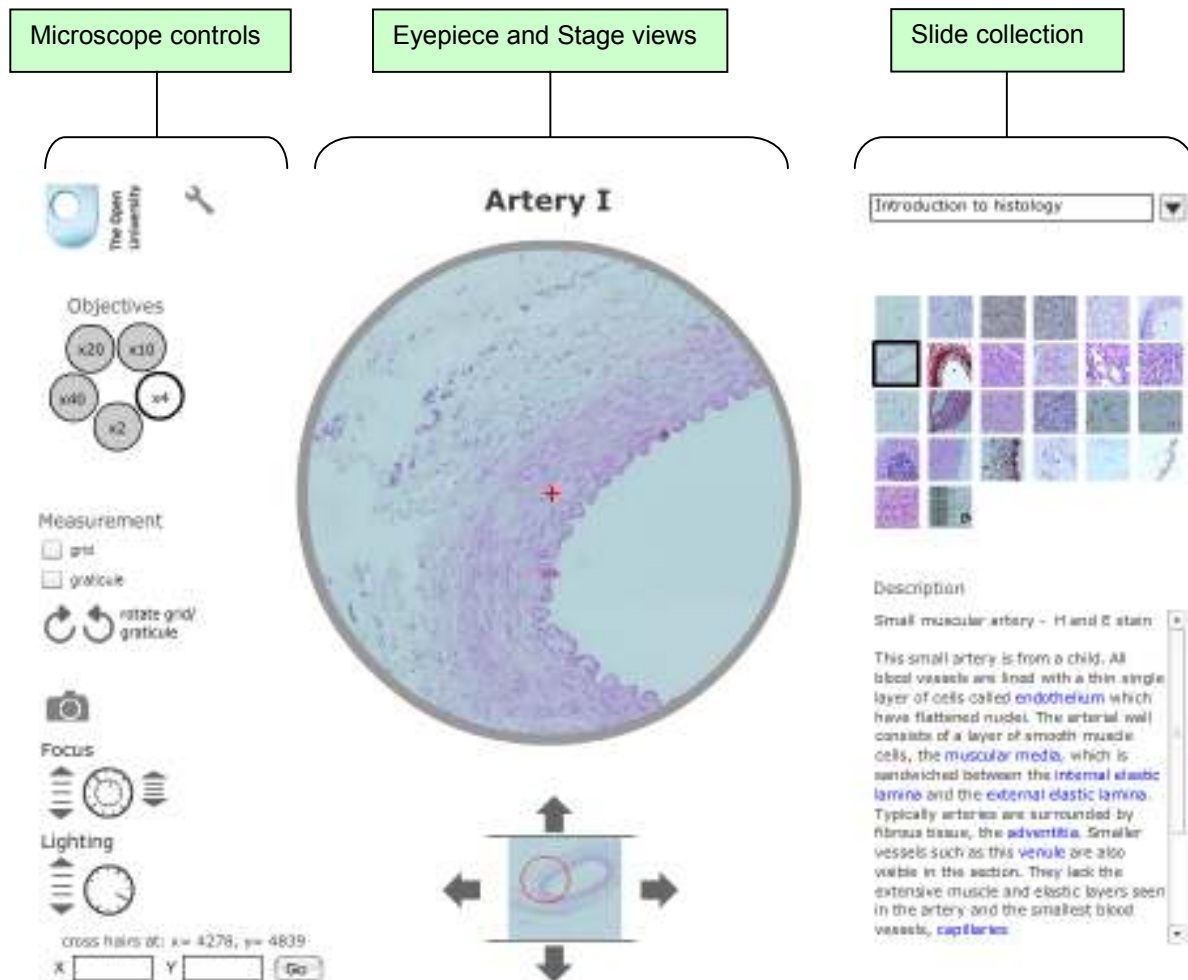


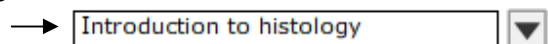
How to use the Virtual Microscope

The Virtual Microscope (VM) simulates the normal functions and controls available on a light microscope. It comes with collections of large high resolution images, which can be scanned and viewed at different magnifications. It also acts as a teaching tool to guide the user towards specific features on each slide.

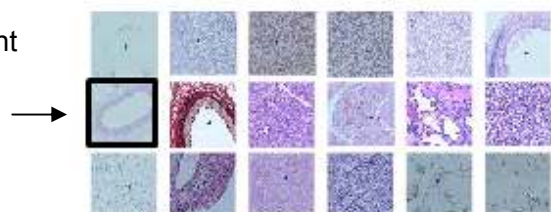


Slide collection

When you open the microscope, go to the Catalogue and find the collection of slides that you need.



The set of slides will be loaded onto the light-box. Passing the pointer over each thumbnail on the light box will pop-up a description of the slide. Click on the slide to place it onto the microscope stage.



Artery I

Eyepiece and stage views

The title of the current slide is shown at the top of the screen.

The main window shows the appearance of the slide as seen through the eyepiece of the microscope, using the currently-selected objective.

When a new slide is loaded onto the stage the x2 objective is automatically selected.

If the objective is changed the view will zoom-in or zoom-out, while remaining on the same point on the slide.

The stage view shows a small view of the entire slide. The ring shows the area that is currently visible through the eyepiece.

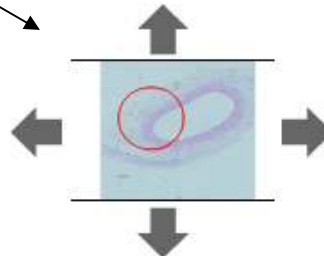
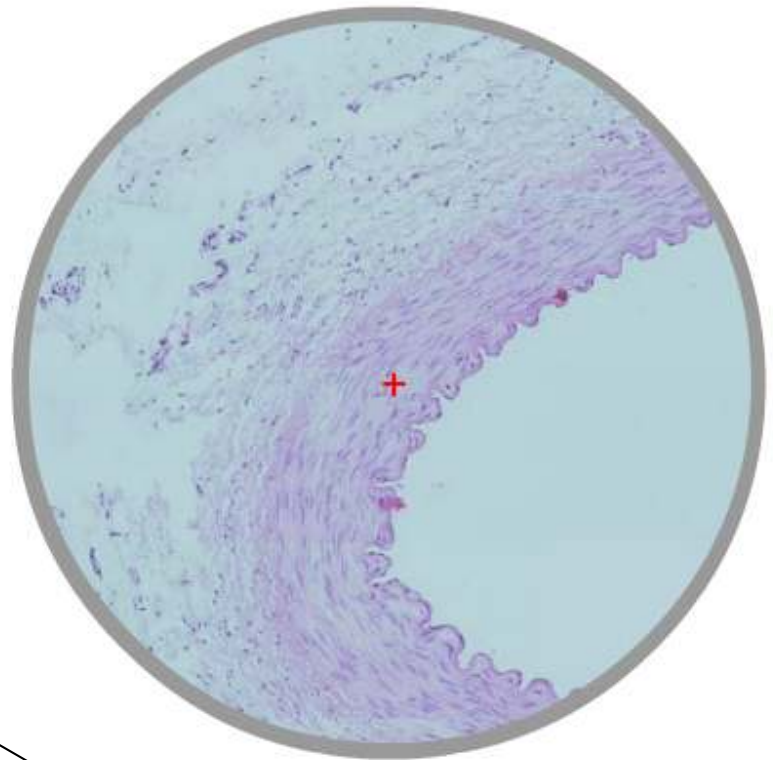
Scan across the slide by clicking on the stage-drive arrows, which move the observation area, as indicated.

Alternatively, click and drag the red ring to the point on the slide that you want to view.

The position of the cross-hairs in the eyepiece is associated with a unique XY coordinate on the slide.

You can identify particular features according to their XY coordinates.

To move to a specific point on a slide, enter the XY coordinates and click on 'go'.



Cross hairs at: X= 4213, Y= 4696
X Y

Microscope controls

The microscope turret can simulate five different objectives, with the current objective highlighted. Click on a new objective to change the current magnification.

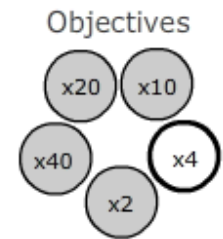
The resolution that can be obtained in the VM depends on the image available. Some of the images are taken at low resolution in order to accommodate a larger area of the section. There is no point in using the x40 objective with low resolution images as the view becomes too pixellated, so this objective is made unavailable for low resolution images.

Measurements can be made by placing a grid or a graticule over the section – click on the appropriate box. This simulates replacement of the normal eyepiece with a special eyepiece on a real microscope.

You can capture images from the eyepiece view by clicking on the camera icon. This will bring up a dialogue box that allows you to save the current image as a jpeg file.

The outer-ring simulates the coarse focus, and the inner-ring the fine focus controls – adjust focus by clicking the arrows. When a new slide is placed on the stage, it will probably require some adjustment of the coarse-focus control; if the objective is changed it may require adjustment of fine-focus.

The lighting control simulates the lamp voltage/brightness on a real microscope. Adjust the voltage using the arrows until the maximum amount of detail can be seen.



Measurement

☐ grid

☐ graticule



Focus



Lighting



Descriptions

Each slide has a descriptive legend, which highlights particular features in blue. Clicking on a highlight will move the slide instantly to an example of that feature.

Use the scroll bar for slides with long descriptions.

Sounds

The sounds on the microscope were taken from the microscope that was used to prepare the images.

Description

Artery I
Small muscular artery - H and E stain.

This small artery is from a child. All blood vessels are lined with a thin single layer of cells called **endothelium** which have flattened nuclei. The arterial wall consists of a layer of smooth muscle cells, the **muscular media**, which is sandwiched between the **internal elastic lamina** and the **external elastic lamina**. Typically arteries are surrounded by fibrous tissue, the **adventitia**. Smaller vessels such as this **venule** are also visible in the section. They lack the