





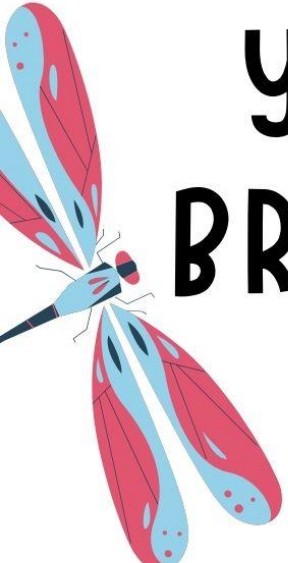
**SUMMER
HOMEWORK**



BIOLOGY

YR 11 INTO YR 12

BRIDGING BOOKLET



Name:



BEAL SIXTH FORM
ONE SIXTH FORM - TWO SITES - THREE PATHWAYS





BIOLOGY

This bridging work **MUST** be completed by the time you start your course and it will be assessed in September.

The aims are for you to be ready to start learning at post 16 level.

What do you do in your first year?

Exam board OCR A. No course work, exam only.

Learners must complete both components (01 and 02).

Content Overview	Assessment Overview	
<p>Content is split into four teaching modules:</p> <ul style="list-style-type: none">• Module 1 – Development of practical skills in biology• Module 2 – Foundations in biology• Module 3 – Exchange and transport• Module 4 – Biodiversity, evolution and disease <p>Both components assess content from all four modules.</p>	<p>Breadth in biology (01)</p> <p>70 Marks</p> <p>1 hour 30 minutes written paper</p>	<p>50%</p> <p>of total A level</p>
	<p>Depth in biology (02)</p> <p>70 Marks</p> <p>1 hour 30 minutes written paper</p>	<p>50%</p> <p>of total A level</p>

You will have two compulsory exam papers at the end of Year 12 assessed internally:

- Breadth in biology, written, 1.5 hours, 70 marks, 50% of your total mark.
- Depth in biology, written, 1.5 hours, 70 marks, 50% of your total mark.

Summer Bridging Work- ESSENTIAL

1. Download and print the OCR A biology Specification from the OCR website:
<https://www.ocr.org.uk/Images/687834-download-a-level-specification.pdf>

Read through this to begin to familiarise yourself with the course.

2. Look online and see if you can gain access to a biology journal biology Review and New Scientist are good ones!
3. Complete this entire booklet, follow the instructions on the next page.

Summer Bridging Work- RECOMMENDED

Below is a list of recommended reading. It is not compulsory for you to purchase all of these books, you may wish to purchase a few and read them over the summer to give you an idea of what to expect during your A Level studies.

- **Magazines/Periodicals**
- Biology Review
- New Scientist
- Scientific American

Required Resources

- Bring lined paper, dividers and a folder to each of your first biology lessons.
- You will need a lab coat for this course. It would be useful if you purchased this in advance.
- The recommended text book is 'OCR AS/A level biology A' **ISBN: 9781447990796**

Summer Plan



Biology with Miss Sadler

By Claire Sadler

A series to revise A level and GCSE Biology with Miss Sadler. Here you will find content, exam question technique and tips for revision that you can listen to whilst continuing with your normal daily activities like cooking, travelling and going to the gym.

[Listen on Spotify](#)

[Send voice message](#)



In order to ensure you work effectively over the 6 weeks holiday, this booklet has been printed for you to complete and is due on the first Biology lesson.

At Beal High School we are following the OCR A Specification. Some of the year 12 modules are within this booklet to prepare you for your first year of Biology.

For the tasks, write what you know in the first attempt column and then listen to the podcast to add any further detail. The podcast can be found on Spotify using the QR code or the podcast name is at the top of this page.

Good luck!

Week	Task
1	2.1.2 Part 1 Answer Qs and listen to podcast
2	2.1.3 Answer Qs and listen to podcast
3	2.1.2 Part 2 Answer Qs and listen to podcast
4	2.1.4 Answer Qs and listen to podcast

Biological molecules 2.1.2 part 1

Podcast revision activity

1. Spend 10 minutes answering the 'first attempt' section
2. Scan the QR code to access the podcast on Spotify mark your work and note any additional useful info



Question	First attempt	Any additional detail?
Give examples of how water is used as a reactant		
What is the net charge of a water molecule		
Draw 2 water molecules, showing the charges and bonding between them		
Define adhesion and give an example		
Describe how a 1-4 glycosidic bond is formed between 2 glucose molecules		
What are the 4 atoms in a peptide bond		
What are the elements in: <ul style="list-style-type: none">• Carbohydrates• Proteins• Nucleic acids• lipids		

Question	First attempt	Any additional detail?
Draw an alpha glucose ring		
How is beta glucose different to alpha glucose?		
Glucose + glucose → Glucose + fructose → Glucose + galactose →		
What is the difference between amylose and amylopectin?		
For cellulose : Type of glucose is Bonds between the chains are Strong fibres are called... Name of substance that blocks substances passing through the cell wall		
<ol style="list-style-type: none"> 1. Alpha or beta glucose H at the top for carbon 1 2. How are glycosidic bonds formed condensation / hydrolysis 3. 2 substances that starch is made up of are 4. Give a function of cellulose 5. Which is more branched, amylopectin / glycogen 		
Name the disaccharides that would test positive with a test for reducing sugars Describe the test for a non reducing sugar, name a substance that would test positive		

Biological molecules 2.1.2 part 2

Podcast revision activity

1. Spend 10 minutes answering the 'first attempt' section
2. Scan the QR code to access the podcast on Spotify mark your work and note any additional useful info



Question	First attempt	Any additional detail?
Give 5 uses of triglycerides		
Draw a molecule of glycerol		
Describe how a triglyceride is formed Name the bond		
Describe the structure of a phospholipid		
Give a function of cholesterol and how it does this		
Draw the structure of an amino acid		

Question	First attempt	Any additional detail?
Describe how amino acids bond together using condensation reactions		
Give the 4 types of bond/ interaction in a tertiary structure		
Name 3 globular proteins Name 3 fibrous proteins		
Write the charge on the ions: Ca K HCO ₃ Na OH		
Describe what you see for a positive result of the: Emulsion test Biuret test		
How do you calculate an R _f value		
How do you produce a calibration curve?		

Nucleotides and Nucleic Acids 2.1.3

(29 mins)

Podcast revision activity



1. Spend 10 minutes answering the 'first attempt' section
2. Scan the QR code to access the podcast on Spotify mark your work and note any additional useful info

Question	First attempt	Any additional detail?
Give the 3 parts of a nucleotide of DNA		
How are the 2 polynucleotide strands of DNA held together?		
Name the bond that joins 2 nucleotides together		
What is the difference between a purine and pyrimidine? Which bases are purines?		
How are nucleotides different for RNA and DNA?		
What does ATP stand for?		
Name the enzyme that converts: ATP → ADP ADP → ATP		
Quick quiz		
1. What are the 3 main components of nucleotides?		
2. Name the bases that are purines		
3. Name the sugar in a DNA nucleotide		
4. Name the base in ATP		
5. Name the process where an inorganic phosphate is added to ADP		
In semiconservative replication, which enzyme: <ul style="list-style-type: none">• Breaks H bonds?• Joins nucleotides together		

Question	First attempt	Any additional detail?
Which isotope was used to prove that DNA replication was semi-conservative. Can you sketch the model?		
What are the differences between DNA and RNA?		
Name the enzyme that causes complementary bases to line up along the template strand during transcription		
How is tRNA similar to mRNA? How is tRNA different to mRNA?		
How are amino acids joined together during translation?		
What does degenerate mean?		
Name the proteins that DNA is wound around in the nucleus		

Summary questions:

- Name the sugar in a DNA nucleotide
- Name the bond between deoxyribose and phosphates
- In RNA the nitrogenous bases are A, C, G and ____
- Which of the bases are pyrimidines?
- Which base is part of ATP?
- Name the process where a phosphate is added to ADP
- What is the purpose of the detergent in DNA extraction?
- Name the enzyme that breaks the H bonds between 2 polynucleotide strands of DNA
- Which enzyme joins free nucleotides onto the original strand of semiconservative replication
- Name the bond between two amino acids
- During translation how does the ribosome know the primary sequence is complete?

Enzymes 2.1.4

(16 mins)

Podcast revision activity

1. Spend 10 minutes answering the 'first attempt' section
2. Scan the QR code to access the podcast on Spotify mark your work and note any additional useful info



Question	First attempt	Any additional detail?
What is meant by the term catalyst?		
How do enzymes lower activation energy?		
Give an example of how enzymes affect: <ul style="list-style-type: none">• Structure• function		
How are intra and extracellular enzymes different? Give an example of each		
What are the features of a globular protein?		
How are the lock and key model and induced fit model different?		
Describe how temperature affects enzyme activity		
How does a high temperature cause the active site to denature		
How do you calculate Q_{10} What does a value of 2 mean?		

Question	First attempt	Any additional detail?
Describe how pH affects enzyme activity		
How is an active site denatured by a change in pH?		
How does increasing enzyme concentration affect rate of reaction Sketch a graph		
How does increasing substrate concentration affect rate of reaction Sketch a graph		
How can you calculate a rate of reaction: during an investigation? from a graph?		
How can you calculate a rate of reaction		
What is a cofactor? What is the cofactor for amylase?		
What is a coenzyme? What is a prosthetic group What is a prosthetic group for carbonic anhydrase?		
What is meant by a competitive inhibitor?		
What is a non-competitive inhibitor?		