did this happen?

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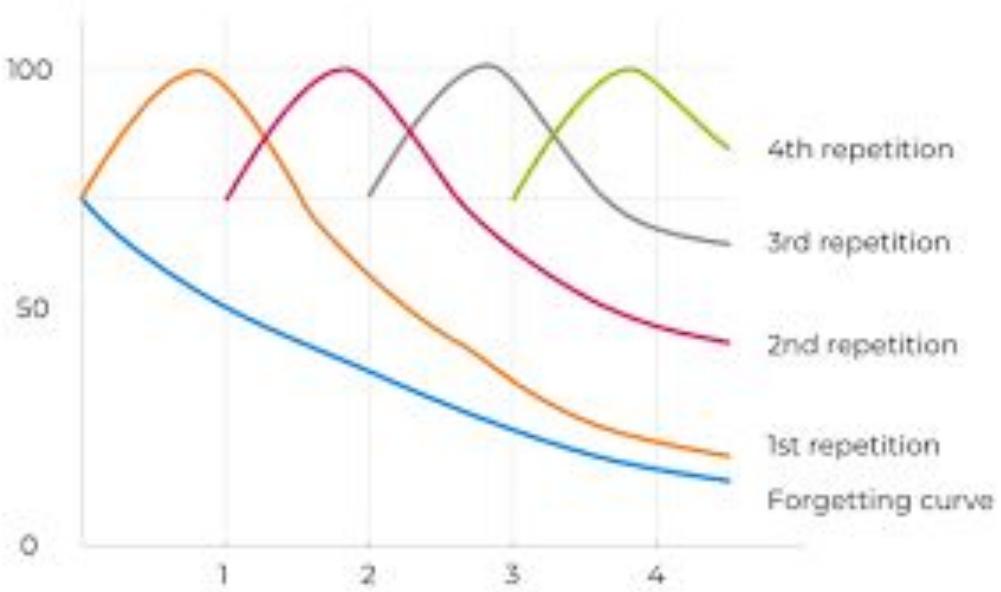
The forgetting curve



If you revise something once, you will forget most of the content. It's important to chunk your time and revise the same content over and over again.

Building a revision timetable

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Year 10 all in Sports Hall & Gym	**Stoke Damerel Community College June 2026 Mock Exams**	Year 12 all in Conf Room

A WEEK	9:00	11:35	13:15
Monday 15th June	Media - **VA6 (No Invigilator)**		
	LIVE EXAMS		
Tuesday 16th June	English Literature 1hr 45mins		Hospitality & Catering 1hr 20mins
	LIVE EXAM	History P1 1hr 30mins	Chemistry P1 1hr 30mins
Wednesday 17th June	Maths P1 1hr 30mins	French & Spanish Listening FT - 45mins HT - 1hr	Computer Science P1 1hr 30mins
	LIVE EXAM		English Lit Paper 1 2hrs
Thursday 18th June	Science Biology 1hr 15mins Separate Biology 1hr 45mins	French & Spanish Reading FT - 45mins HT - 1hr - **12:00**	**SPORTS HALL TAKEN DOWN**
	Biology P1 1hr 30mins Film Studies Comp 2 1hr 30mins		**LIVE EXAM**
Friday 19th June	**SPORTS HALL SET UP**	Business 1hr 45mins	
	English Lit Paper 2 1hr 50mins	Further Maths Decision 50mins	

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Your exam timetable

Starting next week (half term) a suggested timetable to cover the first week of exams

	Subject 1 30 mins	Subject 2 30 mins	Subject 3 30 mins
Monday	English Lit quotes	Biology	Option subject 1
Tuesday	English Lit	Biology	Option subject 1
Wednesday	**REST DAY**		
Thursday	Biology	Option subject 1	Option subject 2
Friday	**REST DAY**		
Saturday	English Lit	Chemistry	Option Subject 2
Sunday	**REST DAY**		

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Your turn

Have a go at constructing your own week 1 timetable. Add in your own rest days.

	Subject 1 - 30 mins	Subject 2 - 30 mins	Subject 3 - 30 mins
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

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Mind map

Watch this short video (3 mins) which details how to lay out a mind map.

You can choose your own design and colours that work for you.

Have a go at reducing the information about cells onto a mind map.

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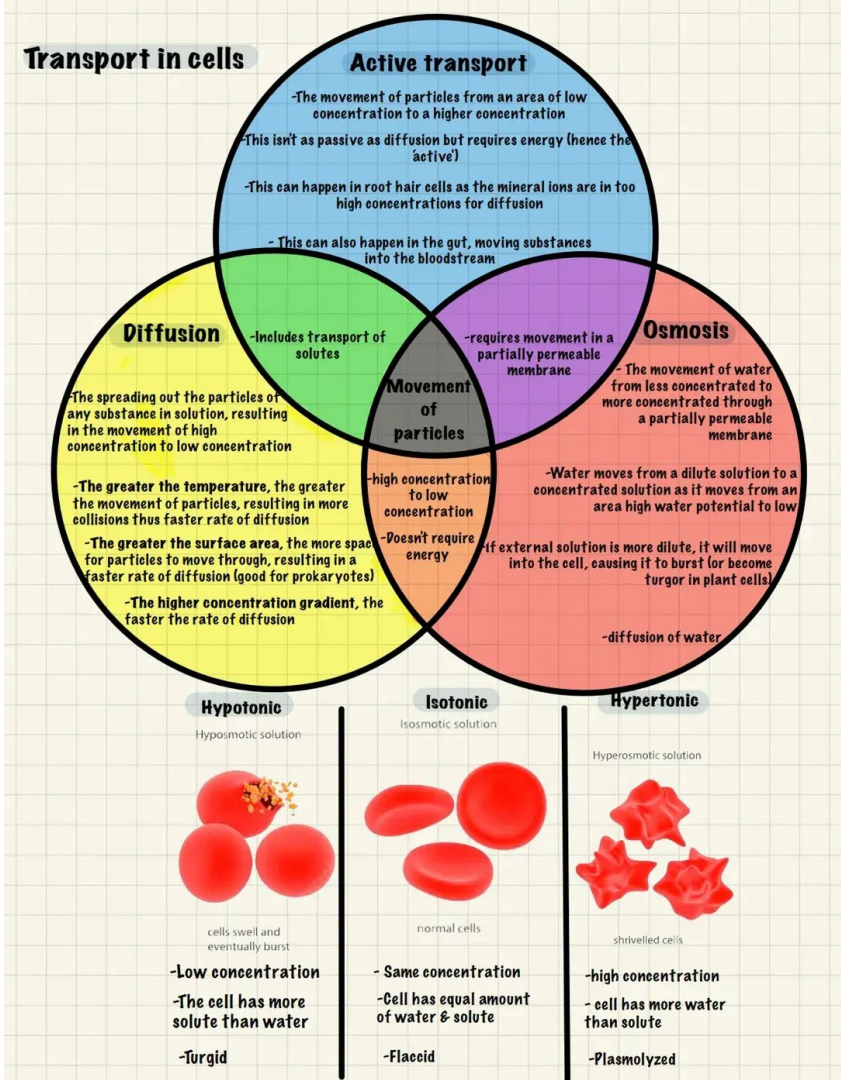
Venn diagram

The venn diagram helps when comparing similarities and difference between items.

Draw two (or more) large overlapping circles.

Check out this example that looks at transport in cells.



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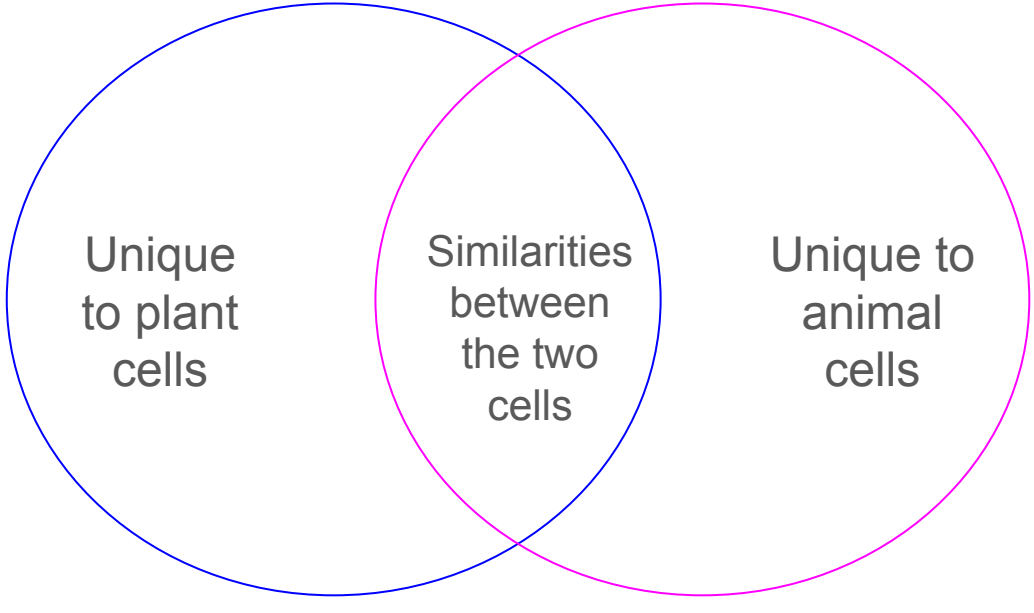
Breaking it down!

In this example, we're comparing plant and animal cells

Draw two large overlapping circles.



Use the information on the sheets to complete the venn diagram.

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Flash cards

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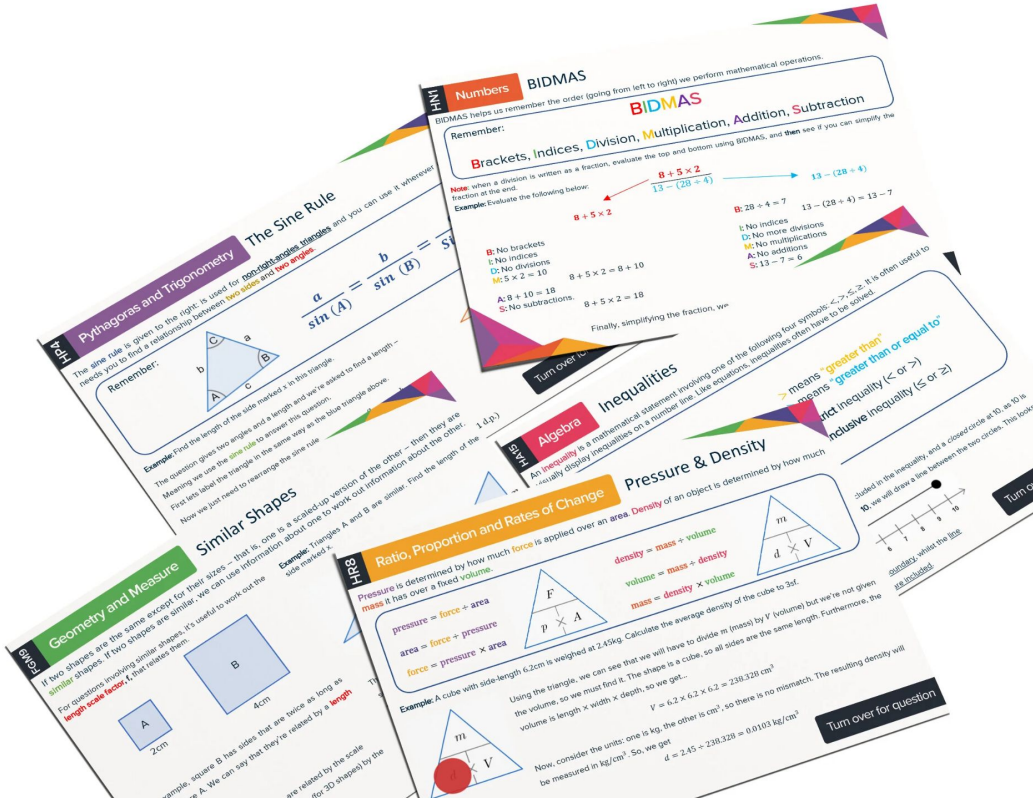
Use flashcards to help organise key facts that you need to remember.

You can put a question on one side and an answer on the other;
Or a topic on one side with the key information.



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Flash cards

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Use these to test yourself - or ask someone else to test you.

Check out this advice from BBC Bitesize

Using the information on the sheets provided and your flashcards, create 5 cards to test your knowledge.

HOW TO MAKE A GOOD FLASH CARD 🤔

- ✅ Two-sided flashcards are good; one side for the title and the other for the content.
- ✅ Try to include between five and ten points on each card.
- ✅ Keep them colourful! You could highlight or underline key words, use images, doodles, photos and even colour code cards for each subject.
- ✅ CAPITAL letters are encouraged as these take slightly longer to write and can aid memory.
- ✅ Create from memory, and then check it's correct and add to the detail by using your exercise book, textbook and revision guide.

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The Fenman “Teach it” technique

The idea of this technique is around teaching someone else.

It states that if you are unable to teach some of the basic knowledge, then you won’t have mastered the more technical elements of the content.

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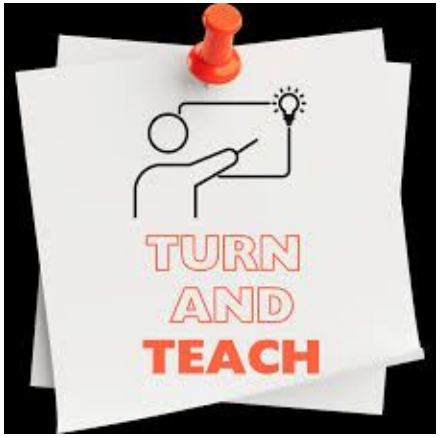
The Fenman “Teach it” technique

Prepare to teach your partner the basics between plant and animal cells. You must include the functions of at least 3 sub-cellular structures.
You have 4 minutes to prepare.



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Good luck!

Whilst some anxiety around exams is normal, we are always here to help, so don't be afraid to ask.