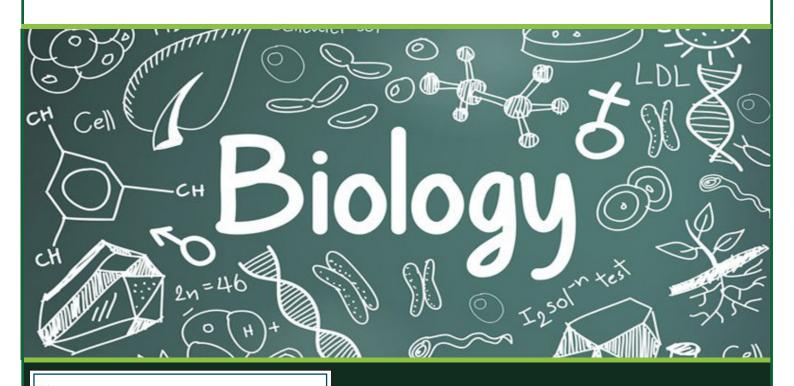


Biology Bridging Work

Year 10 into 11 for 2025/26



Tutor Group:





Year 10 into 11 Biology Bridging Work 2025



<u>Introduction</u>

Congratulations on completing Year 10 and entering the final stage of your biology journey! This bridging work will help you review and reinforce key ideas from Year 10, ensuring a supported transition into Year 11.

There are four sections to this booklet. These are:

- 1. Review each Required Practical you have covered so far in biology with an opportunity to review different aspects of individual practical work;
- 2. Exam Question Practice get into the mindset of an examiner! Practice some commonly tested exam questions in biology with top tips from our exam board, AQA.
- 3. Maths for Biology
- 4. Complete your exam analysis for your end of year exam (make sure this is in purple pen)

Together with this, there will be links to useful videos that directly link to the module/topic in case you need further support. Please also use your CGP and Kerboodle textbooks to support with your revision. Recommended Websites:

- Savemyexams
- Cognito Science
- BBC Bitesize
- AHammondBiology
- Classroom42
- Educake
- Seneca

This is the first piece of work you will be assessed in September and will set the tone for the rest of the academic year. It's an opportunity for you to showcase your knowledge, skills, and growth since Year 10. Work hard, stay focused, and demonstrate what you are capable of achieving.

Section 1: Required Practicals

Recommended Videos (remember the practical you do in school vs the one in the exam can vary):

- 1. Osmosis measuring mass change of potato discs in different solutions
 - a. Osmosis Malmesbury Education
 - b. Osmosis Free Science Lessons
- 2. Enzymes measuring time taken for amylase to digest starch
 - a. Enzymes Malmesbury Education
 - b. <u>Enzymes Free Scince Lessons</u>
- 3. Photosynthesis measuring the rate of photosynthesis in different light intensities
 - a. Photosynthesis Malmesbury Education
 - b. Photosynthesis Free Science Lessons
- 4. Distribution measuring number of plants in different areas (sunny/shaded)
 - a. Distribution Malmesbury Education
 - b. <u>Distribution Free Science Lessons</u>



For any practical activity can students answer these 10 questions?

- 1. What is the dependent variable and the independent variable?
- 2. Therefore, what other factors could affect the results and need to be controlled (control variables)?
- 3. What will I measure or record?
- 4. What would an appropriate experimental control be?
- 5. How could I improve the accuracy of my experiment/investigation?
- 6. How could I improve the precision of my experiment/investigation?
- 7. How could I improve the validity of my experiment/investigation?
- 8. What else could I do with this experiment? What could I change to investigate something else?
- 9. What is my greatest source error?
- 10. What pattern or trend do my results show and how do I explain this?

Please note because not all investigations have all these characteristics, not all of these questions can be answered for all Required Practicals.

Required Practical 3: Osmosis

A science class is investigating the effect of sugar solutions on the mass of a potato slice.

The sugar solutions are shown in Table 1:

Mass of Sugar (mg)	Volume of Water (mL)	Concentration (mg/mL)
2.5	5	0.5
4	4	1
10	5	
12	3	4
16	2	8

Table 1

1. Fill in the gap in the table.



The potato pieces were all cut to the same size, and all weighed 1 g. After 1 hour, the potato slices were weighed again and the data recorded.

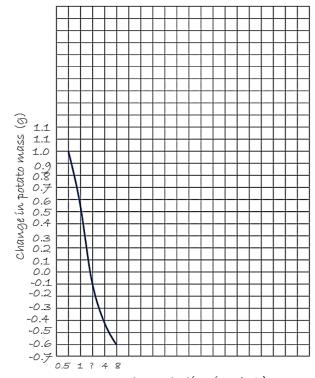
2. What other factors should be controlled during this experiment?

One student plotted the following graph to express the data.

3. How should this graph be changed to make it better?

Samantha performs the experiment again with higher concentrations of sugar in the water.

4. What observation would you expect?



Concentration (mg/mL)

Calculate the percentage decrease in the mass of the potato between 0.5 mg/mL and 1.0 mg/mL.



Required Practical 5: Enzymes

A class are testing the effect of pH on how well amylase digests starch. They test the time taken for iodine to stop changing colour.

They produce the graph in Figure 1:

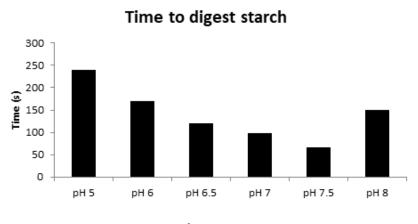


Figure 1

- 1. What group of chemicals does amylase belong to?
- 2. Explain how you can use these results to identify the optimal pH for amylase action.
- 3. How could the class speed the digestion of starch further?

Another class repeated this experiment. They performed the experiment at 42 °C.

4. What would you expect the observations to be during this experiment?

A machine called a 'colorimeter' is able to measure the exact colour of a solution.

- 5. How could a colorimeter help with this experiment?
- 6.



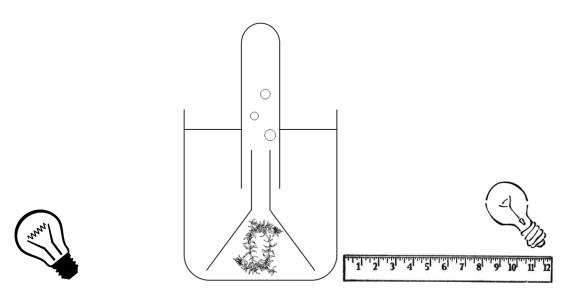
Required Practical 6: Photosynthesis

A class is investigating the effect of light on photosynthesis.

They have some pondweed beneath a tube filled with water, and a light bulb shining on the plant.

Carbon dioxide is kept constant throughout.

The set-up of their experiment is shown in Figure 1.



- 1. Which gas is represented by the bubbles in the tube?
- 2. Using the equipment above, devise an experiment to test the effect of light intensity on the rate of photosynthesis. Identify any safety precautions that should be considered.



3.	Write a hypothesis for this experiment.	
Pho	otosynthesis is also affected by temperature.	
4.	How could this experiment be adapted to test the effect of temperature photosynthesis? What safety precautions should be considered?	e on
Sec	ction 2: Exam Question Practice	
Rec	commended Video: <u>Vaccination - Cognito Science</u>	
Vac	cination can be used to prevent an illness in a person.	
Ехр	plain how a vaccination can prevent an illness.	
	_	
	·	
(4)		



Recommended Video: Reflex Arc - Cognito Science

A woman's hand accidentally touches a hot object.
The woman moves her hand away rapidly.
Describe how the woman's nervous system coordinates the reflex action.
(6)
Recommended Video: Endocrine System - Cognito Science
The endocrine system coordinates many internal functions of the body.
Give three ways coordination by the endocrine system is different from coordination by the nervous system.
1
2
3
(3)



and he have become a control the many of the de-	
scribe how hormones control the menstrual cycle.	



Section 3: Maths for Biology

21	НΔ	ND	LINC	: 174	ТА

1.	Write 25198 to three significant figures.											
		•••••	•••••				•••••				•••••	
2.	Αg	ardener gre	w some	tomato	plants.	She noted	l how m	any tomat	toes she	got from	n each plan	t:
			25	20	28	18	25	26	31	25	34	
	a)	Calculate t	he mec	ın numbe	er of tor	natoes pe	r plant.					
			***************************************							•••••		
	b) Write down the median number of tomatoes per plant.											
	c) Write down the modal number of tomatoes per plant.											
		•••••					•••••					
3.	A wildlife rescue centre kept records of the types of wild mammals that came into their care. These were their results for one week.											
	He	edgehog	He	dgehog		Fox		Hedgeho	og	Vole		Fox
	Vo	ole	Vo	le		Badger		Fox		Badg	er	Deer
	He	edgehog	He	dgehog		Vole		Badger		Vole		Hedgehog
	Fo	х	Fo	x		Hedgeho	g	Vole		Vole		Hedgehog

a) Design a frequency table for these data.

b) Display the data using a suitable chart.



2.1 HANDLING DATA (CONTINUED)

4.	There are 120 students in Year 11. The head of year wants to select six students at random to take part in a planning committee. Suggest a method she could use to choose the students randomly.									a									
							•••••	•••••		•••••		•••••							
						•••••	•••••	•••••				•••••			•••••			•••••	•••••
5.			ontains one re	d ball, two blue be	alls and fi	ive vel	low	hall	ls. Y		ick é	a bal	l out	of th	e ha		ithou		
•				robability that the						00 p	rium i			01 111		9 "			
	a)	blu	e?									•••••							
	b)	not	red?				•••••	•••••	•••••	•••••		•••••			•••••			•••••	•••••
6.			e shows the he of adults.	ights and shoe size	es of			Ш		Ш						Ш		Ш	\blacksquare
	·		Height (m)	UK shoe size	ı														▦
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			1.65	6	l					Ш							#	\blacksquare	\blacksquare
			1.80	12	1														
			1.60	5	ı														
	a)	Dro	aw a graph of	these data.															
	b)			tionship between h	-		Ш			Ш							Ш	Ш	Ш
		and	d shoe size for	this group of peop	ple.		Ш	Ш	Ш	Ш	Ш	Ш				##	##	##	
		*****			•••••		₩	Ħ			₩							\blacksquare	##
											Ш								Ш
7.			ngular field is 1 e metres (m²)?	150 m wide by 20	0 m long.	What	is th	e o	rder	of	mag	nitud	e of t	he a	rea o	of th	е ге	ctan	gle,
	•	-1																	

	•••••	••••••	••••••	•••••	•••••	•••••	******	•••••		•••••	•••••	•••••					*******		



Percentages and percentage change

- ★ 'Per cent' (%) means 'out of 100', so a percentage is a fraction with 100 as the denominator.
- * If 70 per cent of the population has a mobile phone, this means that 70 out of every 100 people have one.

Converting fractions, decimals and percentages

Here are some conversions you should try to remember if you can -- it will make life easier! They are:

fraction	decimal	percentage
1/2	0.5	50 %
1/4	0.25	25 %
1/10	0.1	10 %
1/3	0.3333	33.3 %
1/100	0.01	1 %

★ To change a fraction to a percentage, multiply it by 100.

$$\frac{2}{5}$$
 converted to a percentage is $\frac{2}{5} \times 100 = \frac{200}{5} = 40 \%$

* To change a percentage to a fraction, put 100 as the denominator, then cancel it down.

64 % expressed as a fraction is
$$\frac{64}{100} = \frac{32}{50} = \frac{16}{25}$$

★ To change a decimal to a percentage, multiply by 100 on your calculator or move the decimal point two places to the right, like this:

0.62 expressed as a percentage is 62 %

0.375 expressed as a percentage is 37.5 %

* To change a percentage to a decimal, <u>divide by 100 on your calculator or move the decimal point two places to the left</u>, like this:

73.5 % expressed as a decimal is 0.735

60 % expressed as a decimal is 0.60, or just 0.6

5 % expressed as a decimal is 0.05 – be careful with this one

Finding a percentage of an amount

A percentage is another way of writing a fraction with a bottom number of 100.

30 % =
$$\frac{30}{100}$$

So, to find 30 % of an amount you must work out $\frac{30}{100}$ of that amount.

Example: 30 % of 90 mm = $30 \div 100 \times 90 = 27$ mm



Multiplying and dividing using standard form

When you multiply numbers in standard form, you add the powers of 10, like this:

Example: 2.3×10^5 multiplied by one thousand = $2.3 \times 10^5 \times 10^3 = 2.3 \times 10^{5+3} = 2.3 \times 10^8$

Where both numbers are in standard form, you multiply the numbers and add the powers of 10, like this:

$$2 \times 10^{-3} \times 3.4 \times 10^{6}$$

Multiply the numbers

$$2 \times 3.4 = 6.8$$

Add the powers of 10

$$10^{-3} \times 10^6 = 10^{-3+6} = 10^3$$

Put it together

When you divide numbers in standard form, you subtract the powers of 10, like this:

$$10^5 \div 10^3 = \underline{10 \times 10 \times 10 \times 10 \times 10} = 10^2$$

★ Use the ×10^x or xⁿ button on your calculator for complicated calculations.

WORKED EXAMPLE



Since the start of the COVID-19 pandemic, the cases of infection in the UK are estimated to be 2.3×10^7 . The number of deaths is estimated as 1.82×10^5 .

Calculate the death rate as a percentage of total infections.

Solution

The calculation you do is ______deaths___

cases of infection

On your calculator that's 1.82 $\times 10^{10}$ 5 ÷ 2.3 $\times 10^{10}$ 7 × 100 = 0.79 % to 2 dp.

Fractions, ratios and percentages

Fractions

A fraction is made up of two parts: the numerator (on the top) and the denominator (on the bottom).

- The denominator tells you how many parts or fractions the whole amount has been divided into.
- The <u>numerator</u> tells you how many of those fractions we're talking about right now.

Example



This rectangle has been divided into five parts. The parts are fifths 2/s

Three parts out of five are shaded in; that's 3/s

Two parts out of five are not shaded; that's 2/5



Finding a fraction of a number or an amount

The rule is that whenever you see the word 'of' in maths, it means that you multiply.

Example: What is 3/8 of 24?

$$\frac{3}{8}$$
 $\times 24 = \frac{3 \times 24}{8} = \frac{72}{8} = 9$

On your calculator that's $3 \div 8 \times 24 = 9$

Multiplying fractions

<u>Rule</u>: When you multiply fractions you just multiply the numerators and multiply the denominators, and then simplify the fraction if you need to.

WORKED EXAMPLE

Calculate $\frac{3}{4}$ ×

Solution

Ratios

A ratio is a way to compare two or more amounts.

Recipes, for example, are sometimes given as ratios. To make pastry you usually need to mix two parts flour to one part butter. This means that the ratio of flour to butter is 2:1.

If pastry is two parts flour to one part butter, then there are three parts (2 + 1) altogether. Two thirds of the pastry is flour; one third is butter.



- ★ Ratios are similar to fractions; they can both be simplified by cancelling down.
- ★ Always write the ratio in the order that is stated in the question. The ratio of flour to butter is 2:1; the ratio of butter to flour is 1:2.

Example: There are 15 women and six men working in a health centre. What is the ratio of women to men? Give your answer in its simplest form.

The ratio of women to men is 15:6. However, both sides of this ratio will divide by 3. Dividing by 3 gives you 5:2.

So, the simplest form of the ratio is 5:2.

Remember, in mathematics n means any number

You may be asked to simplify the ratio to n: 1. In that case, just divide each side by 2, which gives you 2.5: 1.

There are two and a half times as many women as men.



WORKED EXAMPLE



Three years ago Adam weighed 50 kg; now he weighs 65 kg. What is the percentage increase in Adam's weight?

Solution

- 1. Work out the actual increase in his weight by subtracting the two amounts. 65 50 = 15
- 2. Divide by the original weight, which is 50 kg, and then multiply by 100 to make a percentage.

15 ÷ 50 × 100 = 30 %

So, Adam's weight has increased by 30 %

Estimating the results of simple calculations

You don't always need an exact value for a number, especially a very long number. Sometimes you can use a rough or an **approximate** value which gives you a good idea what the true value is.

For example, if you are reporting back on an experiment to investigate whether changing the colour of the light affects how quickly a plant makes food by photosynthesis, saying

The rate of photosynthesis of a plant under blue light is almost double the rate of photosynthesis in the same plant under yellow light.

might be more relevant than saying

Under blue light the rate of photosynthesis is 33.7 units, whereas under yellow light the rate of photosynthesis is 16.8 units.

If you are asked to estimate an answer, they want a sensible idea of how big the number is, not a calculation using your calculator.

You round off all the numbers in the problem to **one significant figure** to make 'easier' numbers – you can usually do this in your head.

Example: Give an approximate answer to the calculation 608×29

5.8

Round each number to one significant figure, and then do the calculation:

$$\frac{600 \times 30}{6} = \frac{18\ 000}{6} = 3000$$
, so the answer is $\frac{3000}{6}$

PRACTICE QUESTIONS



a) Copy and complete the table; the first one has been done for you.

Amount in words	Amount in figures
Thirteen thousand five hundred and six	13 506
Two thousand and sixty four	
One million seven hundred and fifty thousand	
· · · · · · · · · · · · · · · · · · ·	3007
	25 360

4 marks

b) Arrange the numbers from part a) in order of size, starting with the smallest.

1 mark

2. Put these decimal numbers in order of size, starting with the largest.

1 mark



	пig	n School for
3.	Write these numbers in standard form.	4 marks
	a) Three billion b) 250 000 000 c) 0.0015 d) 0.0000000	2
4.	Complete these statements using powers of 10.	4 marks
	a) A kilogram is grams. b) A millimetre is metres.	
	c) A nanosecond is seconds. d) There are µm in a metre.	
5.	Calculate, giving your answer in standard form:	2 marks
	a) 3.6 × 104 multiplied by one million	
	b) 8.7×10^7 divided by 10^2	
6.	Bacterium species X divides every 1.5 hours. Starting with one bacterium, how many bacteria will the B6 hours?	re be in 1 mark
7.	Simplify the following ratios to n : 1.	
	a) 240 : 60 b) 1 metre : 10 centimetres c) 7000 : 350 d) 18 : 4	4 marks
8.	The ratio of cats to dogs in a rescue centre is $3:1$. If there are 60 of these animals altogether, how are dogs?	many 1 mark
9.	Calculate:	
	a) ² / ₅ of 600 b) ⁵ / ₉ of 450	2 marks
10.	Multiply these fractions, giving your answer in its simplest terms.	2 marks
	a) $\frac{3}{7} \times \frac{2}{5}$ b) $\frac{2}{5} \times \frac{10}{12}$	

Three fifths of the trees in a wood are deciduous (lose their leaves in winter). If 45 trees are deciduous, what is the total number of trees in the wood?

12. Copy and complete the table below. The first one has been done for you.

Fraction	Decimal	Percentage
1/4	0.25	25 %
3/8		
2/5		
		30 %
		80 %
	0.04	

5 marks

13. In a school there are 800 students and 70 teachers. 15 % of the students and 20 % of the teachers are left-handed. How many left-handed people are there altogether?
2 marks

14. Anika is on a diet to lose weight. At the start of the diet, she weighed 85 kg. After six months she weighs 70 kg. Calculate the percentage change in Anika's weight. Give your answer to two decimal places.

2 marks

15. Estimate the answer to the following calculation. Your estimate should be a single whole number.

31 009 <u>1155</u> 1926 201

1 mark



Section 4: Reflection Resource for End of Unit Exam Analysis

COMBINED

/ Vaa...(

✓ Year 10 End-of-Year Biology Combined Assessment (AQA)

Paper 1: Synoptic Assessment

Focus: Metacognition, Retrieval, Application & Extension

Bridging Work: Over the summer holiday, you need to use your pink exam analysis sheet from class, to help you select a range of reflection activities (see below). For each question in your paper, you should complete a task and make it relevant to the topic of that question.

E.g. if your paper has 5 questions in total, you should complete at least 5 tasks from the sections below. You need to complete all work in purple pen.

There are Go Further options throughout if you have scored highly on a question and a whole Go Further section at the end for you to really extend your learning beyond the curriculum as well!

This bridging work is due the first science lesson you have in September 2025.

Topic to get ready for coming back in September is: Genetics.

1. Recall & Retrieval Practice

Purpose: Strengthen	vour momor	of koy facts	processes a	nd dofinitions
Purbose: Strengthen	voui illellioi	v oi kev iacis.	DIOCESSES a	na aemmaons.

To do:
☐ Create flashcards for: transpiration, stomata, xylem, plaque, glycogen, pathogen
\square Brain dump: write down everything you remember from one topic without notes in one colour
then, use resources (textbooks, BBC bitesize, Cognito, Savemyexams) to add on any information
you've forgotten in another colour e.g. for the menstrual cycle or coronary heart disease
\square Make a table of hormones, where they are produced and their function
\Box Quiz yourself on types of cells, tissues and organs from Q1–Q3, use Educake to support and write
your key revision top tips on a flashcard

Examples from this paper:

- Q1(f–i): Leaf structure, active transport, mitochondria
- Q2(a–d): Structure of the heart and plaque formation
- Q3(b-e): Blood glucose regulation

Go Further:

☐ Make a concept map linking blood, the heart and respiration
\square Use Seneca to revisit required content on transport in plants and humans
☐ Create a "fill-in-the-gap" worksheet for endocrine organs and hormones



Q 2. Understanding & Conceptual Clarity

To do: ☐ Draw a fully labelled heart and explain how blood flows through it ☐ Create a diagram of the leaf and match tissues to functions ☐ Teach a friend or family member how insulin regulates blood sugar ☐ Use "I used to think now I know" to correct misconceptions
Examples from this paper:
• Q1(b–e): Functions of mesophyll, xylem, and transparency
Q3(f-h): Analysing glucose levels and diabetic trends
Q6(a): Explaining menstrual hormone interactions
 □ Compare photosynthesis and transpiration □ Research how stents and statins are used in heart disease □ Use real graphs to practise analysing hormone or glucose patterns
③ 3. Application & Exam Technique
3. Application & Exam TechniquePurpose: Practise applying knowledge clearly in exam-style responses.
Purpose: Practise applying knowledge clearly in exam-style responses. To do: ☐ Re-do questions where you lost marks – focus on Q2(d), Q3(h), Q6 ☐ Highlight command words in exam questions (e.g. describe, explain, suggest)
Purpose: Practise applying knowledge clearly in exam-style responses. To do: ☐ Re-do questions where you lost marks – focus on Q2(d), Q3(h), Q6 ☐ Highlight command words in exam questions (e.g. describe, explain, suggest) ☐ Complete exam questions on Savemyexams and/or Cognito from a topic
Purpose: Practise applying knowledge clearly in exam-style responses. To do: □ Re-do questions where you lost marks – focus on Q2(d), Q3(h), Q6 □ Highlight command words in exam questions (e.g. describe, explain, suggest) □ Complete exam questions on Savemyexams and/or Cognito from a topic Examples from this paper:
Purpose: Practise applying knowledge clearly in exam-style responses. To do: □ Re-do questions where you lost marks – focus on Q2(d), Q3(h), Q6 □ Highlight command words in exam questions (e.g. describe, explain, suggest) □ Complete exam questions on Savemyexams and/or Cognito from a topic Examples from this paper: • Q2(d): Explain how heart blockages affect cells



Purpose: Build confidence in using data, graphs, and applying scientific met	thod.
To do: ☐ Redraw and interpret any graph question from memory ☐ Create a checklist of command words used in practical exam questions	
Examples from this paper:	
• Q3(f–g): Interpreting data and trends	
 Q5(b): Reading predator—prey graphs 	
Q1(i): Role of mitochondria in active transport	
Go Further: ☐ Practise using gradients on graphs using Savemyexams ☐ Design a simple experiment to model transpiration or glucose levels ☐ Explore how scientists monitor blood sugar in real patients	
5. Go Further Projects	
Purpose: Link your biology knowledge to real life and the wider world.	
To do: ☐ Research: What happens in a heart attack? How is it treated? ☐ Create a short video, podcast or infographic explaining one process compliabetes ☐ Watch a science documentary or video (e.g. Planet Earth or Blue Planet)	paring Type 1 and Type 2
Examples from this paper:	
 Q2(d): Coronary artery and oxygen transport 	
• Q3(h–i): Diabetes and lifestyle	
Q4: Vaccination and measles spread	
Go Further: ☐ Research a recent article on newscientist that links to a topic from this pahttps://www.newscientist.com/	aper:
☐ Read a fiction book linked to topics from this assessment such as: "Pig He Blackman, "The Declaration" by Gemma Malley, "Double Helix" by Nancy V Laurie Halse Anderson, "Seed" by Lisa Heathfield ☐ Explore A-level biology topic bridges (e.g. genetic engineering, medical ir ☐ Research a woman in STEM from a field in one of the topics in this paper day-to-day biology in their role!	Werlin, "Fever 1793" by
Deman 3. Desertical Facus	

Paper 2: Practical Focus

Focus: Metacognition, Retrieval, Application & Extension



Bridging Work: Over the summer holiday, you need to use your pink exam analysis sheet from class, to help you select a range of reflection activities (see below). For each question in your paper, you should complete a task and make it relevant to the topic of that question.

E.g. if your paper has 5 questions in total, you should complete at least 5 tasks from the section below. You need to complete all work in purple pen.

There are Go Further options throughout if you have scored highly on a question.

This bridging work is due the first science lesson you have in September 2025.

Practical & Numeracy Skills

Purpose: Improve confidence in applying practical methods and handling biological data in examstyle contexts.

To do:

- ☐ Watch a **video of a required practical on Malmesbury Education on Youtube** (e.g. on osmosis or enzymes) and pause it to record: aim, equipment, variables, improvements
- ☐ Practise **reading data from a graph**: print (see **Savemyexams**) or draw a curve and use it to answer questions like:
 - "What is the rate at 20s?"
 - "At what time is the reaction complete?"
- ☐ Match a list of **common student mistakes** (e.g. forgetting to use % change, reading axes incorrectly) with their **corrections**
- ☐ Review a **sample exam answer** about food testing and identify where marks are gained and lost (e.g. missing colours, unclear method)

Examples from this paper:

- Q1(b): Importance of drying the tubing properly
- Q1(c): Percentage change in mass
- Q2(d): Determining when starch is no longer present
- Q2(f): Tangent and rate calculation
- Q3: Practical method, risk, and improvements in food tests

Go Further:

Design your own data table for enzyme a	activity at different	pH values (e.g.	time taken fo	or starch to
disappear) and fill it in with realistic data				

☐ Complete a numeracy challenge:



_	"A solution	has an initia	I mass of 5.6g	and ends at 4.8	g. What's the	% change?"

☐ Compare two practical methods (e.g. paper towel blotting in osmosis vs timing colour change in enzymes) and discuss:

- Design a risk assessment for one of these practicals
- What types of error might be introduce in these practicals?
- How can you make both practical results more repeatable?

☐ Find 2 examples of **numerical data in real-world biology** (e.g. food labels, medical test results) and explain how data is interpreted

TRIPLE

✓ Year 10 End-of-Year Biology Triple Assessment (AQA)

Paper 1: Synoptic Assessment

Focus: Metacognition, Retrieval, Application & Extension

Bridging Work: Over the summer holiday, you need to use your pink exam analysis sheet from class, to help you select a range of reflection activities (see below). For each question in your paper, you should complete a task and make it relevant to the topic of that question.

E.g. if your paper has 5 questions in total, you should complete at least 5 tasks from the sections below. You need to complete all work in purple pen.

There are Go Further options throughout if you have scored highly on a question and a whole Go Further section at the end as well for you to really extend your learning beyond the curriculum as well!

This bridging work is due the first science lesson you have in September 2025.

Topic to get ready for coming back in September is: Genetics.

1. Recall & Retrieval Practice

Purpose: Strengthen memory of definitions, keywords and factual knowledge.

To do:
☐ Create flashcards for key terms (e.g. transpiration, reflex, hormones, osmosis, translocation)
☐ Use tools like Quizlet or Anki to practise recall over time
\square Brain dump: write down everything you remember from one topic without notes in one colour
then, use resources (textbooks, BBC bitesize, Cognito, Savemyexams) to add on any information you've forgotten in another colour (e.g. on the menstrual cycle, immune response) List and define all command words used in this paper (e.g. explain, describe, suggest)
☐ Complete an Educake study guide on a topic and on a flashcard summarise your key revision facts

Examples from this paper:



- Q1(c): Translocation
- Q6(a)(b): Reflex actions and nervous system
- Q7(b): Hormones controlling blood glucose

Go Further:
☐ Make a revision quiz for a friend using Q1–Q3
☐ Create a double-sided revision card for each core concept (e.g. immunity, photosynthesis,
homeostasis)
☐ Link key terms to real-world biology (e.g. reflex arcs to safety features, vaccines to pandemics)
Q 2. Understanding & Conceptual Clarity
Purpose: Understand why things happen in biology, not just what.
To do:
☐ Draw labelled diagrams (e.g. reflex arc, endocrine glands, heart structure)
\square Use analogies to explain ideas (e.g. hormone systems like postal delivery)
☐ Watch GCSE science videos (Cognito or Savemyexams) on any topics you found challenging
\square Teach a topic from the paper to someone else
Examples from this paper:
Q6(b): Nervous coordination process
Q7(c): Negative feedback explanation
Q4(a): Heart valve malfunction
Go Further:
\square Create a concept map showing how homeostasis involves nerves and hormones
☐ Write "I used to think now I know" reflections on photosynthesis or immunity
\square Explain how the menstrual cycle is controlled using a flow diagram with hormones
③ 3. Application & Exam Technique
Purpose: Learn how to apply knowledge in unfamiliar contexts and maximise marks.
To do:
☐ Highlight command words in questions: describe , explain , calculate , etc. and create a flashcard to explain what each command word means
\square Complete exam questions on Savemyexams and/or Cognito from a topic

Examples from this paper:

• Q5(b): Linking immune response to outbreak prevention



Q4(a): Extended written response							
Go Further: ☐ Write a model answer for a 4-mark question you found difficult ☐ Create your own mark scheme for a peer's answer ☐ Use a "What if?" strategy: What if insulin wasn't produced after a meal?							
4. Problem Solving & Calculations							
Purpose: Build confidence with biological data, graphs, and quantitative questions.							
To do: ☐ Redo any calculation-based question using full working (e.g. zones of inhibition, hormone response over time) ☐ Practise reading values from graphs and explaining trends ☐ Make a guide to interpreting scientific figures and diagrams ☐ List common graph/data interpretation mistakes you made							
Examples from this paper:							
Q5(g): Comparing antibiotics using quantitative data							
Q7(c): Analysing blood glucose graph							
Q8(a)(b): CO₂ levels and environmental change							
Go Further: ☐ Practice graph questions from Savemyexams ☐ Create a revision sheet explaining how to answer data questions step-by-step ☐ Explore how data interpretation is used in medical trials and environmental science							
(ii) 5. Go Further Projects							
Purpose: Extend learning beyond the curriculum and into real-world science.							
To do:							

 \square Choose a real-world issue (e.g. antibiotic resistance, deforestation) linked to your paper

☐ Research a career linked to biology topics from the paper (e.g. endocrinologist, ecologist)

 \square Create a short video, podcast or infographic explaining one process (e.g. reflex arc, menstrual

Q8(a)(b): Interpreting data and linking it to processes

Examples from this paper:

cycle)

• Q5: Food safety and antibiotic resistance



- Q6–7: Hormones and nervous control
- Q8: Human impact on biodiversity and ecosystems

Go Further:

☐ Research a recent article on newscientist that links to a topic from this paper: https://www.newscientist.com/

- Read a fiction book linked to topics from this assessment such as: "Pig Heart Boy" by
 Malorie Blackman, "The Declaration" by Gemma Malley, "Double Helix" by Nancy Werlin,
 "Fever 1793" by Laurie Halse Anderson, "Seed" by Lisa Heathfield
 □ Explore A-level biology topic bridges (e.g. genetic engineering, medical imaging)
 - ☐ Research a woman in STEM from a field in one of the topics in this paper and find out about the day-to-day biology in their role!

Paper 2: Practical Focus

Focus: Metacognition, Retrieval, Application & Extension

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E.g. if your paper has 5 questions in total, you should complete at least 5 tasks from the section below. You need to complete all work in purple pen.

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This bridging work is due the first science lesson you have in September 2025.

Practical Skills & Required Practicals

Purpose: Strengthen your confidence with planning, executing, and interpreting biology practicals. These skills are also critical for real-life science.

To do:

☐ Summarise the aim	. method	. variables	. and results fo	or each rec	uired i	oractical

☐ Define the types of errors: **systematic, random and zero error**

☐ Redo the graph from Q3(b) and ensure you can draw a **smooth line of best fit**, not point-to-point

☐ Create revision cards with:

- What the practical tested
- Key variables
- Expected result
- Safety/precision techniques

Examples from this paper:

• Q1(a-e): Osmosis with different fruits/vegetables



Q1(d): Improving accuracy
• Q1(e)/ Q2 (a): Errors
• Q1(e): Errors
• Q3(a): Improving methods – e.g. repeating, adding more temperature intervals
Q3(b): Graph plotting and interpreting change over time
• Q3(d): Decay & enzyme action – explaining lipid breakdown and pH changes
Suggested Activities:
□ Create a step-by-step revision guide for (use Savemyexams to help you):• Osmosis
Reaction TimeDecay and pH change in milk
☐ Watch Malmesbury Education videos for the relevant practicals and write out control variables , dependent and independent variables for each practical
☐ Design a risk assessment for one of the practicals
\square Identify potential: zero / systematic and random errors (where applicable) for one of the practical
Go Further:
☐ Carry out a virtual simulation of an aseptic technique or decay investigation (e.g. on the PhET website)
\square Investigate how scientists ensure repeatability and reproducibility in professional research
Research real-world uses of these techniques in microhiology or food science