

Requires 2 x 1.5V AAA batteries (not included).

**WARNING!** To be used under the direct supervision of an adult.



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Distributed by Trends UK Ltd,  
Harwell Innovation Centre, Curie Avenue,  
Harwell Oxford, Didcot OX11 0QG. UK  
Email: [trends@jgdirect.net](mailto:trends@jgdirect.net)

**Customer Services:**  
**+44 (0)1702 208175**

Please retain the information in this manual for future reference.

Colour, designs and decorations may vary from those shown in the photographs.

Printed in China.



Item no. D25



The purpose of the crossed-out wheellie bin symbol is to remind us that most electrical product and batteries contain trace elements which could be harmful to our environment and therefore our health. We must all be careful to dispose of them responsibly in a specifically designated way - either using a collection scheme or into the correctly labelled civic amenity (NOT into general waste) - this will help your local authority to arrange to recycle or dispose of them in the appropriate manner.

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# 150X Microscope

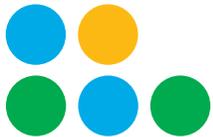
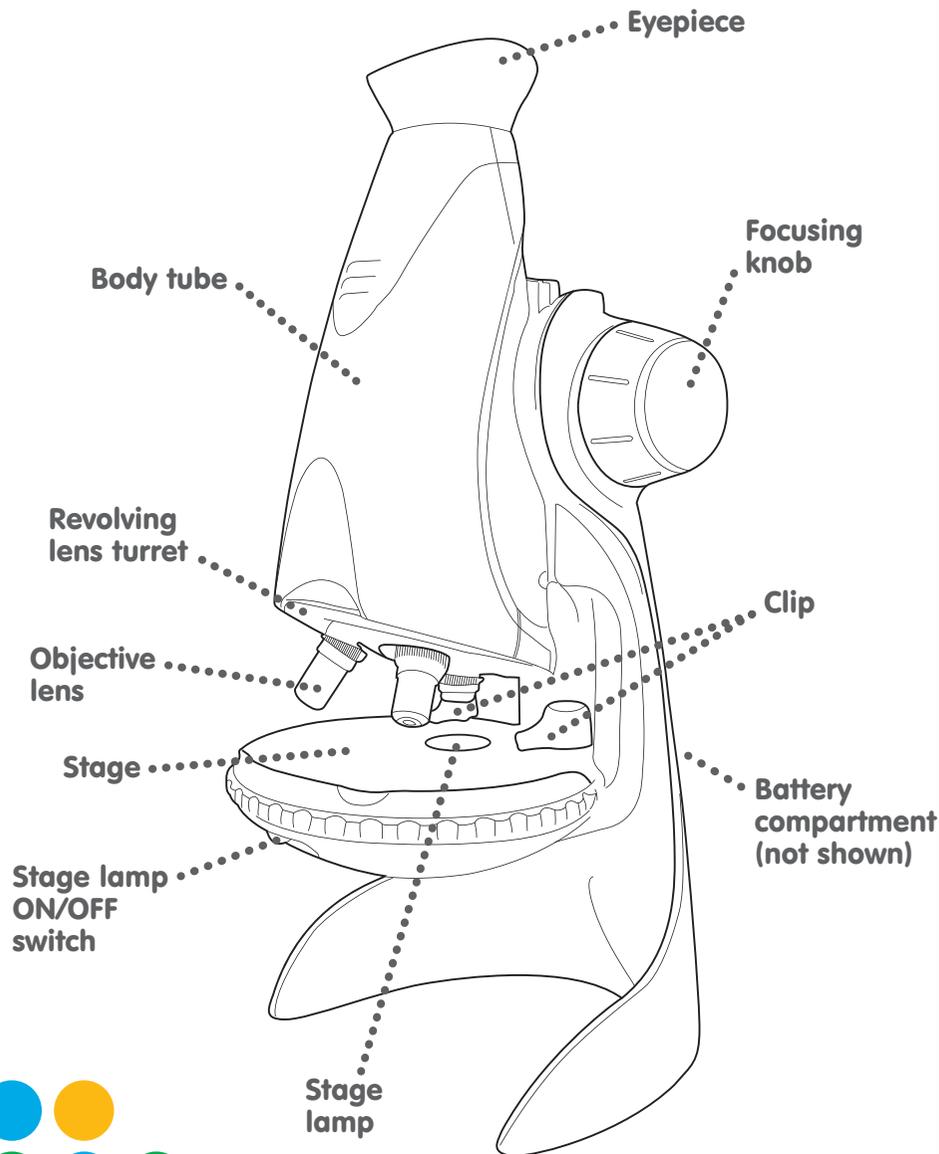


**Instruction Manual**

**Explore Your World**

**Ages 8+**

# Components



## Contents

- 1 x microscope
- 2 x prepared slides
- 6 x blank slides
- 12 x statical slide covers
- 12 x blank labels
- 2 x collecting vials
- 1 x needle/probe
- 1 x petri dish with magnifier
- 1 x 3/6X magnifying glass
- 1 x tweezers
- 1 x manual



## Things you may need for making slides that are not included with this set:

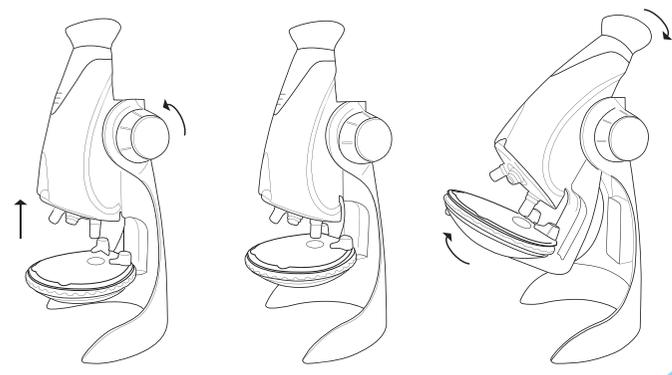
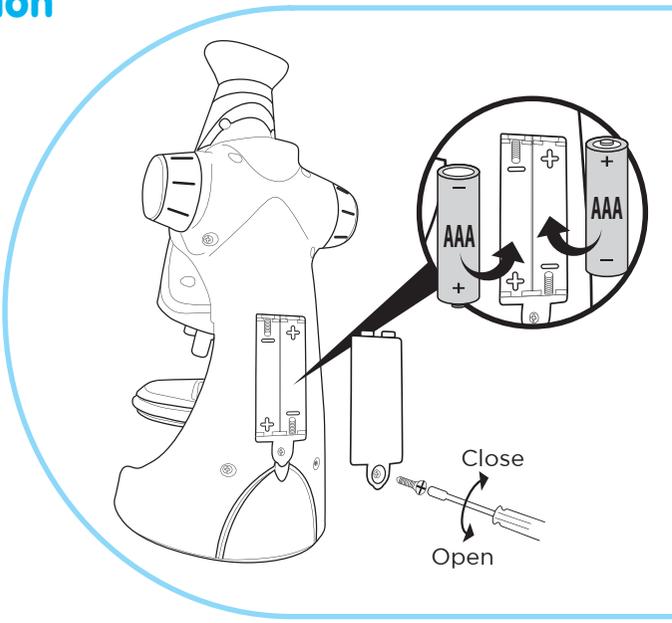
- Transparent glue
- Coloured dye (optional)

## Helpful Hints

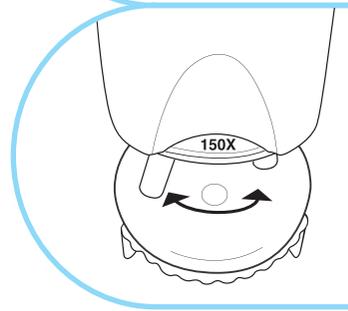
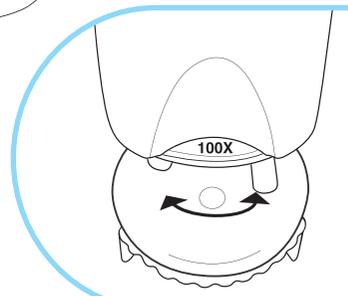
1. The most important parts of your microscope are the lenses. Handle them with care. If the lenses are dirty or dusty you can clean them with a soft cotton cloth or a special lens-cleaning tissue. Do not wipe them with a finger or a facial tissue.
2. If you are not going to use your microscope for a week or more, remove the two batteries that power the illuminator.
3. Protect your microscope from dust and moisture by always storing it in its box.

## Battery installation

- 1) Read the important battery information on page 7
- 2) Unscrew the battery door on the rear of the microscope.
- 3) Install 2 x AAA batteries as shown inside the battery compartment. Make sure the + and - terminals on the batteries match the illustration.
- 4) Replace the battery door, taking care not to over-tighten the screw.

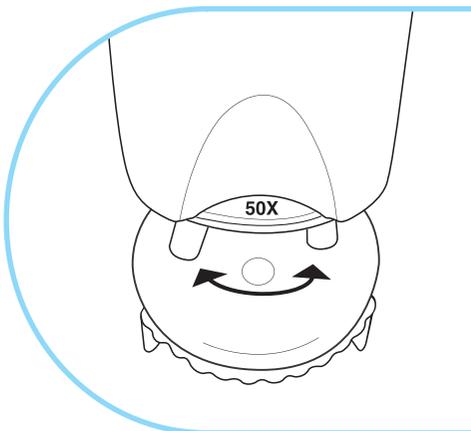


- 4) Look through the eyepiece and at the same time, use the focus knob to adjust the focus until you see a clear image of the specimen. Avoid turning the knob to the point where the lens presses against the slide, as you may damage the microscope or the slide. You may need to move the slide slightly to ensure the specimen is centred through the eyepiece.
- 5) To increase the magnification, rotate the lens turret until the next largest lens (100X) is aligned with the specimen. You will need to adjust the magnification slightly to obtain a sharp image. Use the highest magnification (150X) only after you have used the other two, otherwise you may have difficulty focusing on the slide.



## Using your microscope

- 1) Move the light switch to the ON position.
- 2) Rotate the lens turret until the shortest objective lens (50X) aligns with the opening in the stage (it will click into place when it is aligned properly). Check that the light can be seen through the eyepiece.
- 3) Place a prepared slide on the stage and secure with the slide clips, making sure the specimen is aligned with the centre of the light.



Before lenses were invented, some early microscopes used tiny glass globes filled with water to magnify objects.

**IMPORTANT:** Wash your hands before and after every project using warm water and soap. Also wash any of the tools and accessories that have been used to prepare specimens. Be careful when handling the slides and slide covers. Make sure an adult knows what you are doing and is available to help you.

Your microscope magnifies specimens up to 150X and is lit with a small battery operated bulb. There is a microscope called the Synchrotron, thought to be the biggest in the world, that is the size of five football pitches. It produces X-rays which are 100 million times brighter than the Sun. A bit big to carry around though!

## ●●● How To Prepare A Slide

Samples for examination should be very thin so that light can pass through them. If the sample is too thick it will appear dark in the microscope.

Cloth fibres, pollen, dust or salt crystals will be easy to see and make good samples for beginners to observe.

If the sample is very thin and clear a drop of dye may make details show more clearly. Methylene blue dye (not included) can be obtained from an aquarium supply store. You can transfer a drop of dye from the bottle to your slide with the pipette.

You can also try a little food colouring to see if that works on your specimen. Try mixing up our own colours using different food colours, an empty vial and the stirring rod included in the set.

CAUTION! Dyes and food colouring can stain. Always follow the safety instructions on dye and food colouring bottles. We recommend that children wear overalls and/or old clothes and that you cover furnishings, carpets and work surfaces.

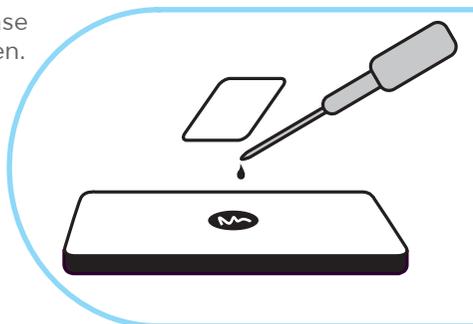
Always follow the safety instructions on dye bottles. When using dyes, adult supervision is essential.

## ●●● Collecting Specimens

Use your tweezers and the vials to collect very small specimens from your garden or home. Items that are good to look at under a microscope are pieces of bath sponge, leaves, plant roots, flower stems, sand, dirt, fabric fibres, salt and seeds. Remember they must be thin enough and small enough so that the light can shine through and all around them up through the hole of the slide. Solid objects are not good for viewing with your microscope.

## ●●● Making A Temporary Slide

1. Wipe a blank slide clean, as dirt or grease may affect the viewing of your specimen.
2. Prepare a thin sample. You may have to ask an adult to slice something for you, as knives and scissors can be sharp. Cross-sections of stems, roots and pieces of leaves are really interesting under the microscope. When any kind of cutting is involved, adult supervision is essential.



3. Pick up your sample with the tweezers and put it on the centre section of the slide. Add one drop of water or, if needed, you can now add a drop of dye/food colouring using your pipette.
4. Gently place a slide cover (see-through plastic label) over the sample, being careful not to allow in any air bubbles.
5. Remove any excess water or dye/food colouring with a piece of paper towel (not included) by pressing it down gently over the slide cover.
6. Observe your slide.

## ●●● Making A Permanent Slide

1. Start with a clean slide and slide cover. Make sure your hands are clean and dry when handling the slide covers.
2. Follow Steps 2 and 3 as before.
3. Before placing the slide cover over your specimen add several drops of transparent glue (not included). Caution! Always follow the safety instructions on glue bottles.
4. Place the slide cover gently over the sample and gently squeeze out any air bubbles.
5. Place your new slide in a safe place and let it dry for a day before you observe it under the microscope.  
We have also supplied labels for your slides so you can name specimens for future reference.

## ●●● Important Information – Safe Battery Usage

- Only adults should replace batteries.
- Do not mix battery types or old and new batteries.
- Do not use rechargeable batteries.
- Non-rechargeable batteries are not to be recharged.
- Batteries are to be inserted with the correct polarity.
- Do not short-circuit the supply terminals.
- Remove exhausted batteries from the toy.
- When the toy is not in use, remove batteries to prevent possible leakage.
- Use only recommended or equivalent battery types.
- Do not dispose of batteries in fire: batteries may explode or leak.

