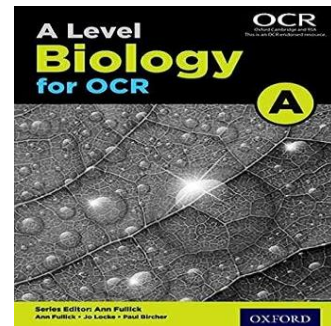


A-Level Biology Summer Bridging Work 2023/24

Exam board: OCR

Resources that you need to purchase in preparation for studying this course:

- Course textbook: “A Level Biology for OCR A” by Ann Fullick, Jo Locke and Paul Bircher.
- Lever arch folder
- Dividers



Vocabulary

It is very important that you are able to use scientific vocabulary accurately. There are many biological terms that you will be familiar with from your GCSE science course and it is now essential that you can understand and use them appropriately. Complete the following task and questions, and then compare your results with the Answers. Revise any areas where you have made mistakes.

Task

Use the biological terms below to complete the definitions in the table. Some terms have not been included to provide an extra challenge.

tissue photosynthesis cytoplasm living organisms high homeostasis internal concentrated	enzyme active transport DNA diffusion protein identical similar	bacteria nucleus active site low dilute water chain
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Scientific word	Definition
Activation energy	Energy needed to make a reaction take place
.....	Place on the enzyme molecule where the substrate fits
A..... t.....	Movement of substance against a concentration gradient requiring
.....	A single-celled micro-organism with no nucleus
Cell	Fundamental building block of
Chromosome	Made up from, found in the nucleus
C.....	Found in all living cells where chemical reactions take place
Denatured	When the shape of an enzyme molecule changes so it is not able to function
D.....	Net movement of molecules from an area of concentration to one of concentration
E.....	Biological catalyst that the rate of reaction

Food	Feeding relationship between different organisms in an ecosystem
Gene	A part of DNA that codes for a
H.....	Maintaining a constant environment
Mitosis	Cell division in which two daughter cells are produced
N.....	An organelle that contains the genetic material and controls cell activity
Osmosis	Diffusion of from a to a more solution
P.....	Process carried out by in which light is used to produce glucose
Respiration	Process where g..... is broken down to provide energy in all cells
T.....	A group of cells that have a structure and function

Questions

- 1 Where in the cell do the chemical reactions take place?
- 2 In which process is light energy used to produce glucose?
- 3 Define the term 'respiration'.
- 4 What is a gene?
- 5 What is the term used to describe the loss of function by enzymes?
- 6 What is tissue made up of?

Plant and Animal Cell Structure

Cells are the basic building blocks of all living things. There are many similarities and differences between plant and animal cells that you would have studied in your GCSE science course. Complete the following tasks and questions.

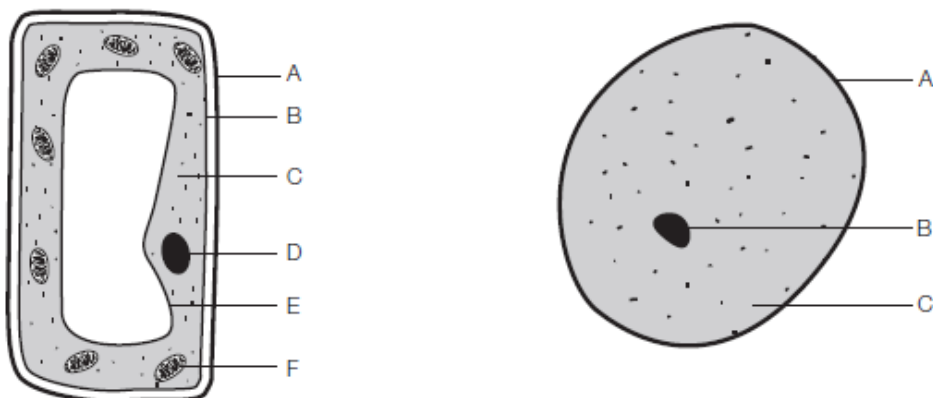
Task 1

Complete the table below, stating the function of each feature. Tick (✓) which cell type the feature is present in and place a cross (✗) where it does not exist.

Feature	Function	Plant	Animal
Cellulose cell wall			
Cell (plasma) membrane			
Nucleus			
Cytoplasm			
Large permanent vacuole			

Task 2

Label the plant and animal cells below.



Questions

- 1 What structures are usually present in all cells, whether plant or animal?
- 2 Which cell structure is responsible for controlling the entry and exit of substances into and out of the cell?
- 3 What structures are only present in palisade cells?
- 4 Which process occurs in the chloroplast?
- 5 State the function of the nucleus.
- 6 Where in the plant cell would you find cell sap?
- 7 What is the function of the cellulose cell wall?
- 8 Where in the cell do most of the chemical reactions take place?

Photosynthesis and Respiration

All living cells can carry out a process called respiration during which energy is released. Plants are also able to make their own energy by carrying out a process called photosynthesis. Check your understanding of photosynthesis and respiration by completing the following task and questions.

Task

Complete the table below by writing either *photosynthesis* or *respiration* to identify the process each statement describes.

Statement	Photosynthesis or respiration?
This reaction takes place in the mitochondria	
Carbon dioxide is absorbed and used in this process	
Oxygen is released as the waste product	
Water is one of the end products	
Light provides the energy needed for this process to take place	
Glucose is broken down to release energy in the form of ATP	
This process occurs in the palisade cells	
Occurs in both plant and animal cells	
Cannot take place in the dark	

Questions

- 1 Name the compound that is the source of energy in respiration.
- 2 What are built up from amino acids?
- 3 Which compound serves as a reserve source of energy in plants and animals?
- 4 What has a structural role in the plant cell wall?
- 5 List two functions of lipids.
- 6 What compound is made up of glycerol and fatty acids?
- 7 This forms compounds that carry oxygen in the blood.
- 8 Name the storage molecule found in plant cells.

Biological Molecules

Different types of food are needed in correct amounts to maintain a healthy body. The main food groups are **carbohydrates**, **lipids** and **proteins**.

Complete the following task and questions.

Task

Complete the table below by placing a tick (✓) if the statement is correct for each food group or a cross (✗) if incorrect.

Statement	Carbohydrates	Lipids	Proteins
Major component found in the plant cell wall – cellulose			
Provides thermal insulation			
Can be either found as fats (animals) or oils (plants)			
Needed to build up muscles in animals			
Main compound used in respiration			
Amino acids are the building blocks			
Made up of fatty acids and glycerol			

Questions

- 1 What is the main photosynthetic structure in plants?
- 2 Which process converts glucose into ATP?
- 3 Where in the leaf cell does photosynthesis occur?
- 4 What are the products of aerobic respiration?
- 5 List the three raw materials required for photosynthesis.
- 6 Write the balanced chemical equation for photosynthesis.
- 7 How can the rate of photosynthesis be measured?
- 8 State three uses of the ATP produced in respiration in cells.
- 9 Which cell organelle would you expect to produce most ATP?
- 10 Write the word equation for aerobic respiration.
- 11 What other compound can be used for respiration?
- 12 What colour light is reflected by leaves?
- 13 Which pigment absorbs sunlight during photosynthesis?
- 14 In which process is oxygen the substrate?