

 **Discovery™**

AGES  
**10+**

# INSTRUCTION MANUAL



**Zoom Power  
Lab Microscope**  
Biological Experiments Gear

**AA** x3  
NOT INCLUDED



**WARNING:**  
CHOKING HAZARD – Small parts.  
Not for children under 3 years.

# CONTENTS

## **Microscope parts:**

- 01** Eyepieces (Interchangeable 20x and 40x)
- 02** 4x Zoom
- 03** Focus Wheel
- 04** Stage
- 05** Metal Stage Clips
- 06** Color Filter Wheel
- 07** Objective
- 08** Illumination On/Off Switch
- 09** Dimmer control
- 10** Base and Battery Compartment

## **Additional contents:**

- 11** (3) Prepared Slides and (5) Blank Slides
- 12** Slide Covers
- 13** Slide Case
- 14** Tweezers\*
- 15** Spatula
- 16** Scalpel\*
- 17** (3) Empty vials
- 18** Magnifying glass
- 19** Pipette
- 20** Graduated Cylinder
- 21** Shrimp Hatchery
- 22** Drawstring Carry Bag
- 23** Experiment Booklet

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## **Welcome To The World Of Microscopy!**

With the Discovery Zoom Lab Microscope Set, you can use magnifications ranging from 20x to 160x to see the extraordinary details in ordinary objects! Its 4x zoom feature lets you smoothly transition between powers to fully explore your subject without losing focus. This versatile microscope also has both upper and lower illumination to expand the types of specimens you can investigate. Use the top light to study opaque specimens like coins, sticks and insects. Use the bottom light to reveal unexpected structures in common items like sand, salt and onion peels. This set will let you dive right into the world of microscopy with prepared slides or launch your own investigations using the extensive lab supplies and experiment guide! farthest away from the turret by rotating the focus knob. Separating the stage and turret by rotating the focus knob will avoid causing damage to the specimen slide or microscope. When starting an observation, always start with the 5x objective in the rotating head.

## **How Do I Use My Microscope?**

Before you use your microscope, make sure that the table, desk or surface that you place it on is stable and is not subject to vibration. If the microscope needs to be moved, hold it by the arm and base while carefully transferring it. Once the microscope is in a suitable location and the batteries are installed in the compartment located in the base of the microscope, check the light sources to make sure that they illuminate. Use a microfiber cleaning cloth to gently wipe the lenses off. If the stage is dirty with dust or oil, carefully clean it off.

## **How Do I Operate The Illumination?**

This microscope is equipped with top and bottom lights that illuminate the specimen from above and below. The power switch for the light is on the side of the base and a dimmer control is located on the platform under the stage. This dimmer allows you to adjust the brightness of the light. The color filter wheel is located in the middle of the microscope stage. The filters help you when you are observing very bright or clear specimens. Using these filters, you can choose various brightness levels and colors. This helps you better recognize the components of colorless or transparent objects (e.g. sea salt).

### How Do I Adjust My Microscope Correctly?

Place the microscope in a suitable location as described above, and sit in a comfortable viewing position. Always start each observation with the lowest magnification. Put in the 20x eyepiece and zoom all the way out by sliding the zoom control. The resulting magnification will be 20x.

### Did You Know?

The highest magnification is not always the best for every specimen!

Magnification Guide

Eyepiece	Objective	Power
20x	1x	20x
20x	2x	40x
20x	3x	60x
20x	4x	80x
40x	1x	40x
40x	2x	80x
40x	3x	120x
40x	4x	160x

### How Do I Observe The Specimen?

Turn on the appropriate illumination source and adjust the brightness as needed. Top illumination should be used for opaque specimens like coins, while the bottom light should be used for translucent specimens or those with cellular structures. Start with a simple observation at the lowest magnification. Position the object or specimen in the middle of the stage under the stage clips, centered over or under the appropriate light source. Focus the image by rotating the focus wheel until a clear image appears in the eyepiece.

Place the prepared slide or specimen directly under the objective lens on the microscope stage. Secure all slides with the stage clips. The specimen should be located directly over or under the appropriate illumination source. Look through the eyepiece and carefully turn the focus wheel until the image appears clear and sharp.

Troubleshooting Table

Problem	Solution
No recognizable image	<ul style="list-style-type: none"><li>• Turn on light</li><li>• Readjust focus</li><li>• Start with the lowest power (20x eyepiece/1x zoom)</li></ul>
No image	<ul style="list-style-type: none"><li>• Center object on slide under lowest power objective</li></ul>
No light	<ul style="list-style-type: none"><li>• Replace batteries</li><li>• Check on/off position</li></ul>

Now you can select a higher magnification by moving the zoom control. By rotating the zoom control in stages, you create a steady increase of magnification without overpowering the view of the object. This microscope includes two eyepieces to offer an even broader range of magnifications. When you switch from one to the other, always remember to reset the zoom to its lowest power.

For transparent objects (e.g. sea salt), light is projected by the lower light traveling from below the stage, through the objective and eyepiece, and finally into your eye. This process of light transmission is known as microscopy. Some specimens will need to be prepared for viewing. You can read more about creating specimens in the enclosed microscope experiments booklet.

### **Cleaning Tips**

To ensure your microscope has a long service life, clean the lenses (objective and eyepiece) with only a soft, lint-free cloth, like a microfiber cloth. Do not press down too hard while cleaning, as this might scratch the lens. Ask your parents to help if your microscope is really dirty. To avoid causing damage to electrical components, do not apply cleaning fluids directly to the device. If necessary, the cleaning cloth can be moistened with cleaning fluid and the lens wiped clean using very little pressure. Make sure your microscope is always protected against dust and dirt. After use, leave it in a warm room to dry off before storing. Batteries should be removed from the device if it will not be used for a long period of time.

## SAFETY WARNINGS

### Read and follow the instructions, safety rules, and first aid information.

- This microscope set is intended for children older than age 8. Children should only use this device under adult supervision. Never leave a child unsupervised with this device. Accessories in the experiment kit may have sharp edges and tips. Please store the device and all of its accessories and aids out of the reach of young children when not being used due to a risk of injury.

- **Chemicals:** Any chemicals and liquids used in conjunction with the device should be kept out of reach of children. Do not drink any of the chemicals contained in this set. Hands should be washed thoroughly under running water after working with these chemicals. In case of accidental contact with eyes or mouth, rinse the affected area with water. Seek medical treatment for ailments arising from contact with the chemical substance, and take the chemicals with you to the doctor.

- **Choking hazard:** Children should only use device under adult supervision. Keep packaging materials like plastic bags and rubber bands out of the reach of children as these materials pose a choking hazard.

- **Battery guidelines:** This device contains electronic components that are powered by batteries. Batteries should be kept out of children's reach. When inserting batteries, please ensure the polarity is correct. Insert the batteries according to the displayed +/- information. Never mix old and new batteries. Replace all batteries at the same time. Never mix alkaline, standard carbon-zinc and rechargeable nickel-cadmium batteries. Never short circuit the device or batteries or throw either into a fire. Leaking or damaged batteries can cause injury if they come into contact with the skin. If you need to handle such batteries, please wear suitable safety gloves. Remove batteries from the product before extended storage to prevent leaking.

Do not immerse the battery compartment in water.

- **Risk of fire:** Do not place device, particularly the lenses, in direct sunlight. The concentration of light rays could cause a fire.

- Do not disassemble this device. In the event of a defect, please contact your dealer. The dealer will contact the Customer Service Department and can send the device in to be repaired if necessary.

- Do not subject the device to temperatures exceeding 60° C (140° F).



- **Disposal:** Keep packaging materials, like plastic bags and rubber bands, away from children as they pose a risk of suffocation. Dispose of packaging materials as legally required. Consult the local authority on the matter if necessary and recycle materials when possible.



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