

Painsley Catholic College

Biology - Transition for

Applied Science

Get ready for Applied Science!

A guide to help you get ready for your Biology topics in AQA applied science.

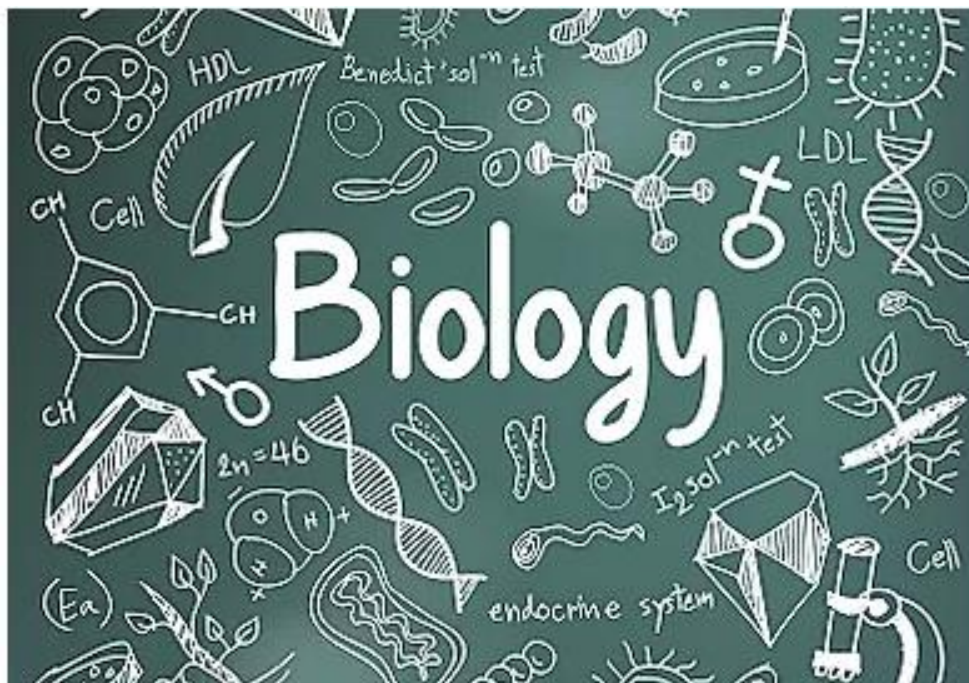
For any extra information please contact Miss Bradley,

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Specification link : <https://www.aqa.org.uk/subjects/science/applied-general/science>

What is included:

- Week 1 – Cell structure reading and videos (1 hour)
- Week 1 - tasks 1-4 (2 hours)
- Week 2 – Control systems and magnification reading and videos (1 hour)
- Week 2 - tasks 1-2 (2 hours)



Week 1 - Cell structure (1 HOUR)

The cell is a unifying concept in biology, you will come across it many times during your two years of A level study.

Prokaryotic and eukaryotic cells can be distinguished on the basis of their structure and ultrastructure.

In complex multicellular organisms, cells are organised into tissues, tissues into organs and organs into organ systems.

During the cell cycle genetic information is copied and passed to daughter cells. Daughter cells formed during mitosis have identical copies of genes while cells formed during meiosis are not genetically identical

Read the information on these websites and make notes:

<http://www.s-cool.co.uk/a-level/biology/cells-and-organelles>

<http://www.bbc.co.uk/education/guides/zvjycdm/revision>

<https://www.differencebetween.com/difference-between-intrinsic-and-vs-extrinsic-proteins/>

And take a look at these videos:

<https://www.youtube.com/watch?v=gcTuQpuJyD8>

<https://www.youtube.com/watch?v=L0k-enzoeOM>

<https://www.youtube.com/watch?v=qCLmR9-YY7o>

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

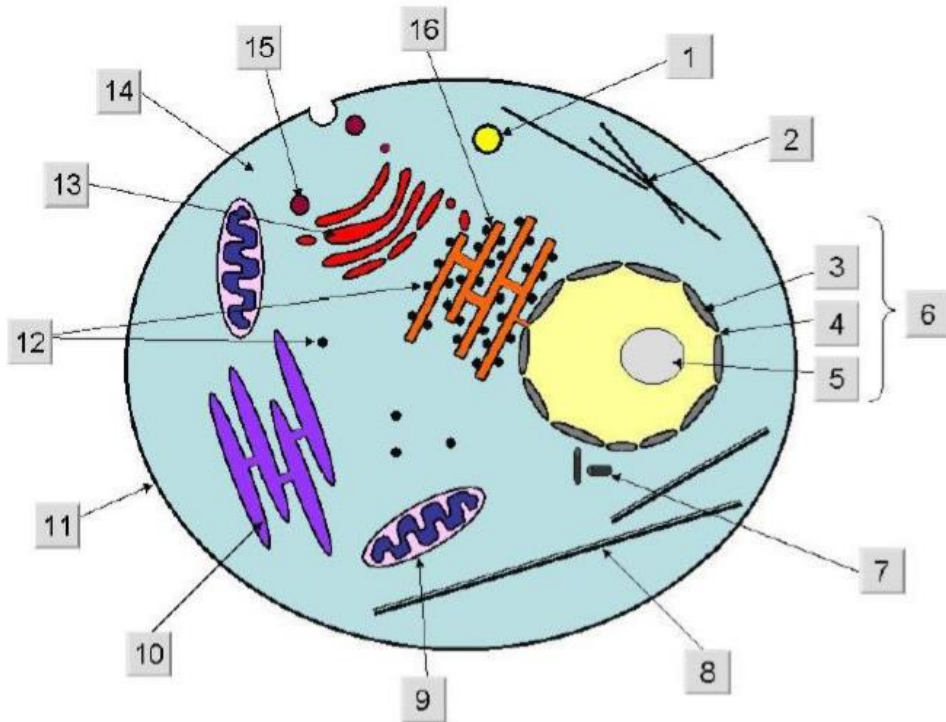
Task 1: (1 HOUR) Produce a one page revision guide to share with your class in September summarising the one of the topics below: (chose the topic that most interests you or your know the least about)

- Cells and Cell Ultrastructure,
- Prokaryotes and Eukaryotes
- The functions of each organelle found in eukaryotic and prokaryotic cells.
- The phospholipid bilayer and the role of intrinsic and extrinsic proteins

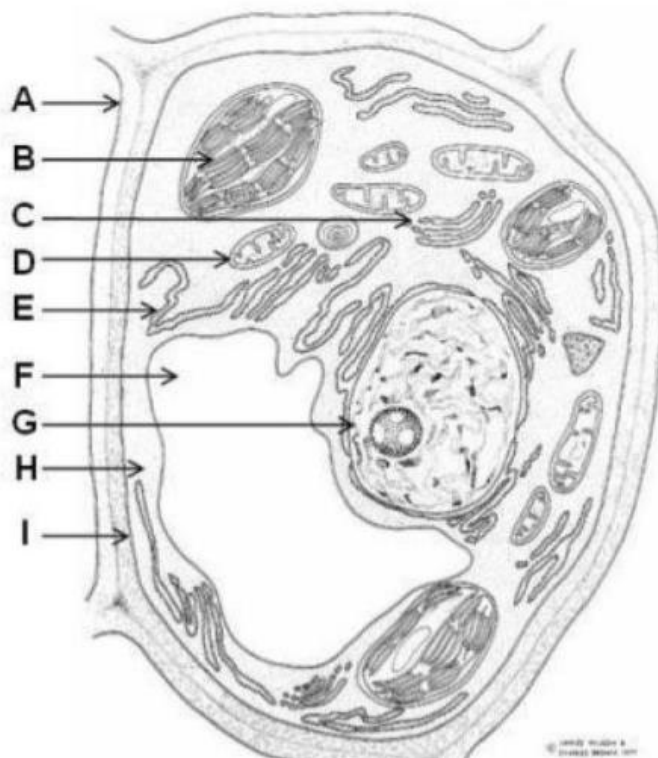
Your revision guide should include:

- Key words and definitions
- Clearly labelled diagrams
- Short explanations of key ideas or processes.

Task 2: (20 mins) Identify the structures 1-16



Task 3: (20 mins) Identify the structures A-I



Task 4: (20 mins)

Match the cell structure with its function in the table below. Record your answers in the table below.

Structure	Function
1. Plasma membrane	a. Releasing energy
2. Golgi body	b. Making proteins from amino acids
3. Lysosome	c. Controlling what enters and leaves the cell
4. Nucleus	d. Modifying , enclosing and dispatching proteins
5. Cytoplasm	e. Breaking down and recycling bacteria and worn out organelles
6. Centrioles	f. Making, storing and transporting proteins
7. Smooth endoplasmic reticulum (SER)	g. Surrounding the nucleus
8. Rough endoplasmic reticulum (RER)	h. Organising the spindle in cell division
9. Ribosomes	i. Controlling the activities in the cell
10. Mitochondrion	j. Making and transporting fats

Week 2 – Control systems (1 hour)

Homeostasis is the maintenance of a constant internal environment.

Negative feedback helps maintain an optimal internal state in the context of a dynamic equilibrium. Positive feedback also occurs.

Stimuli, both internal and external, are detected leading to responses. The genome is regulated by a number of factors. Coordination may be chemical or electrical in nature

Read the information on these websites and make notes:

<http://www.s-cool.co.uk/a-level/biology/homeostasis>

<http://www.bbc.co.uk/education/topics/z8kxpv4>

And take a look at these videos:

<https://www.youtube.com/watch?v=x4PPZCLnVkA>

<https://www.youtube.com/watch?v=x4PPZCLnVkA>

<https://www.youtube.com/watch?v=brb-Qy7KCYc>

Task 1: (1 hour) Produce a poster to display in your classroom in September summarising one of the following topics:

- Temperature Control,
- Water and the Kidneys,
- Glucose,
- The Liver.

Each poster or display should include:

- Key words and definitions
- Clearly labelled diagrams
- Short explanations of key ideas or processes.

Task 2: (1 hour) use the formula triangle below to find the answers to the following questions

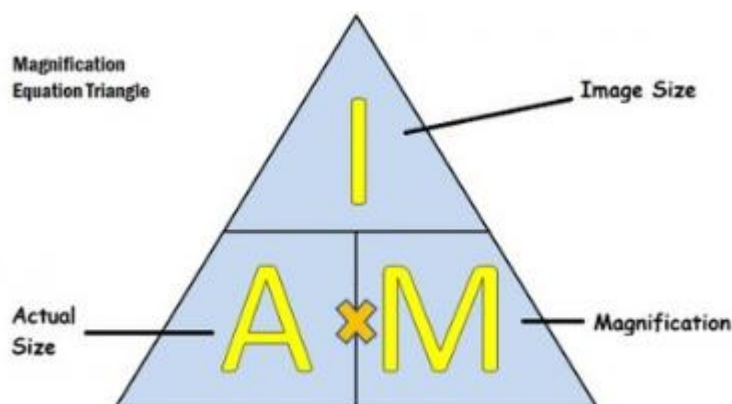


Fig. 1.2.1 below shows an animal cell

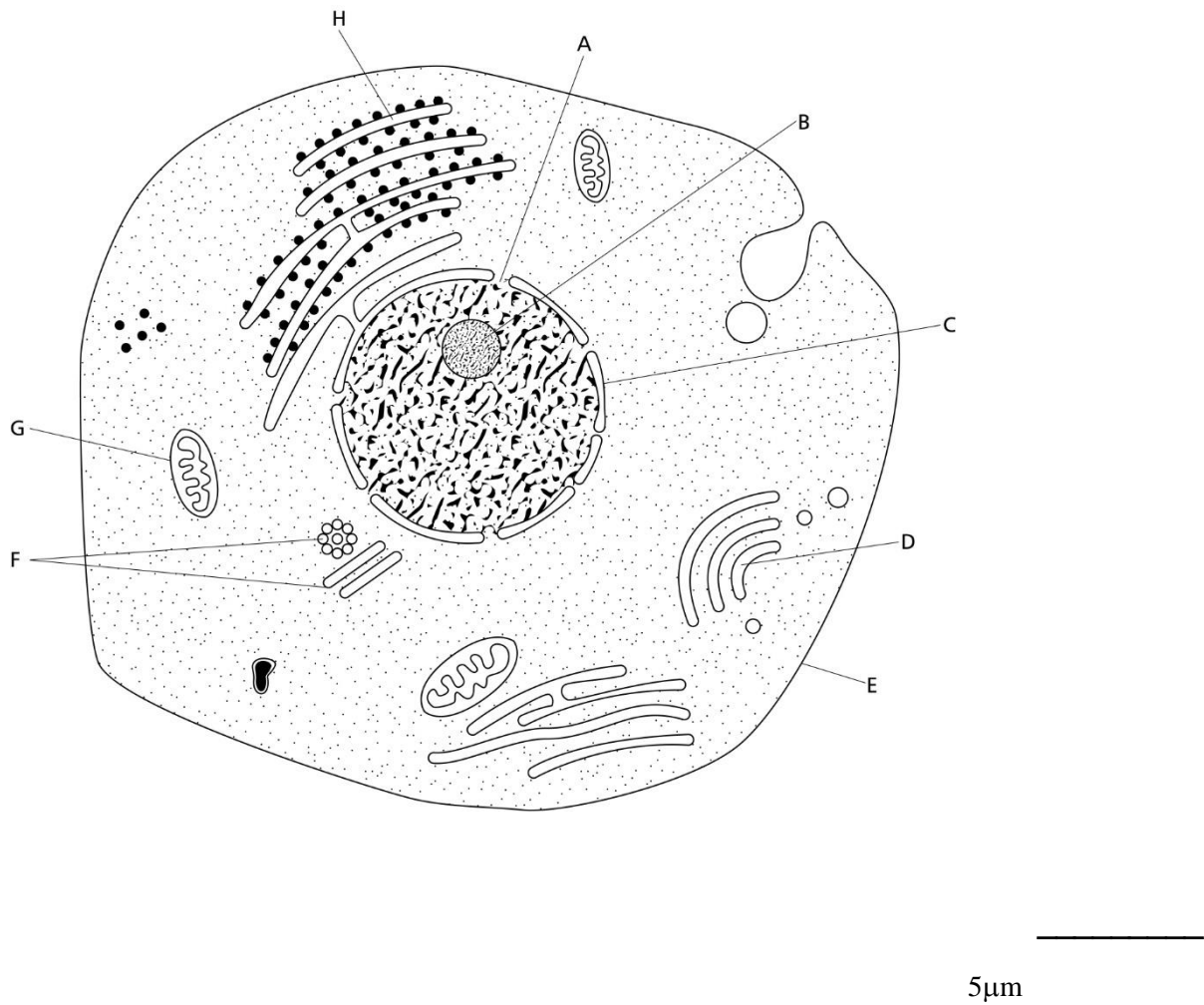


Fig. 1.2.1 Diagram showing the general structure Of an animal cell as seen under the electron microscope

- 1 Calculate the magnification factor
- 2 Calculate the length of structure G
- 3 Calculate the diameter of the nucleolus
- 4 Calculate the diameter of the nucleus
- 5 Calculate the diameter of the cell at its widest point

The diagram below shows a plant cell

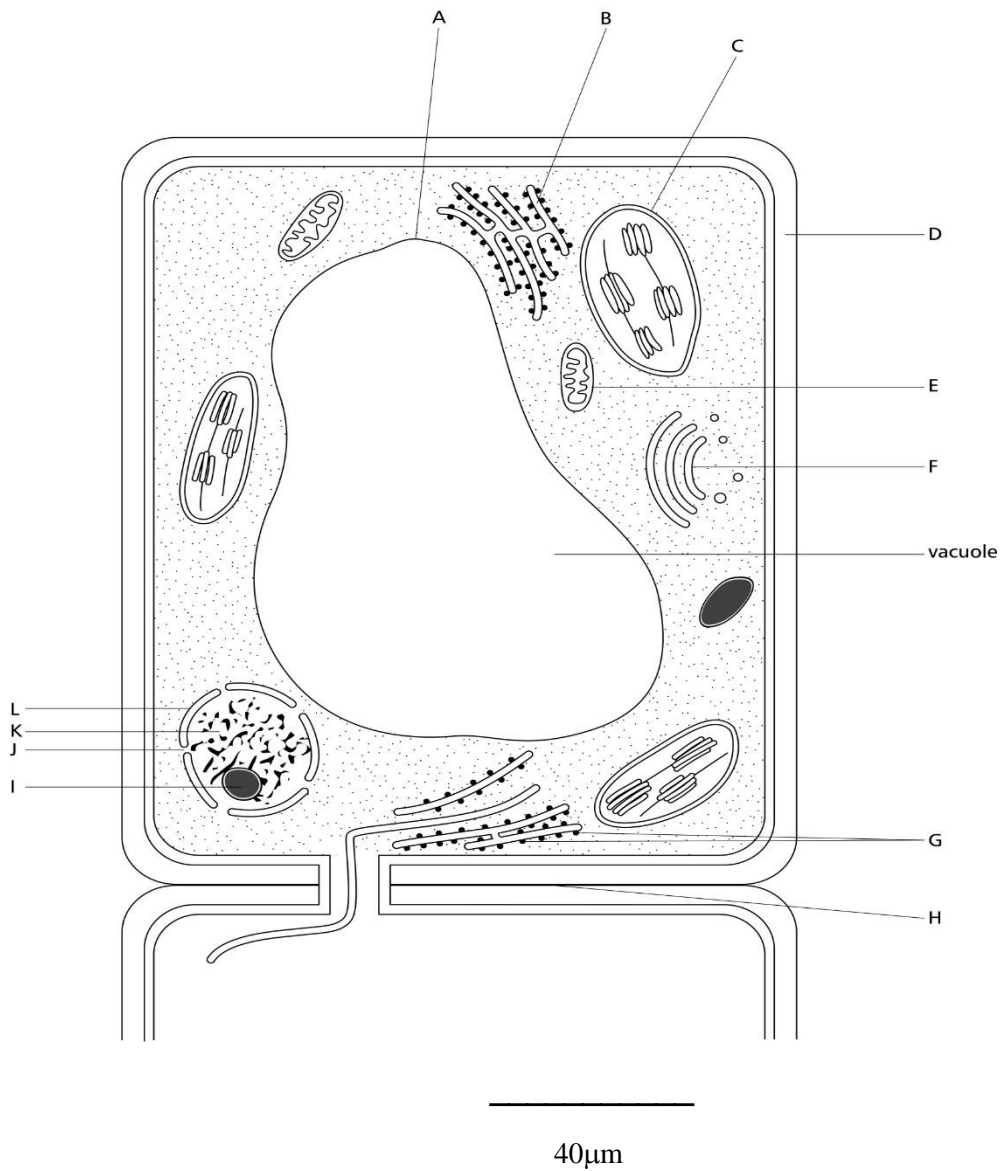


Fig. 1.2.2 Diagram showing the generalised structure of a plant cell as seen with an electron microscope

- 1 Calculate the magnification factor.
- 2 Calculate the thickness of the cellulose cell wall.
- 3 Calculate the length of the cell.
- 4 Calculate the length of structure C.

Week 1 and Week 2 – Applied Science Transition work.

5 Calculate the length of the vacuole.