



Types of Microscopy



BRITISH MYCOLOGICAL SOCIETY FUNGAL EDUCATION & OUTREACH

SECONDARY RESOURCE

INTRODUCTION

Light microscopy is very different to Electron Microscopy in several ways. Modern light microscopes that can magnify cells and their organelles 1,500 times and electron microscopes that can magnify up to two million times. As we can now see in much greater detail understanding the structure and function of organisms has improved. Micrographs can be interpreted to determine the real size of a cell or organelle using the formula:

$$\text{real size} = \frac{\text{image size}}{\text{magnification}}$$

THIS ACTIVITY SUPPORTS THE FOLLOWING STATUTORY CURRICULUM REQUIREMENTS:

KS4 Curriculum Links

AQA Biology 8461 Cells SOW 4.1.1.5

Edexcel Level 1/Level 2 GCSE (9 - 1) in Biology (1BI0) Paper 1 Topic 1 1.3

OCR Gateway Science Suite - Biology A (9-1) - J247 B1.1c

WJEC GCSE in BIOLOGY (From 2016) 1.1

Scottish Biology National 5 Cell Biology



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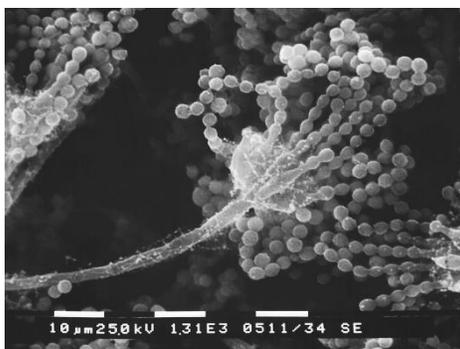
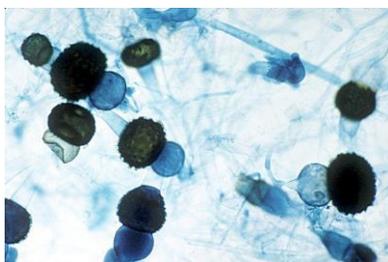
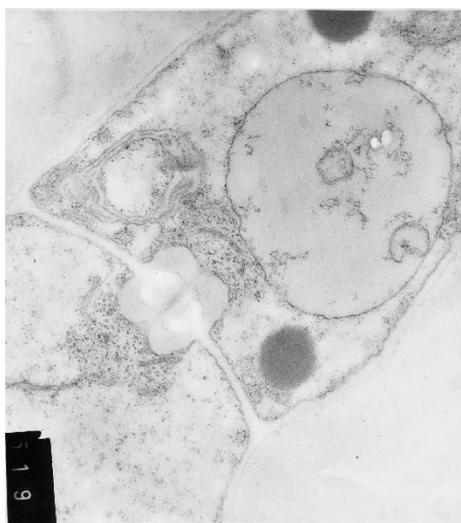
RESOURCES:

Top Right is a Transmission electron micrograph of the fungus *Coprinus*. Below is a Light Micrograph of the fungus *Rhizopus*. Underneath the light micrograph is a Scanning Electron micrograph of the fungus *Aspergillus*.

Light Microscope	Electron Microscope
Can view images in natural colours	Only monochrome images can be seen
Large field of view (~ 2 mm maximum diameter)	Limited field of view (~ 100 µm maximum diameter)
Cheap and easy preparation	Difficult and expensive preparation
Can view living and moving objects	Can only view dead and inert objects
Magnification ~ x600	Magnification ~ x500,000
Resolution ~ 0.25 µm	Resolution ~ 0.25 nm

Table credit:

http://vce.bioninja.com.au/Media/picture_7_med.jpeg



USEFUL LINKS AND RESOURCES

Edexcel Pearson Specification

http://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/Specification/Edexcel_GCSE_L1-L2_Biology.pdf

AQA Specification.

<http://www.aqa.org.uk/subjects/science/gcse/biology-8461>

OCR Specification.

<http://www.ocr.org.uk/qualifications/gcse-gateway-science-suite-biology-a-j247-from-2016/>

WJEC Specification.

http://www.wjec.co.uk/qualifications/science/gcse/biology-gcse-2016/wjec-gcse-biology-spec-from-2016.pdf?language_id=1

Scottish National Specification

https://www.sqa.org.uk/files_ccc/BiologyCourseSpecN5.pdf