

3.3 Microscope Measurements and Calculations

Measuring Cells:

- When using a light microscope we can measure the size of objects using an eyepiece graticule
- The graticule = a glass disc that is placed in the eyepiece of the microscope with a scale etched onto it
- Scale is typically 10 mm long and is divided into 100 sub divisions
- Scale is visible when looking down the eyepiece of the microscope
- Scale cannot be used to measure the size of objects directly as the objective lens will magnify to a different degree
- Graticule must first be calibrated for a particular objective lense
- Once calibrated in this way the graticule can remain in position for future use provided the same objective lense is used

Calibrating the Eyepiece Graticule

- Use a special microscope slide called a stage micrometer which a scale is etched onto usually 2mm long and its smallest sub-divisions are 0.01 mm (10um)
- E.g. 1 unit on the micrometer 4 units on graticule scale so each unit on the micrometer = 10 um on the graticule is $10 \div 4 = 2.5 \text{ um}$

Calculating Linear Magnification of Drawing and Photographs

1. Measure the size of the specimen on the picture
2. Change this unit to the unit given
3. Divide the number measured by the number given