

1.1.5 Microscopy

AQA GCSE Biology (Higher) Question and answer notes

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How to use these notes

These notes cover everything you need to know for this part of the specification. They have been written in question-answer format to make them easier for you to study from.

In order to study successfully, I recommend you do the following for each question and answer:

- Read it carefully and make sure you **understand** it.
- **Memorise** the answer.
- **Practice** applying your understanding to past exam questions.

A good way to memorise information is to use **retrieval practice**. This is when you practise retrieving information from your memory. You could do this by making a flashcard for each question with the question on one side and the answer on the other. Or you could use a flashcard app. Alternatively, use a sheet of paper to cover up the answer so you can only see the question. Try to answer the question and then check how you did.

You should practise retrieving each answer from your memory until you can do it perfectly. Even once you can retrieve the answer perfectly, your ability to retrieve it will probably fade as time passes without practising. Therefore you will need to keep going back to the questions that you have previously mastered and practising them again. However, each time you re-learn the answer, the memory will be stronger and will last longer than the time before.

What is a microscope?

A microscope is a device used to view things that are small, such as cells and sub-cellular structures.

What was the first type of microscope to be invented?

The first type of microscope to be invented was the light microscope.

What is magnification?

Magnification is the number of times larger the image is than the actual object.

What is resolution?

Resolution, also known as resolving power, is the ability to distinguish between close together points in an image.

How has microscope technology improved over time?

Microscope technology has improved with the invention of more powerful lenses for light microscopes, the invention of stains, and the invention of electron microscopes.

What is a stain?

A stain is a coloured chemical which can be added to a sample of cells. It binds to specific sub-cellular structures, making them easier to see.

What is an electron microscope?

An electron microscope is a microscope which uses a beam of electrons to create an image of the sample, rather than using a beam of light.

What are the advantages of electron microscopes over light microscopes?

An electron microscope has a much higher magnification and resolving power than a light microscope.

How have electron microscopes helped to advance cell biology?

Electron microscopes make it possible to view cells in much finer detail. This has enabled biologists to see and understand many more sub-cellular structures.

What is the equation linking image size, actual size and magnification?

Magnification = Image size \div Actual size