



**NATIONAL  
GEOGRAPHIC**

**10+**

**80-33566**

**EN**



# INVERTED MICROSCOPE

40X - 400X POWER  
MAGNIFICATION

## INSTRUCTION MANUAL



**WARNING:**  
**FUNCTIONAL SHARP POINT** – Not for children  
under 3 years.



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



**WARNING:**  
The lens contains lead that may be harmful.  
Wash hands after touching.



**WARNING:**  
This product can expose you to chemicals including lead,  
which is known to the State of California to cause cancer  
and birth defects or other reproductive harm. For more  
information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).



**x3  
NOT  
INCLUDED**

Do not mix old and new batteries.  
Do not mix alkaline, standard (carbon-zinc), or  
rechargeable (ni-cad, ni-mh, etc.) batteries.  
Non-rechargeable batteries are not to be recharged.  
Please recycle batteries responsibly.

**⚠ IMPORTANT SAFETY INSTRUCTIONS**

READ AND FOLLOW THE INSTRUCTIONS BEFORE USE.  
KEEP THESE INSTRUCTIONS FOR LATER USE.

• **THIS MICROSCOPE SET IS INTENDED FOR CHILDREN OLDER THAN AGE 9.** 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. NON-RECHARGEABLE BATTERIES ARE NOT TO BE RECHARGED. RECHARGEABLE BATTERIES ARE TO BE REMOVED FROM THE TOY BEFORE BEING CHARGED. RECHARGEABLE BATTERIES ARE ONLY TO BE CHARGED UNDER ADULT SUPERVISION. EXHAUSTED BATTERIES ARE TO BE REMOVED FROM TOY. THE SUPPLY TERMINALS ARE NOT TO BE SHORT-CIRCUITED. PLEASE RECYCLE BATTERIES RESPONSIBLY.

• **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.



• THE WEEE SYMBOL IF PRESENT INDICATES THAT THIS ITEM CONTAINS ELECTRICAL OR ELECTRONIC COMPONENTS WHICH MUST BE COLLECTED AND DISPOSED OF SEPARATELY.

• NEVER DISPOSE OF ELECTRICAL OR ELECTRONIC WASTE IN GENERAL MUNICIPAL WASTE. COLLECT AND DISPOSE OF SUCH WASTE SEPARATELY.

• MAKE USE OF THE RETURN AND COLLECTION SYSTEMS AVAILABLE TO YOU, OR YOUR LOCAL RECYCLING PROGRAM. CONTACT YOUR LOCAL AUTHORITY OR PLACE OF PURCHASE TO FIND OUT WHAT SCHEMES ARE AVAILABLE.

• ELECTRICAL AND ELECTRONIC EQUIPMENT CONTAINS HAZARDOUS SUBSTANCE WHICH, WHEN DISPOSED OF INCORRECTLY, MAY LEAK INTO THE GROUND. THIS CAN CONTRIBUTE TO SOIL AND WATER POLLUTION WHICH IS HAZARDOUS TO HUMAN HEALTH, AND ENDANGER WILDLIFE.

• IT IS ESSENTIAL THAT CONSUMERS LOOK TO RE-USE OR RECYCLE ELECTRICAL OR ELECTRONIC WASTE TO AVOID IT GOING TO LANDFILL SITES OR INCINERATION WITHOUT TREATMENT.

**What's Included:**

**Parts Overview**

1. 10x & 20x Eyepieces
2. Light
3. Color Filters
4. Stage with Metal Clips
5. 4x, 10x, 20x Objectives Lenses
6. Focus Wheel
7. Power Switch & Light Brightness Adjustment
8. Two Slide Cases
9. 5 Prepared Slides
10. 15 Blank Slides & 15 Covers & Labels
11. Graduated Cylinder
12. 3 Collection Vials

13. Blue Dye, Brine Shrimp Eggs, Sea Salt, Yeast
14. Petri Dish
15. Slicer
16. Spatula & Scalpel
17. Tweezers & Needle
18. Magnifying Glass
19. Pipette
20. Hatchery

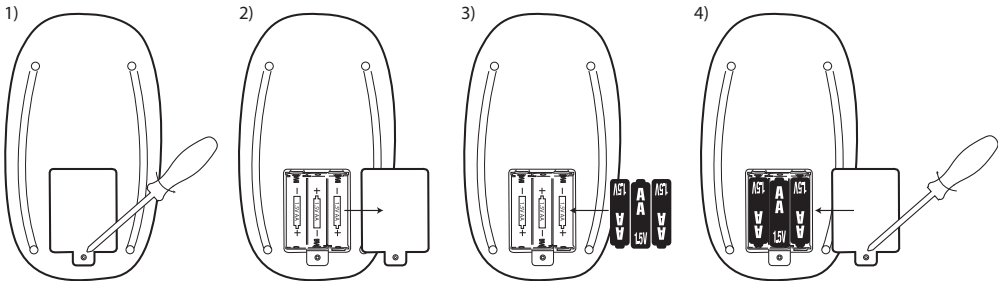
**Available Downloads Visit:**  
[www.esmanuals.com](http://www.esmanuals.com)



## How Do I Use My Microscope?

Before you use your microscope, make sure that the table, desk or whatever surface that you want to place it on is stable, and is not subject to vibration. If the microscope does need to be moved hold the microscope by the arm and base while carefully transferring it.

Install three “AA” batteries (not included) in the battery compartment, located in the base of the microscope. Turn the microscope over, open the compartment using a small Phillips screwdriver and insert the batteries according to the displayed +/- information. Close the battery compartment door and set the microscope on its base.



Once the microscope is in a suitable location and the batteries are installed, check the light source to make sure that it illuminates. Use a cleaning cloth (e.g., microfiber) to gently wipe the lenses off. If the stage is dirty with dust or oil, carefully clean it off.

## How Do I Operate the LED Illumination?

The illumination source on this microscope is located above the stage. To turn on the light, twist the illumination knob located near the objective turrets in a clockwise direction. You can adjust the brightness by turning the knob back and forth to the desired level. The color filter diffuser is located in the illumination unit. The color filters help you when you observing very bright or clear specimens. These help you better recognize the components of colorless or transparent objects (e.g. sea salt).

## How Do I Begin Observing?

Each observation should start with the lowest magnification. Place the 10x eyepiece into the eyepiece barrel. Turn the focus knob until the objective turret wheel is in its lowest position. Rotate the wheel of objective turrets until the 4x turret is directly in line with the hole in the center of the stage.

Place your prepared slide onto the stage and position the specimen in the center directly under the illumination source. Secure the slide with the clips. Turn on the illumination and look through the eyepiece. Slowly turn the focus knob until the image is sharp.

To select a higher magnification, rotate the objective turret wheel to the next turret. Once you have viewed the specimen through the 10x eyepiece using all three turrets, you can switch the eyepiece out to the 20x to experience three more levels of magnification.

Note: Each time the magnification changes (eyepiece or objective change), the image sharpness must be readjusted with the focus knob. As you increase the magnification, you may also need to adjust the illumination level for good image quality.

Magnification Guide		
Eyepiece	Objective	Power
10x/20x	4x	40x/80x
10x/20x	10x	100x/200x
10x/20x	20x	200x/400x

Note: The highest magnification is not always the best for every specimen.

For transparent objects (e.g. sea salt), light travels from above the stage, through the sample, through the objective and eyepiece, and finally into your eye. Many micro-organisms found in water, plant components and the smallest animal parts are transparent in nature. Opaque specimens, on the other hand, will need to be prepared for viewing. Opaque specimens can be made transparent by a process of treatment and penetration with the correct materials (media), or by slicing. 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. Batteries should be removed from the device if it will not be used for a long period of time.

## Troubleshooting Guide:

<b>Problem</b>	<b>Solution</b>
No recognizable image	Turn on light Readjust focus Start with the lowest power objective (4x) & lowest power eyepiece (10x)
No image	Center object on slide Start with the lowest power objective (4x) & lowest power eyepiece (10x)
No light	Replace batteries Check ON/OFF position

## Smart Microscope Slides

This microscope set includes a number of prepared slides designed to jumpstart your investigations.

These Smart Microscope Slides include a QR code on the label that can be used to access additional information about the particular specimen. With a quick scan of the QR code, you can gain a deeper understanding of a specimen's structures, functionality and more.

To scan the QR codes, use your phone's camera and focus on the QR code or download a QR code reader from your app store and follow your app directions to scan the code with your phone. After scanning, you will be directed to a website with additional information on the specimen.

Slide example



To see our full list of smart slides,  
scan this code.

**Notes:**



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