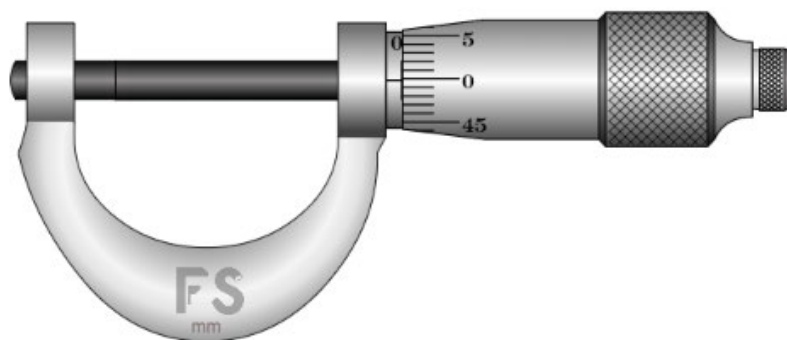


# FLASHY SCIENCE

## Micrometer experiment Instructions



The  
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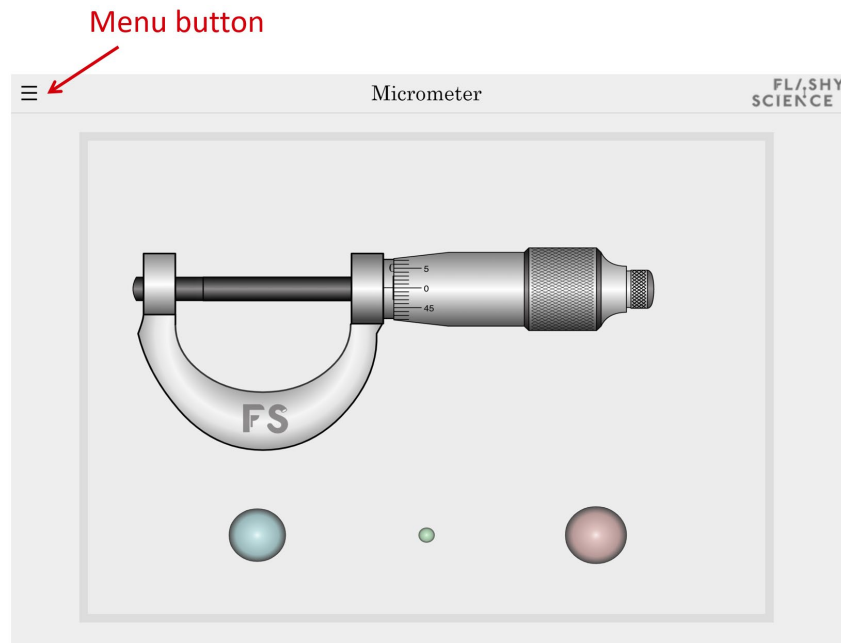
[www.flashyscience.com](http://www.flashyscience.com)

## FlashyScience Instructions – Micrometer

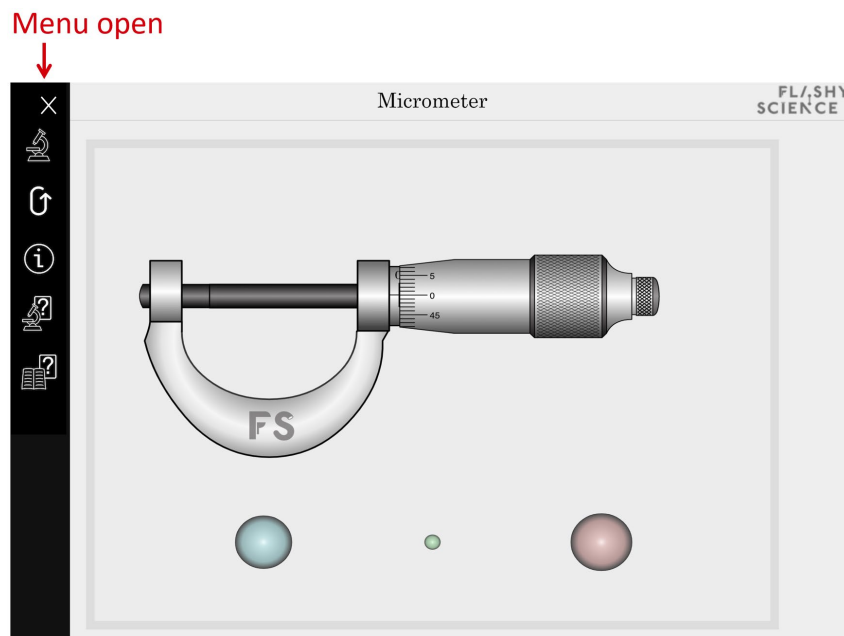
Micrometers are common pieces of lab equipment that allow the size of millimetre-scale objects to be measured with high precision. This FlashyScience experiment allows you to learn how to use them and practice taking measurements.

### The menu

A menu button is shown in the top left of your screen throughout this experiment.

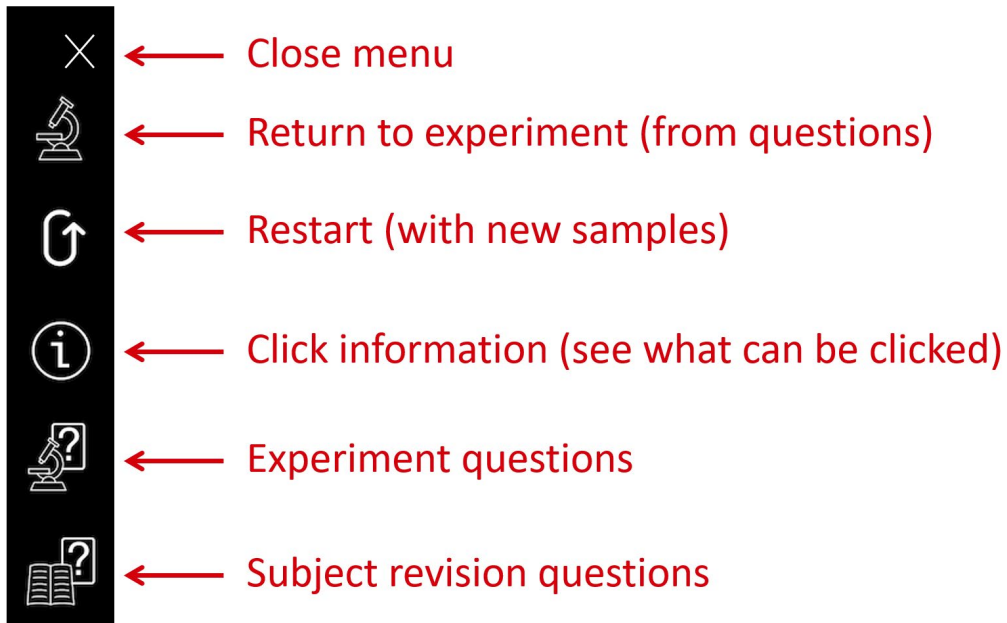


Clicking on the button opens the menu:



The menu has options to:

- Close the menu
- Return from questions to the experiment
- Restart the experiment with new samples
- 'Click information' to show what can be clicked on the experiment
- Questions directly related to your experiment
- Revision questions on the subject of your experiment



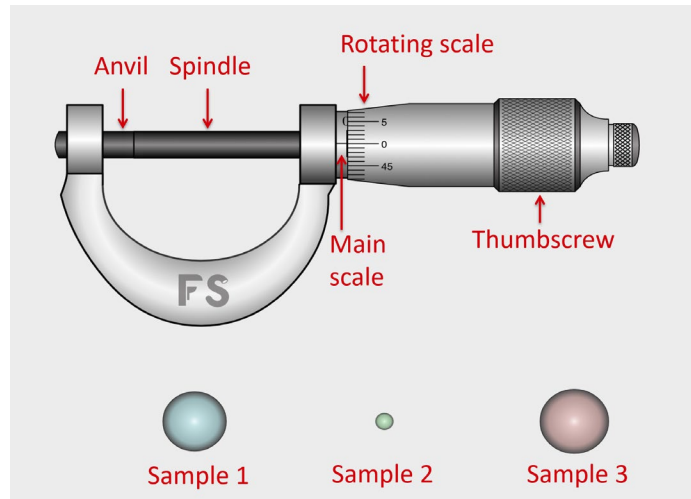
The questions are **automatically answered** and contain randomly-generated values, so you can keep using them again and again!

### Operating the Experiment

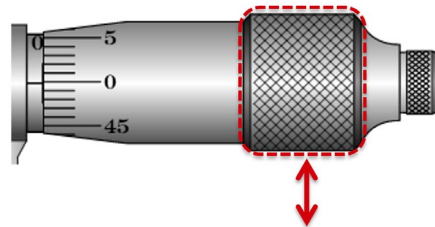
1. When you start the Micrometer experiment you will see:

- The micrometer
- Three spherical samples of different widths

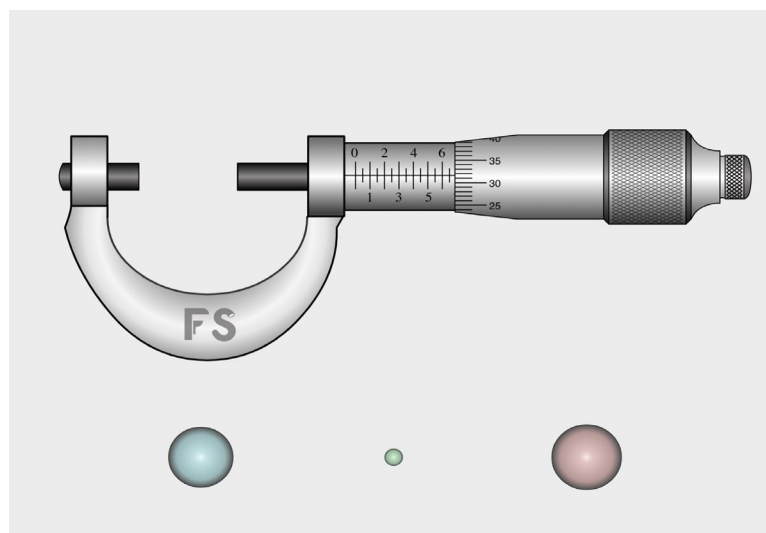
The micrometer has a stationary *anvil* and a moveable *spindle*, a *thumbscrew* to open and close the micrometer, and measurement aids of a *main scale* and a *rotating scale*.



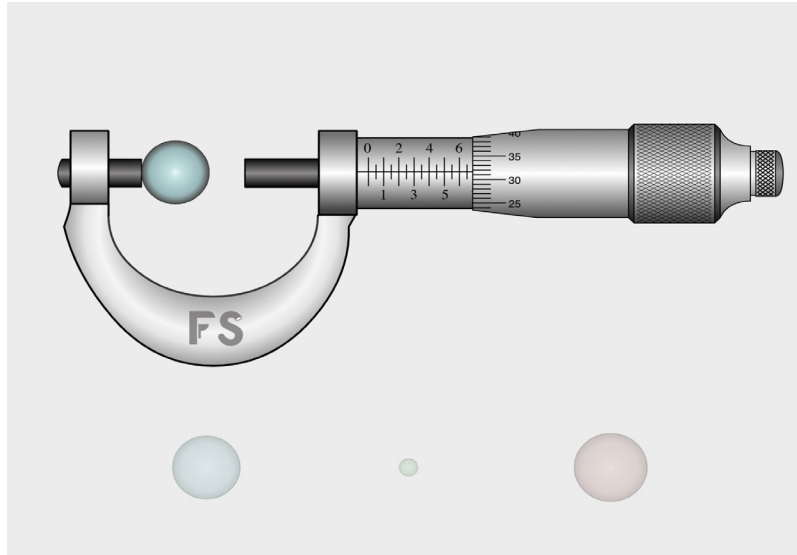
2. Click and drag the *thumbscrew* up or down to move the *spindle* to the right (to open the micrometer) or left (to close the micrometer).



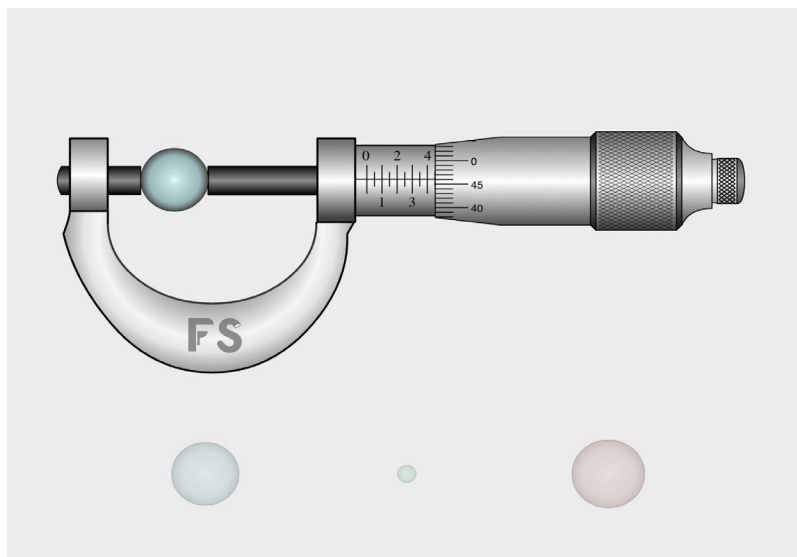
3. Move the *spindle* to create a gap between it and the *anvil* that is larger than the sample you want to measure.



4. Click and drag a sample so that it snaps into place next to the anvil.

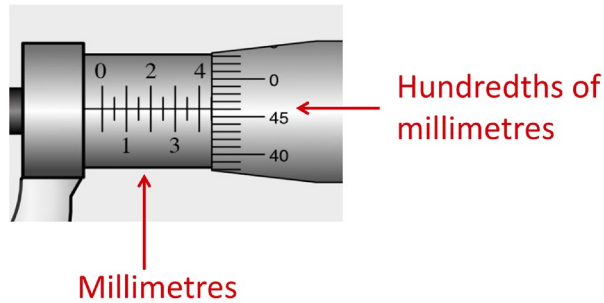


5. Move the *spindle* to contact the sample by clicking and dragging the *thumbscrew* up. When the *spindle* touches the sample the *thumbscrew* will stop rotating.





6. Read the sample width using the micrometer scales. To do this:

- Find the value of the largest valued tick mark shown on the *main scale* – these go up in half-millimetre steps. In the example below, this is 4.0 mm.
- Find the value on the *rotating scale* alongside the *main scale* axis. This value is in hundredths of a millimetre. In the example below, the value is '46', which gives 0.46 mm.
- Add the values from the above steps to find the overall sample measurement. Here, this would be  $4.0 + 0.46 \text{ mm} = 4.46 \text{ mm}$ .



Remember, you can use the pop-out menu described at the beginning of these instructions to:

- Check your measurement via the Experiment Questions by clicking 
- Create a new set of samples by clicking 
- Do some revision questions by clicking 