

At Kingsdown  
our vision is to  
become “*a school  
of excellence,  
bursting with  
pride and ambition*”.



We champion each and every student

<https://www.youtube.com/watch?v=dQa3kdH10IE>

# What employers see from your Science GCSE...

**Evaluative skills**

**Analytical skills**

**Study skills**

**Practical skills**

**Numeracy skills**

**Literacy skills**

# Welcome

Purpose of this evening:

- To outline and explain the resources that have been provided for your child to support them.
- To model strategies of successful revision for Science using these resources.
- To explain how you as a parent or guardian can further support your child at home.

# The experience of a year 11 student.

*Hard work will pay off.*

# Science

- *November mock exams completed.*
- *Personalised Learning Checklists provided for students.*
- *Analysed and identified gaps in knowledge and skills which need further development.*
- *Delivering a consolidation Scheme of Learning.*
- *Next assessment point is Monday 21<sup>st</sup> January (B1,C1,P1).*
- *Next mock exams start 11<sup>th</sup> March 2019.*
- *Real GCSE timetable in your envelope.*



**So what resources have been  
provided?**

# PLCs

- Follow each assessment.
- Highlight areas of strength and areas to develop.
- Can be found in your exercise book.

AQA Trilogy Biology 1F	
Advantages of therapeutic cloning	A
Calculate bubbles per minute	G
Calculate magnification, unit change	R
Describe how root adapted to absorb water	G
Describe how to adjust a microscope	A
Describe what double pump heart means	A
Disadvantages of therapeutic cloning	G
Explain how chd causes a heart attack	R
Explain how risk factors increase chd chances	R
Explain osmosis	R
Explain term 'non-communicable disease'	A
Explain why breathing rate changes during exercise	R
Explain why potato mass does not change	R
How control spread of gonorrhea	R
How to measure rate of photosynthesis more accurately	G
How white blood cells defend against pathogens	R



# Knowledge Organisers

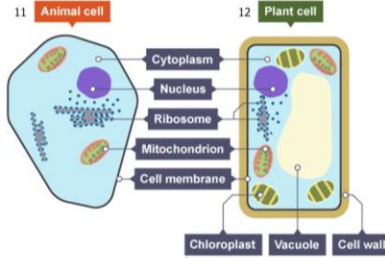
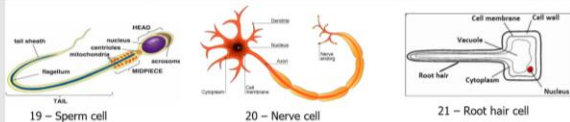
## Biology 1a: Cell Biology

### Section 1: Cell Structure

Cell Structure	Function	Animal Cells	Plant Cells	Prokaryotic Bacterial Cells
1 Nucleus	Contains <b>genetic information</b> that controls the functions of the cell.	Y	Y	
2 Cell membrane	Controls what <b>enters and leaves</b> the cell.	Y	Y	Y
3 Cytoplasm	Where many <b>cell activities</b> and <b>chemical reactions</b> within the cell occur.	Y	Y	Y
4 Mitochondria	Provides <b>energy</b> from <b>aerobic respiration</b> .	Y	Y	
5 Ribosome	<b>Synthesises</b> (makes) <b>proteins</b> .	Y	Y	Y
6 Chloroplast	Where <b>photosynthesis</b> occurs.		Y	
7 Permanent vacuole	Used to <b>store</b> water and other chemicals as <b>cell sap</b> .		Y	
8 Cell wall	<b>Strengthens</b> and <b>supports</b> the cell. (Made of <b>cellulose</b> in plants.)		Y	Y
9 DNA loop	A loop of <b>DNA</b> , not enclosed within a nucleus.			Y
10 Plasmid	A <b>small circle of DNA</b> , may contain <b>genes</b> associated with antibiotic resistance.			Y

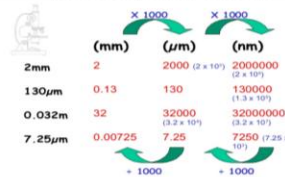
### Section 2: Specialised Cells

Specialised Cell	How structure relates to function
13 Sperm cell	<b>Acrosome</b> contains <b>enzyme</b> to break into egg; <b>tail</b> to swim; many <b>mitochondria</b> to provide <b>energy</b> to swim.
14 Nerve cell	<b>Long</b> to <b>transmit electrical impulses</b> over a distance.
15 Muscle cell	Contain <b>protein fibres</b> that can <b>contract</b> when energy is available, making the cells shorter.
16 Root hair cell	Long extension to <b>increase surface area</b> for water and mineral uptake; <b>thin cell wall</b> .
17 Xylem cell	<b>Waterproofed</b> cell wall; cells are <b>hollow</b> to allow water to move through.
18 Phloem cell	Some cells have lots of <b>mitochondria</b> for <b>active transport</b> ; some cells have very little cytoplasm for sugars to move through easily.



### Section 3: Microscopy

22 Magnification	The degree by which an object is <b>enlarged</b> . <b>Magnification</b> = $\frac{\text{size of image}}{\text{size of real object}}$
23 Resolution	The ability of a microscope to <b>distinguish detail</b> .
24 Light microscope	Basic microscope with a maximum magnification of 1500x. <b>Low resolution</b> .
25 Electron microscope	Microscope with a much <b>higher magnification</b> (up to 500 000x) and resolving power than a light microscope. This means that it can be used to study cells in much finer detail.



- Summarise all of the facts that your child needs to remember.
- More condensed than a revision guide.

School website:

Quick Links

Year 11 Revision & Exams Portal

## We champion each and every student



- Separate scientists.
- More content covered.

# Knowledge Organisers

**Aim:** Use a light microscope to observe, draw and label a selection of plant and animal cells

**Diagram:**

Fig. 6. Part of sample to be observed upon a slide with two drops of water and cover with a coverslip.

**Results (Calculations)**

magnification =  $\frac{\text{size of image}}{\text{size of real object}}$

Eyepiece Magnification	Objective Magnification	Overall Magnification
X10	X4	40
X10	X10	100
X10	X40	400
X10	X100	1000

**Method**

- Peel off a thin layer of epidermal tissue from the inner surface of the onion.
- Put two drops of iodine solution onto the onion cell before carefully using forceps to lower a cover slip onto the slide and then the microscope stage.
- The objective lens needs to almost touch the slide. Turn the coarse adjustment knob whilst looking from the side (not through the eyepiece) when doing this.
- Looking through the eyepiece, turn the coarse adjustment knob to increase the distance between the objective lens and the slide until the cells come into focus.
- Slightly rotate the fine adjustment knob to bring the cells into a clear focus and use the (high-power objective) to look at the cells.
- Make a clear, labelled drawing of the cells. Make sure that all components of the cell are labelled. Write the magnification underneath your drawing.

**Conclusions (Biological Drawings):**

Human Epithelial Cell

- ✓ State and draw upper right corner
- ✓ Underlined title
- ✓ neat columns on the right
- ✓ straight horizontal lines
- ✓ vertical labels
- ✓ Drawing neat, large, pencil only, single dark lines
- ✓ Total Magnification (lower right corner)

**Keywords and extra information:**

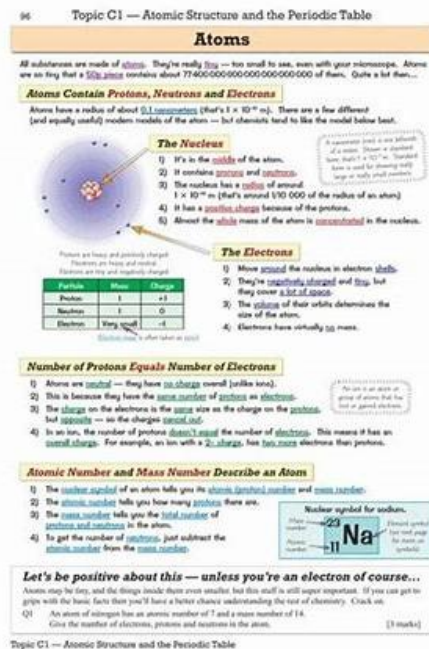
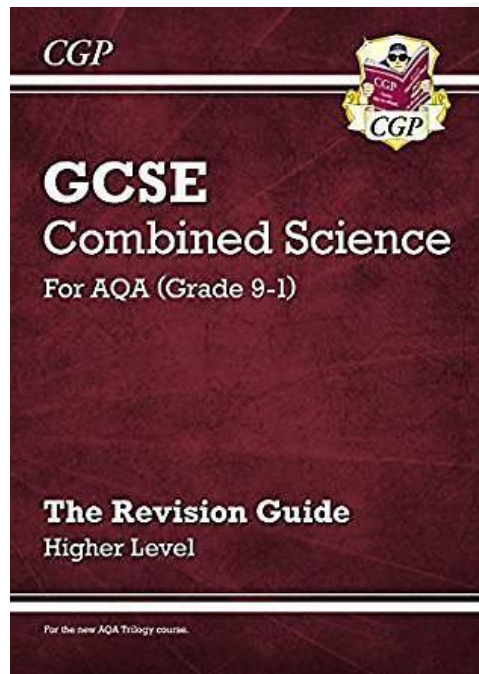
Actual size =  $\frac{\text{Image size}}{\text{Magnification}}$

Magnification =  $\frac{\text{Image size}}{\text{Actual size}}$

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A M

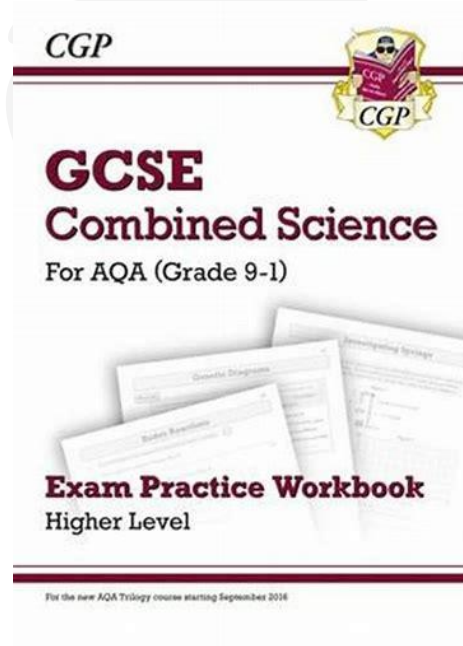
- Required practicals
- Method, results and explanations.
- Separate scientists have more required practicals than the combined scientists.

# Revision Guide



- Summarises the key facts from the course.
- An additional tool to aid understanding.

# Work book



- Questions to apply the facts to.
- Questions link directly to the revision guide.
- Useful to aid revision.
- An expectation for set home work.

# gcsepod

The screenshot shows the gcsepod website interface. At the top, there is a navigation bar with links: Dashboard, Teacher Area, Pods, My Courses, Assignments, My Playlists, My Downloads, Publishing Guide, and What's New. A 'LOGOUT' button and a search icon are also present. Below the navigation bar, a red banner displays 'POD GAMES' and 'COMPETITION: REGIONAL (NOV TO FEB)'. The main content area is titled 'PLAYLISTS/ AQA: BIOLOGY: PAPER 1 (FOUNDATION)'. On the left, a large graphic features a green circle with the text 'Going against the concentration gradient' and a grey circle with the text 'Diffusion'. On the right, a list of video pods is shown under the heading 'AQA: BIOLOGY: PAPER 1 (FOUNDATION)'. The list includes sections for '4.1/Cell biology' and '4.1.1/Cell structure', each with a list of video titles and durations. A vertical sidebar on the right edge of the content area says 'GET MORE FROM GCSEPOD'.

gcsepod

Dashboard Teacher Area Pods My Courses Assignments

My Playlists My Downloads Publishing Guide What's New

LOGOUT ?

My Account

POD GAMES

COMPETITION: REGIONAL (NOV TO FEB)

PLAYLISTS/  
AQA: BIOLOGY: PAPER 1 (FOUNDATION)

GET MORE FROM GCSEPOD

AQA: BIOLOGY: PAPER 1 (FOUNDATION)

4.1/Cell biology  
Biology: 3 titles (14 Pods)

4.1.1/Cell structure 4 Pods

Bacterial Growth	00:04:28	Download	Star
Unspecialised Plant Cells	00:03:08	Download	Star
Cell Differentiation	00:03:07	Download	Star
Cell Structures and Microscopes	00:04:46	Download	Star

4.1.2/Cell division 6 Pods

The Cell Cycle	00:03:42	Download	Star
Mitosis	00:02:43	Download	Star
Stem Cells	00:05:00	Download	Star

- Online revision tool.
- Summary videos for many topics.
- Useful for aiding understanding.
- Useful for aiding memory.
- If need to reset email: [rlees@kingsdownschool.co.uk](mailto:rlees@kingsdownschool.co.uk)



# TASSOMAI

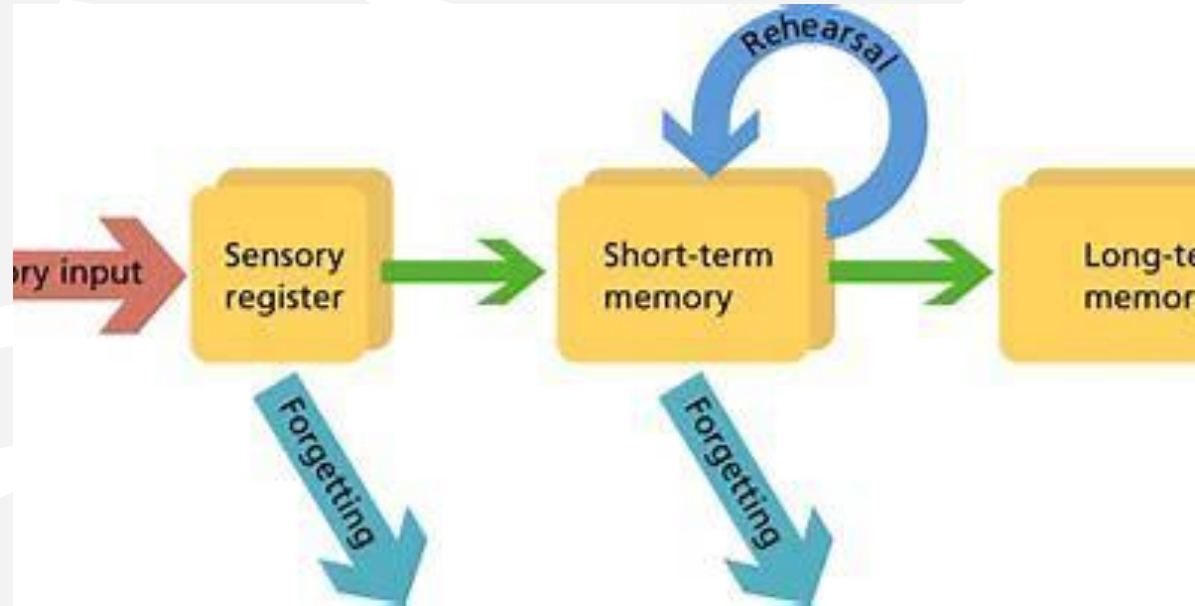
The Learning Program

- Online quizzing tool.
- Developed with the latest evidence of memory retention in mind.
- Uses low stake quizzing.
- Uses spaced learning.
- It is reactive to your child's needs.
- If need to reset email:  
[chamilton@kingsdownschool.co.uk](mailto:chamilton@kingsdownschool.co.uk)



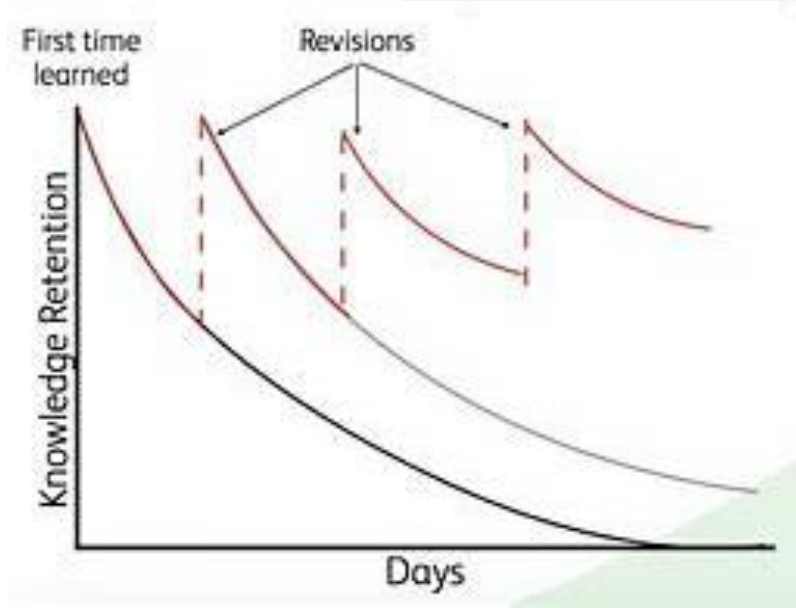
# The Theory behind memory

- We must understand the fact.
- No more than 4 facts at a time.
- Links need to be made with ideas that we already understand.
- Re-visit regularly.



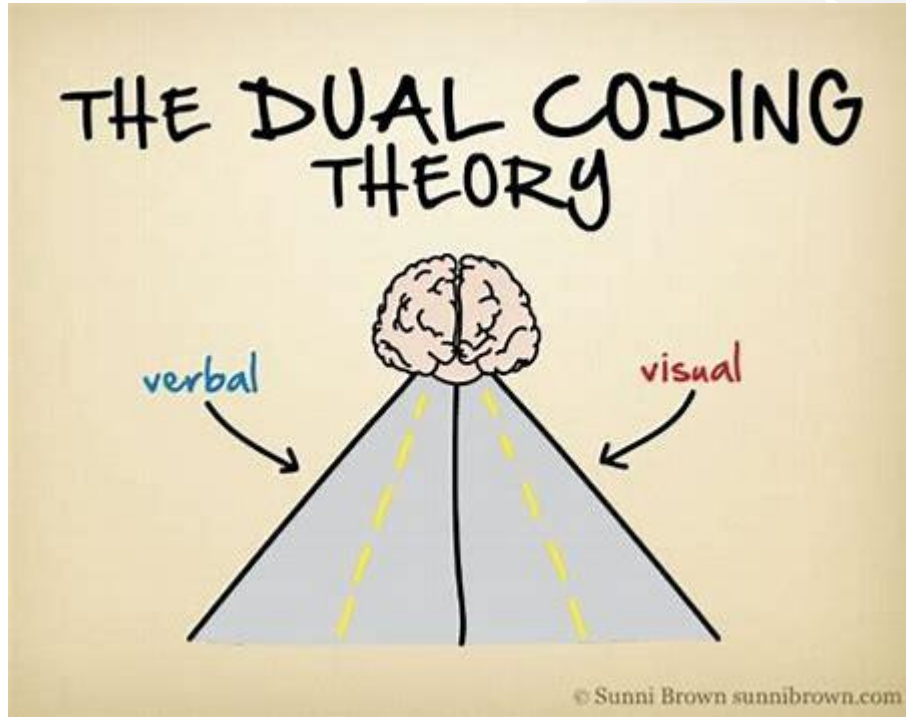


# The Forgetting Curve



- We forget 90% within one month.
- Every time we revise, our knowledge peaks again.
- AND importantly, the rate at which we forget slows down!

# Dual Coding



- Visual learning is twice as memorable.
- Verbal and non-verbal learning is additive, so most effective when we use both!

# An 8 step guide to revising Science

Uses the resources provided to the students.

Uses the theories of improving memory.

Revisit this again if you need to.

# Working at home



We champion each and every student

# Healthy Study Habits

Weekly planners to manage time effectively

Building revision into their weekly plan as well as homework & coursework

MySQA study planner



# How can you support your child's revision at home?



# How we are supporting

[dhoward@kingsdownschool.co.uk](mailto:dhoward@kingsdownschool.co.uk)

[rlees@kingsdownschool.co.uk](mailto:rlees@kingsdownschool.co.uk)

[cedwards@kingsdownschool.co.uk](mailto:cedwards@kingsdownschool.co.uk)



**Thank you for attending.**