

Development of the microscope

Introduction

The microscope has undergone many changes from the early magnifying glasses used by scientists.

In this activity you will use your research skills to find out about:

- magnifying glasses
- Hans and Zacharias Janssen
- Anton van Leeuwenhoek
- Robert Hooke
- modern light microscopes.

You will be using your literacy skills to produce a presentation showing the main stages in the development of the light microscope and the scientists involved in its development.

Brief

You will create a presentation describing the main stages in the development of the light microscope and the scientists involved in its development.

Your presentation should:

- provide information detailing the history of the light microscope
- contain six slides – an introduction slide, then one for each of the major steps or scientists
- state the key developments and explain how this improved the microscope; include the scientist responsible for the change and examples of what can be seen through each type of microscope
- contain a labelled image on each slide to show the components of the microscope
- use appropriate scientific terminology and explain any key words.

Step 1

Research the following topics:

- magnifying glasses
- Hans and Zacharias Janssen (the first 'compound' microscope)
- Anton van Leeuwenhoek's microscope
- Robert Hooke's microscope
- modern light microscopes.

Step 2

Find an image that illustrates each step in the development of the microscope and add labels.

Step 3 (extension)

Many scientists now use electron microscopes in their research. For example, electron microscopes are used to observe what is happening within cell components. Carry out some further research into the difference between a light microscope and an electron microscope.

Step 4

Plan the structure of each slide and what information you want to include.

Step 5

Make your presentation.

Sources**History of the microscope**

This website contains a brief history of the development of the light microscope:

<https://www.thoughtco.com/history-of-the-microscope-1992146>

Inventions and the light microscope

This website has information on all the inventions that led to the development of the light microscope:

www.microscope-microscope.org/basic/microscope-history.htm

More on the history of the microscope

This website has information on the history of the light microscope from Zacharias Jansen onwards:

www.biologyreference.com/La-Ma/Light-Microscopy.html

The first microscope

This website contains information on the first microscopes and some useful images:

<https://www.visioneng.com/resources/history-of-the-microscope/>

Light microscopes and electron microscopes (extension)

This website summarises the main differences between light and electron microscopes:

www.biologyexams4u.com/2012/10/difference-between-light-microscope-and.html

Writing frame

You will produce a presentation describing the main stages in the development of the light microscope.

Slide 1

Put the title of your WebQuest on this slide and introduce your presentation.

Slide 2

Slide title:

Key developments:

Slide 3

Slide title:

Key developments:

Slide 4

Slide title:

Key developments:

Slide 5

Slide title:

Key developments:

Slide 6

Slide title:

Key developments:

Slide 7 (extension)

Slide title:

Key differences:

Important points

- Each slide (2–6) should state the key developments, explain why they are important and how they improved the microscope, and state the types of structure that could now be seen.
- Where possible, state the scientist responsible for the change.
- Include a labelled image on each slide to show the components of the microscope.
- Remember to use appropriate scientific language and explain any key words.

Your work

You have now made a presentation describing the main stages in the development of the light microscope and the scientists involved in its development.

Look at the questions below, and check if you have met the brief.

- Does your presentation provide information on the history of the light microscope?
- Is it made up of six slides (seven with the extension task)?
- Have you named the scientists involved in the key stages of the microscope's development?
- For each step in the development of the microscope, have you explained how this development improved its usefulness?
- Do all of your slides contain a labelled image?
- Have you used appropriate scientific terminology and explained all of the key words you have used?