

Middle School Science Stage 4 Course

Through the Microscope Set 1



Glossary

Read through this list of terms and their meanings which are introduced throughout this unit.

Term	Meaning
Fingerprint	Tiny ridges and patterns on the tip of each finger.
Hand lens	A simple instrument which makes objects look larger.
In focus	A clear image.
Magnification	The measure of the magnifying ability of a lens.
Microscope	A piece of equipment that shows an image that is larger than the original object.

Fingerprints

Fingerprints are the tiny ridges and patterns on the tip of each finger. They form from pressure on a baby's tiny, developing fingers in the womb.

No two people have been found to have the same fingerprints -- they are totally unique.



The ridges on your fingers help prevent things slipping when you hold them. They need to be closest together on your fingertips so that you can hold small things such as needles.



Finger tip with charcoal as seen through hand lens

The fine ridges on your fingers are a good place to look for sweat pores in your skin.

The pores on your fingers can be seen more clearly when you rub some charcoal dust on your fingers.

If you look carefully at the ridges you should be able to see the pores like a row of specks on the ridges.



Experiment 2

Aim: To use a hand lens to observe fingerprints.

Equipment

Hand lens

Charcoal powder (small amount from a burnt match)



Method

1. Use the hand lens to observe one of your fingertips.
2. In Box A draw the pattern you observe on your finger.
3. Rub the same finger with a small amount of charcoal powder.
4. Look on the ridges for pores like a row of specks.
5. In Box B draw the pattern you observe on your finger.

Results



Box A



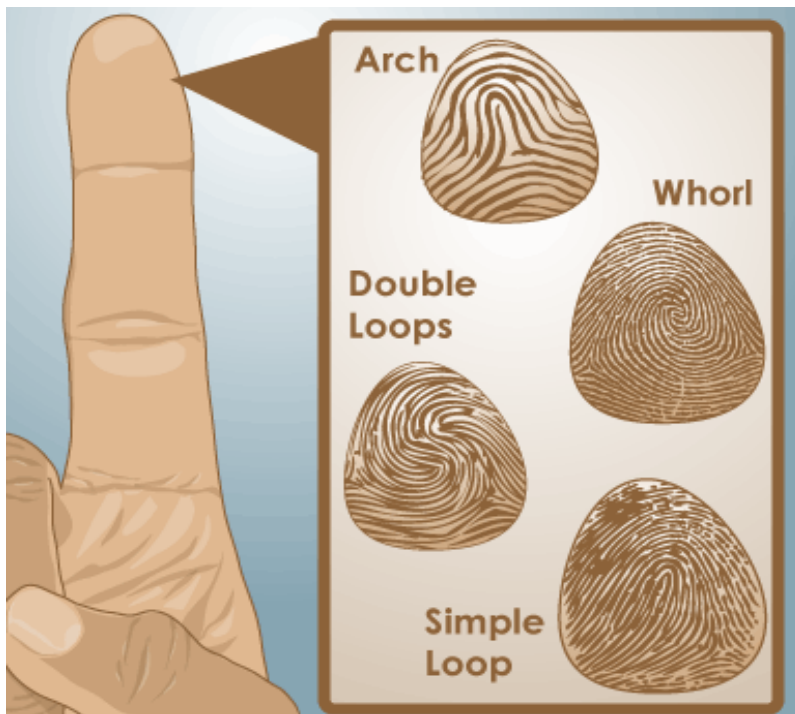
Box B

Observations

1. Can you see ridges on your fingertips? _____
2. Where are the ridges closest together? _____
3. Could you see the pores on your fingertips after rubbing with charcoal? If yes, what did these look like?

Fingerprint patterns

Finger prints are sorted into different groups. These include arches, loops and whorls.



Look back at your fingerprint drawings on page 9.

Can you work out your fingerprint pattern? _____



Activity 1

1. Now you can be a forensic scientist and work out this fingerprint pattern.



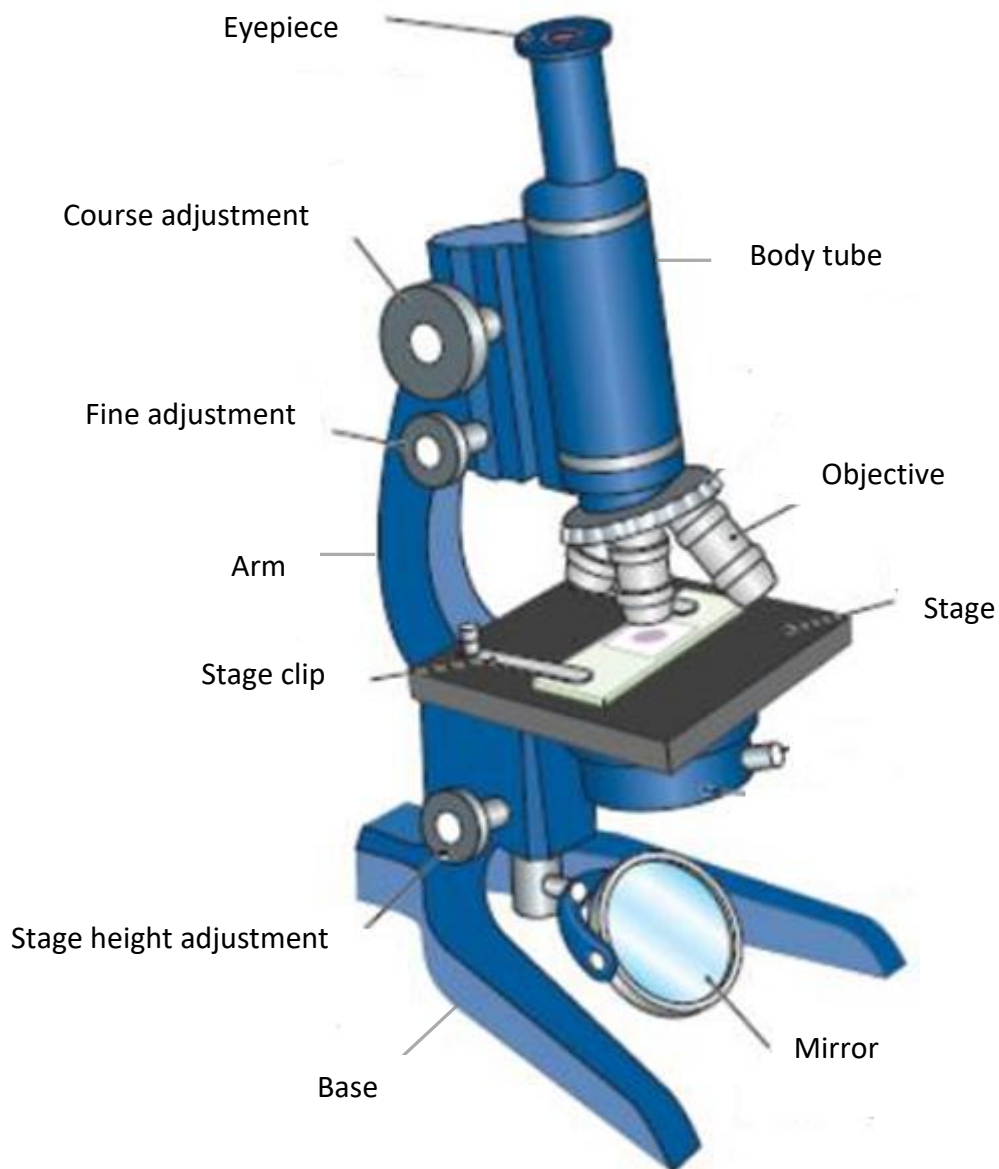
This fingerprint pattern is a _____

Why use a microscope?

Many parts of living things are too small to be seen with just your eyes. Things that are too small to be seen with the naked eye are said to be **microscopic**. To help you see small things clearly, you use a microscope. The microscope shows an image that is larger than the original object.

Parts of the microscope

Each part of the microscope has a special function or job to perform.



The function of each part is given in the table below.

Part	Function
Eyepiece	Has a lens which magnifies the object.
Body tube	Keeps the eyepiece and the objective at the correct distance.
Coarse focus adjustment	Moves the body tube up and down to focus the image of the object.
Fine focus adjustment	Moves the body tube by a small amount to focus on small details.
Arm	Used to carry the microscope.
Objectives	Have lenses which magnify the object.
Stage	Supports the glass slide and has a hole to let light pass through the object.
Stage clip	Holds the glass slide firmly on the stage.
Mirror	Directs the light upwards through the object.
Base	Heavy anchor to support the microscope on the table.



Activity 3

1. Match the microscope part with its function.

Part	Function
Course focus adjustment	Moves the body tube up and down to focus the image of the object.
Fine focus adjustment	Have lenses which magnify the object.
Stage clip	Moves the body tube by a small amount to focus on small details.
Mirror	Directs the light upwards through the object.
Objectives	Holds the glass slide firmly on the stage.

2. Label the parts in the table above on the microscope below.

