

# MICROSCOPE

## USER MANUAL



For MS002 / MS006 / MS007 / MS008 / MS020 / MS112 / MS601 / MS701 / MS901 / MS903 / MS907 / MS908 / MS911 / MS916 / MS925

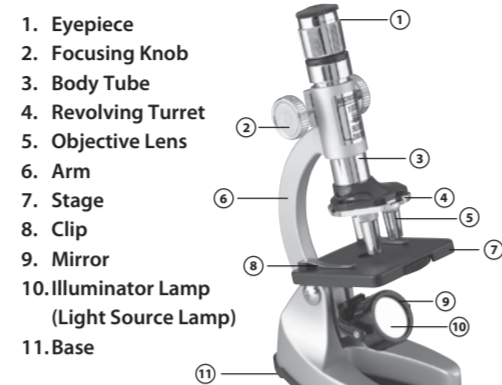
### INTRODUCTION TO A MICROSCOPIC WORLD

In this world there are an abundance of living things. Some are large and easily seen with our own eyes but others are so minute that millions could be placed on the head of a pin. These can only be seen through a microscope.

The microscope was invented many years ago and since then has opened a field of research, as fascinating and beautiful as anything you can imagine. Now, all science from the most elementary study of biology to the highly specialised fields of astro-physiology use some form of microscope to enable the students of these sciences to better understand the intricate, complicated forms of living organisms or static materials that make up this world in which we live.

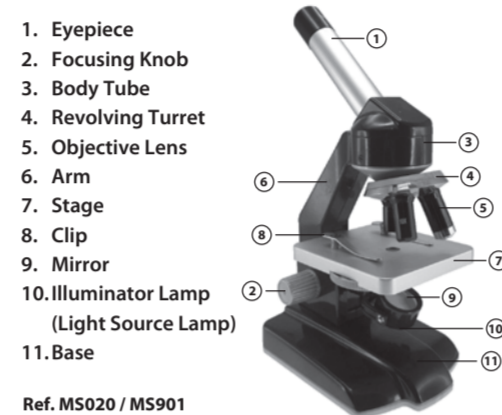
Your microscope will be a source of many hours of pleasure as a hobby or open the door to advanced knowledge in the varied fields of science. We hope you enjoy your experience.

### INTRODUCTION OF MICROSCOPE



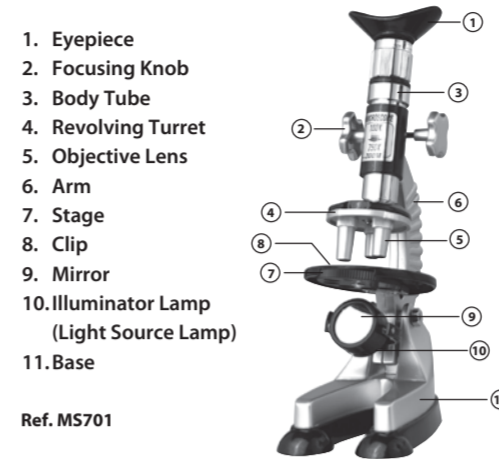
1. Eyepiece
2. Focusing Knob
3. Body Tube
4. Revolving Turret
5. Objective Lens
6. Arm
7. Stage
8. Clip
9. Mirror
10. Illuminator Lamp (Light Source Lamp)
11. Base

Ref. MS002 / MS007 / MS601 / MS903 / MS907 / MS908 / MS911 / MS916 / MS925



1. Eyepiece
2. Focusing Knob
3. Body Tube
4. Revolving Turret
5. Objective Lens
6. Arm
7. Stage
8. Clip
9. Mirror
10. Illuminator Lamp (Light Source Lamp)
11. Base

Ref. MS020 / MS901



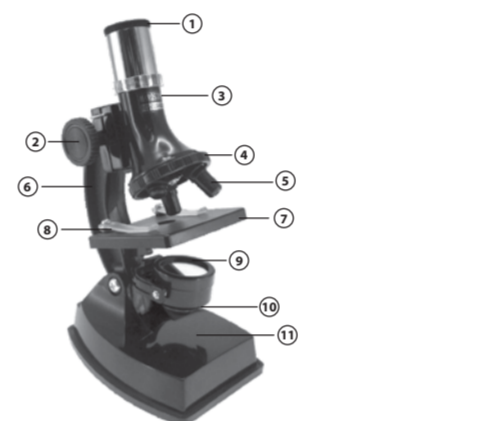
1. Eyepiece
2. Focusing Knob
3. Body Tube
4. Revolving Turret
5. Objective Lens
6. Arm
7. Stage
8. Clip
9. Mirror
10. Illuminator Lamp (Light Source Lamp)
11. Base

Ref. MS701



1. Eyepiece
2. Focusing Knob
3. Body Tube
4. Revolving Turret
5. Objective Lens
6. Stage
7. Clip
8. Mirror
9. Illuminator Lamp
10. Base (Light Source Lamp)
11. Viewer
12. Viewer/Microscope Knob

Ref. MS008



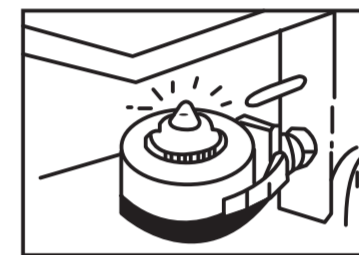
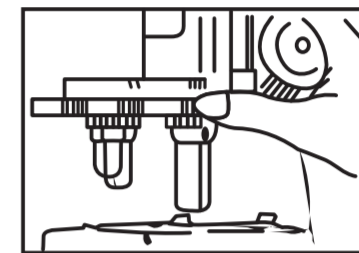
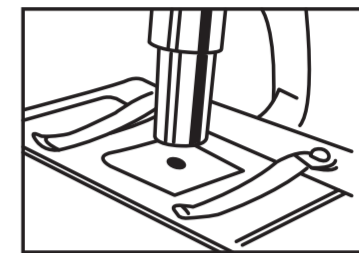
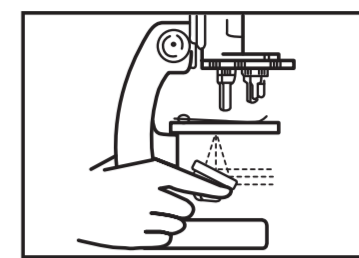
1. Eyepiece
2. Focusing Knob
3. Body Tube
4. Revolving Turret
5. Objective Lens
6. Arm
7. Stage
8. Clip
9. Mirror
10. Illuminator Lamp (Light Source Lamp)
11. Base

Ref. MS006 / MS112

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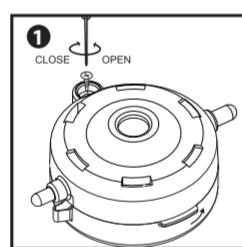
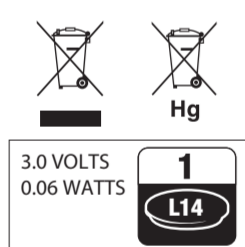
### INSTRUCTIONS FOR USE OF MICROSCOPE

1. First tilt the arm and adjust the position of the reflector so that the light is fully caught by the mirror.
2. When the light is fully reflected by the mirror, as can be seen through the eyepiece, the microscope will be ready for observation.
3. Next, put the prepared slide on the stage and fix it in place with the clips.
4. Now decide what magnification to use. The greater the length of the objective lens the greater the magnification. Observation is generally made starting at a low setting.
5. In order to change the magnification turn the revolving turret until you feel a click.
6. Using the focusing knob, lower the lens as close as possible to the prepared slide without actually making contact. Then, while looking through the eyepiece, turn the knob in the opposite direction until the image comes into focus.
7. When the room is dark with low intensity of natural or lamp light, or when the sight is not clear at a high magnification, turn the reflector. Then the light source lights automatically to enable observation.
8. The light source lamp is used with 1 "CR2032" battery put in the illuminator lamp.

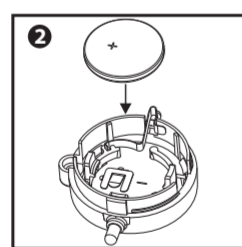


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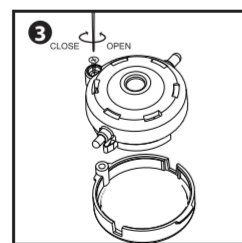
### BATTERY INSTALLATION



1. Unscrew the lamp cover with a screwdriver to take off.



2. Insert 1 "CR2032" battery into the battery compartment carefully the correct (+) and (-) positions.



3. Replace the lamp cover and screw it back into place.

### FOR ADJUSTABLE ZOOM MODELS

The figure 12X or 18X is indicated on the opposite side of the eyepiece tube.

By rotating the silver knurled ring in counter / clockwise direction the eyepiece power will zoom to 18X.

Assuming that you are using an objective turret of 12X, and with the eyepiece at 12X, then the magnification power of the combination is  $12 \times 12 = 144$ .

The object you see is enlarged 144 times.

By just using the zoom eyepiece, and rotating it to 18X, you now have a combination of  $12 \times 18 = 216$ .

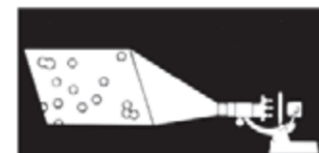


Zoom Eyepiece  
12x-18x

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### HOW TO USE AS A PROJECTION DEVICE

Remove the eyepiece and tilt the microscope so that the body tube is pointing at a white surface not more than one meter away. For best results view in a darkened room.



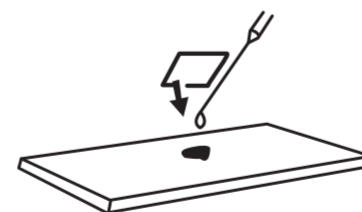
### HOW TO MAKE A PREPARED SLIDE

If the given sample is not thin and transparent, it cannot be observed by the microscope as the light from the reflector or the light source does not pass through it. Fibres, pollen, wool, or salt will be easy to observe and do not need a cover glass. Clear samples are stain first with a drop or two drops of methylene blue, Eosin or other dyeing solutions available on the market.

**(Note: These are dyeing solutions and therefore could cause staining of clothing, carpets and fabrics. Special care should be taken when handling these solutions.)**

#### 1 Temporary mount

Wipe the slide and cover glass clean. Thin the sample with a razor blade **(Note: The blade is very sharp so handle with extreme caution)** or similar, then pick it up with tweezers and put it on the centre part of the glass slide. Put one drop of water on the sample with a dissecting needle, or if the sample is clear, use one drop of the above mentioned dyeing solutions **(Note: The needle has a sharp point so handle with extreme caution)** and then gently put the cover glass on it, taking care not to trap any air bubbles. Remove any excess water or dyeing solution with blotting paper. Now it is ready for observation. (Remember to wash your hands after doing the preparation and remember to dispose the dyeing solutions.)



#### 2 Permanent mount

Wipe the slide and cover glass clean as above (Temporary mount). Proceed as above but before covering the slide with the cover glass, add a few drops of gum media (or Canada balsam) solution or transparent adhesive glue with a dissecting needle to the slide. Push down on the cover glass with tweezers or the like to fix it in place and leave to dry for about a day.

### HOW TO USE THE MICRO-SLICER

Put the specimen which you want to cut for study into the holes of the micro-slicer **(Note: the micro-slicer contains a sharp edge so handle with extreme caution)**. Revolve the blade. Then you can get thin slices of the specimen.

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### ADVICE FOR SUPERVISING ADULTS

- Read and follow the instructions and safety rules. Keep them for reference.
- This Microscope set is for use only by children over 8 years old.
- Because children's abilities vary so much, even within age groups, supervising adults should exercise discretion as to which preparations are suitable and safe for them. The instructions should enable supervisors to assess any preparation to establish its suitability for a particular child.
- The supervising adult should discuss the warnings and safety information with the children before commencing the preparations. Particular attention should be paid to the functionally sharp point on the needle and the functionally sharp edges on the scalpel and slicer.

### SAFETY RULES

- Do read these instruction before use, follow them and keep them for reference.
- Do keep young children and animals, and those who are not wearing eye protection away from the experimental area.
- Do always wear eye protection.
- Do store microscope sets out of reach of young children.
- Do clean all equipment after use.
- Do wash hands after carrying out preparations.
- Do not use any equipment which has not been supplied with the set.
- Do not eat, drink or smoke in the experimental area.
- Do not put foodstuffs in original container. Dispose of immediately.
- Do make sure that all containers are fully closed and properly stored after use.

### CAUTION FOR HANDLING

- The vital part of the microscope is the lens. Therefore, sufficient care must be taken in handling the lens.
- If the lens gets dirty or dusty, wipe the lens surface with a clean lens tissue or soft cotton cloth. Do not rub the lens with a finger or dirty cloth, etc.
- After it is used, put a cover on the microscope or put it back into the box for screening from dust.
- Microscope should be stored in a moisture free place. Moisture build up on the light causes a reduction in light intensity.
- When a microscope is not used for a long period of time, remove the light source battery.

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