



**NATIONAL
GEOGRAPHIC**

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80-52001
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20X STEREO MICROSCOPE

BINOCULAR VIEW STYLE

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.



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 7.** 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.



Parts Overview

1. Binocular Style Viewing
2. 10x Eyepieces
3. 2x Objective Lens
4. Dual LED Lights (Top/Stage Light)

5. Focus Wheel
6. Stage with Metal Clips
7. 3 Collection Vials
8. Magnifying Glass
9. Petri Dish
10. Tweezers
11. 12 Rock Samples

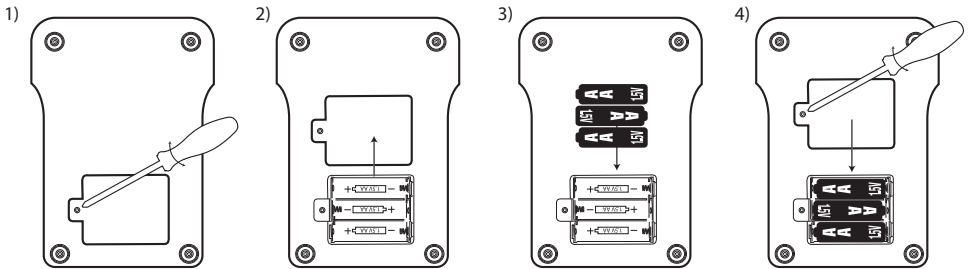
Available Downloads Visit:
www.esmanuals.com



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. Before turning the microscope over to access the compartment, carefully remove the glass stage and set it to the side. 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, set the microscope on its base and put the glass stage back into place.



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?

This microscope offers both top and bottom illumination options. Locate the ON/OFF switch on the base of the microscope. Flip the switch to one of the ON positions and the light will illuminate the top light or stage light. Use the top light when viewing larger objects like rocks and use the stage light when viewing slides or translucent objects. Be sure to return the illumination switch to the neutral position when you are done observing.

How Do I Position the Eyepieces?

Each observation should start with the lowest magnification. Place the 10x eyepieces in the eyepiece barrels. With these in place you will be viewing specimens at a magnification power of 20x.

Magnification Guide		
Eyepiece	Objective	Power
10x	2x	20x

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

Next you will need to adjust the positioning of the binocular-style eyepiece barrels to make sure the eyepieces are aligned with the center of your pupils. Interpupillary distance varies from person to person, and if you don't have the correct distance, you will see two circles of light. To adjust the distance, look through the eyepieces and move the barrels closer together or farther apart until the circles merge into one.



How do I observe the specimen?

Start with a simple observation at the lowest magnification.

Place the object directly under the objective on the microscope stage. Slides should be secured with the stage clips. The slide/object should be located directly over or under the illumination. At this point, take a look through the eyepiece and carefully turn the focus knob until the image appears clear and sharp.

To view the specimen install the 10x eyepieces. You will now be viewing at a magnification power of 20x and the image sharpness must be readjusted with the focus knob.

When you are done observing a specimen, raise the objective lens assembly to its highest position and then remove the sample

NOTE: 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. 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.

Troubleshooting Guide:

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

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.



Notes:

Notes:



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