Instructions

Microscope

Microscope

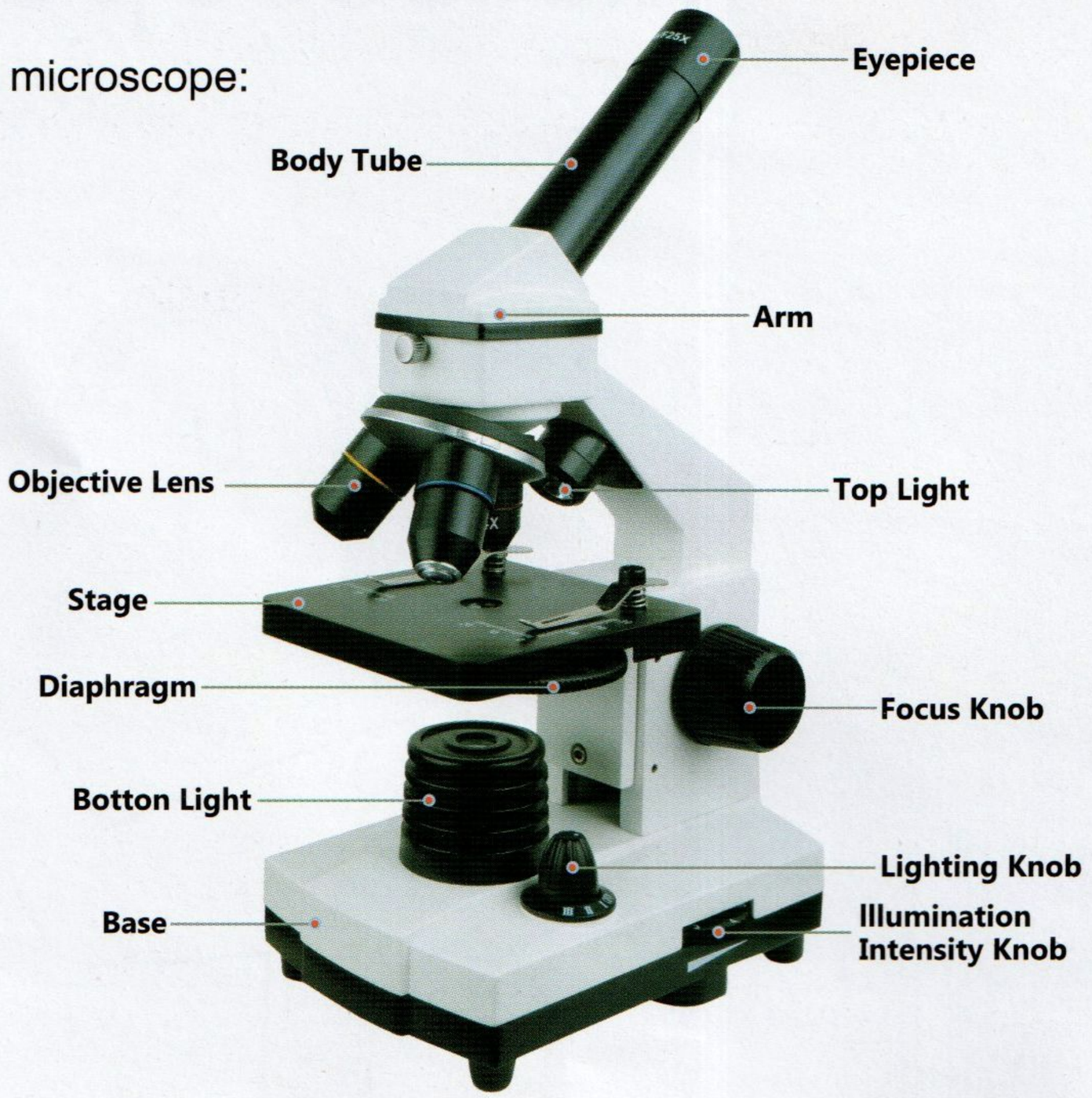
Thanks for purchasing the Emarth kid' s Microscope, we believe that your children will enjoy it, they will know some amazing aspects of ordinary creatures in here. To maximize children' s use of the microscope, please read the instructions carefully before using.

There are two aspects to note:

a>. Each material has passed the SGS professional certification, without any harm to the human body and suitable for 8-18 years old children to explore the micro world.

b>. Children under 12 years need to be accompanied by parents or teachers to conduct experiments.

Learn the parts of the microscope:



Compound microscope may have three objective lenses. The shortest objective lens is the lowest power. The longest is the highest power. You rotate the lenses to switch between them. Make sure you feel them click into place

Objective	Overall Magnification (Objective×25x Eyepiece)
4X	100X
10X	250X
40X	1000X

Specimens must be well lit to be visible under your microscope. If you microscope a 2-in-1 microscope,such as the Microscope by Emarth, it will have both a top light and bottom light. Use the top light for larger,non-transparent specimens such as insects, coins and plants. Use the bottom light for smaller, transparent specimens like cells, bacteria and prepared slides.

A microscope is a device that magnifies an image, allowing you to see small structures in detail. Although they come in a variety of sizes, microscopes for home and school use generally have similar parts: a base, an eyepiece, a lens and a stage.

Microscope Accessories:

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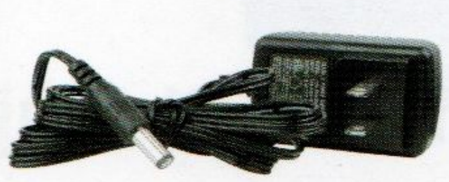

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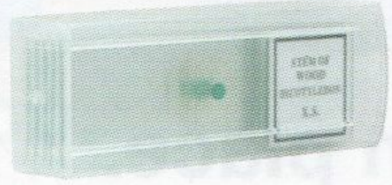

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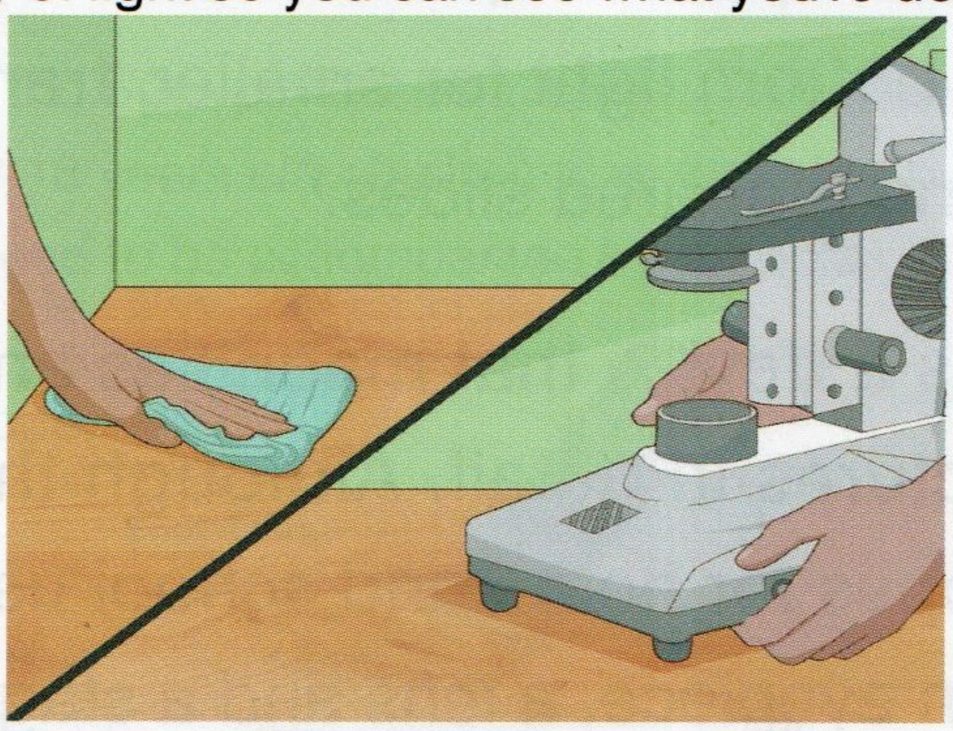
1 Bluetooth camera	2 Phone clip	3 Eyepiece	4 Magnification mirror
5 Power adapter	6 Specimenslide × 5 Blank × 18	7 Specimenslide × 5	

2.How to Use a Microscope

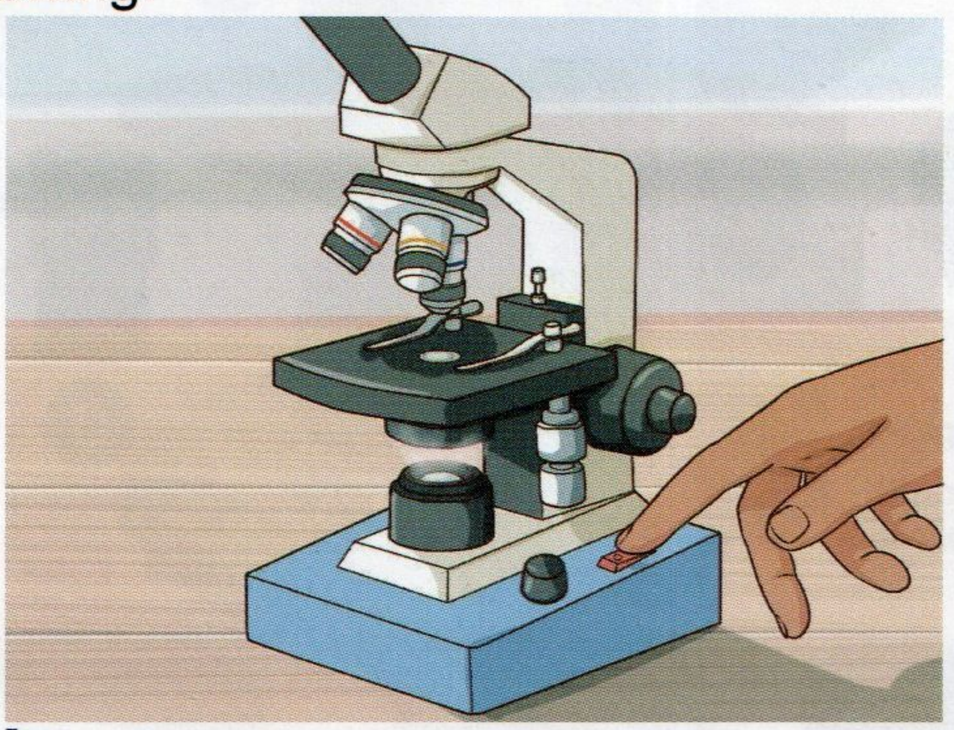
2.1 Setting Up the Microscope:

Insert WF10X/25X Eyepiece, and Find a flat,well-lit area to set up your microscope. To have the best viewing experience with your microscope, it's important that you set it up somewhere flat where there's plenty of light so you can see what you're doing



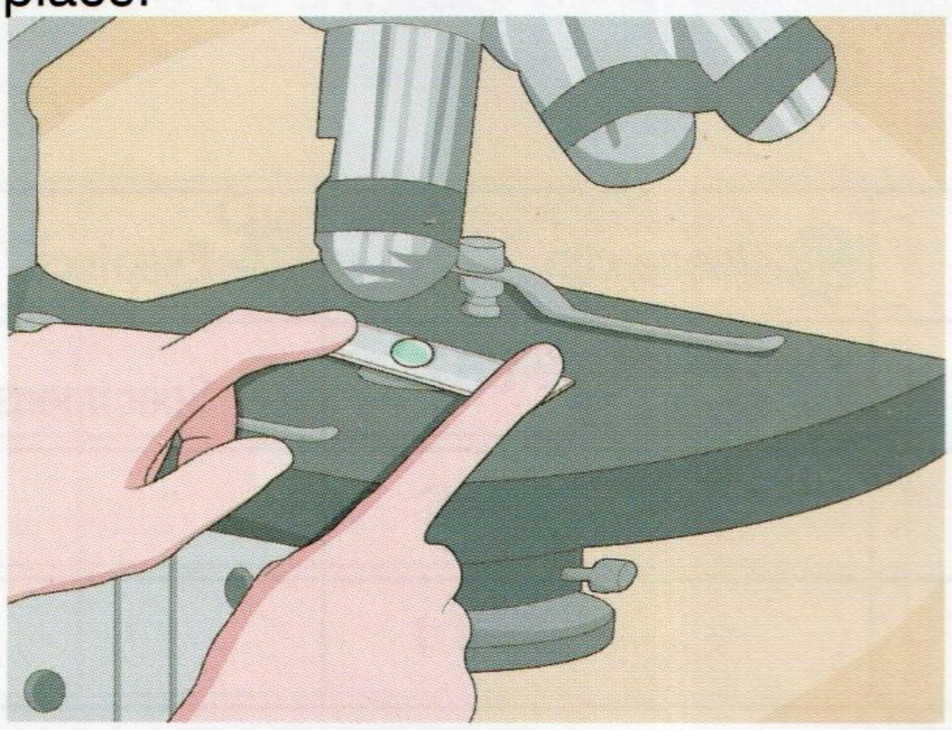
2.2 Turn on the light.

Insert WF10X/25X Eyepiece and Insert the battery or connect to electricity, turn one the lights. The light source is on the base of the microscope and points up toward the stage. It provides the light for image viewing.



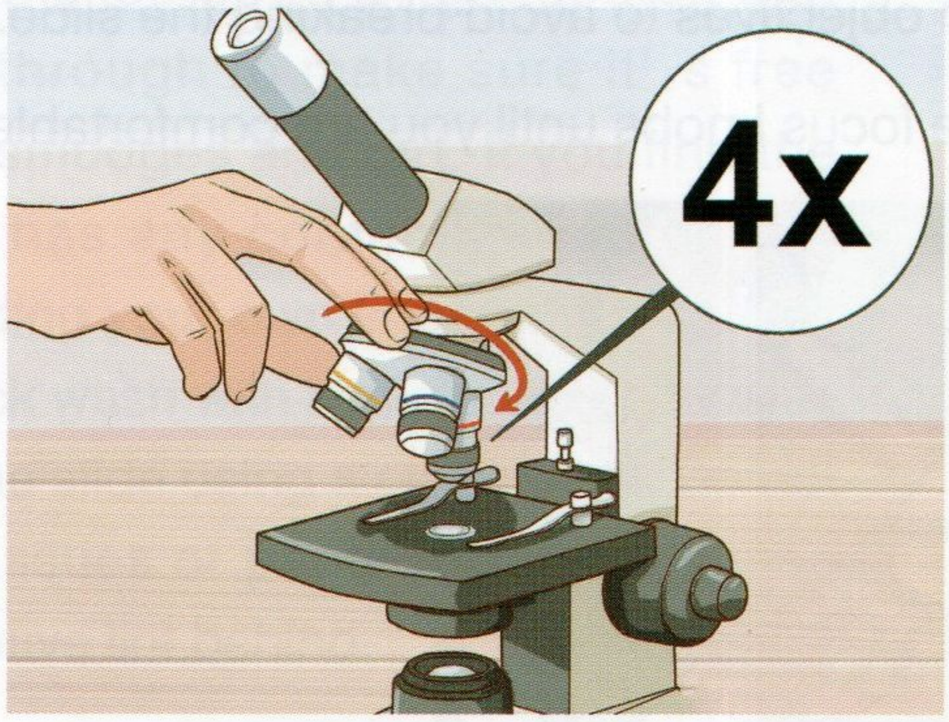
2.3 Put the slide in place.

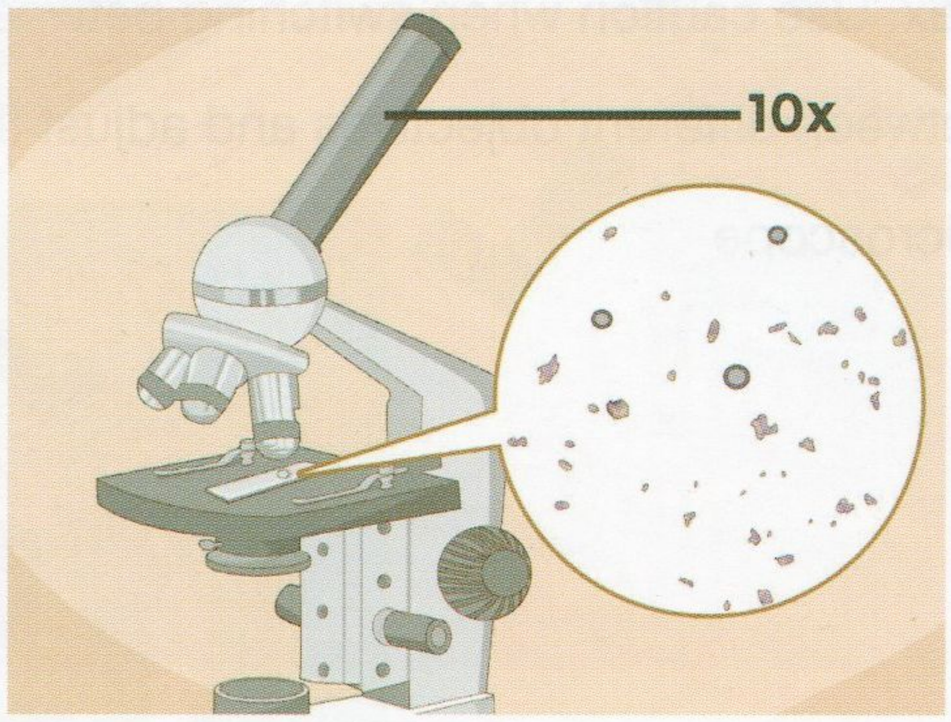
Preparing a clean slide and place the slide below the objective on the stage of the microscope. Be sure to center the object you want to magnify directly under the objective. Use the stage clips to hold the slide in place.



2.4 Focusing the Microscope (Use a lowest objective)

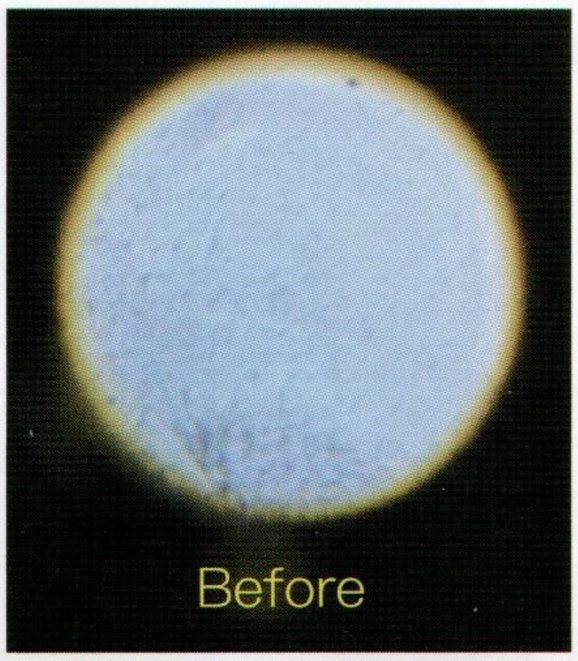
Start with 4x objective lens, turn on the light. and then change the light levels and diaphgram.（The microscope has 2 lights, you can adjust the light. Move the lever or spin the disc until the diaphragm is all the way open.





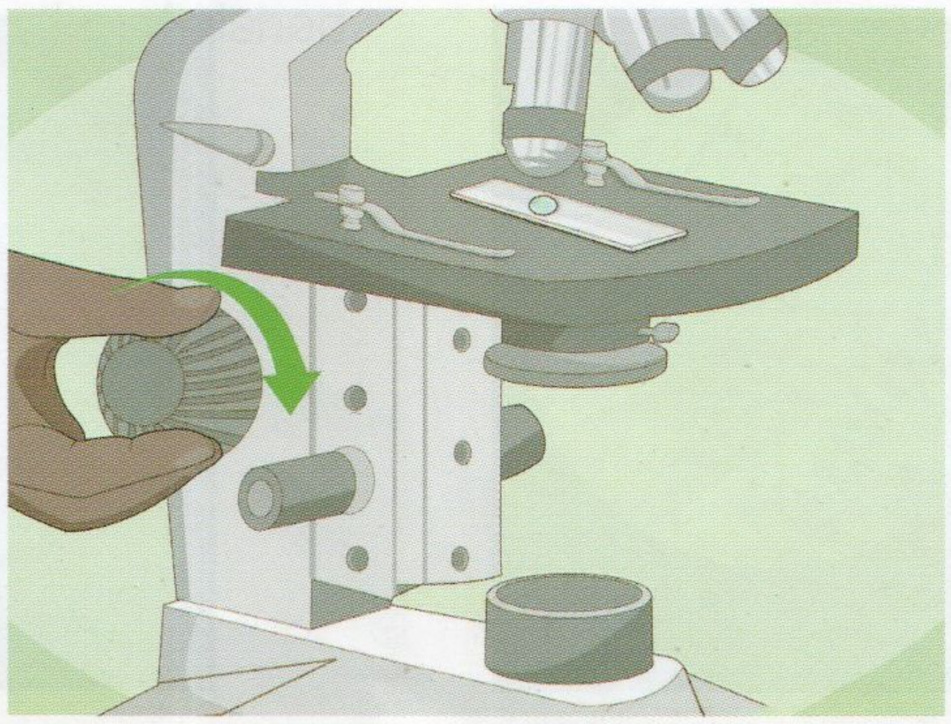
THE MICRO STRUCTURE UNDER LOWER MAGNIFICATION

Before you adjust the focus knob, you can observe nothing in the area; after you adjust it, you will observe the enlarged structure of the specimen.



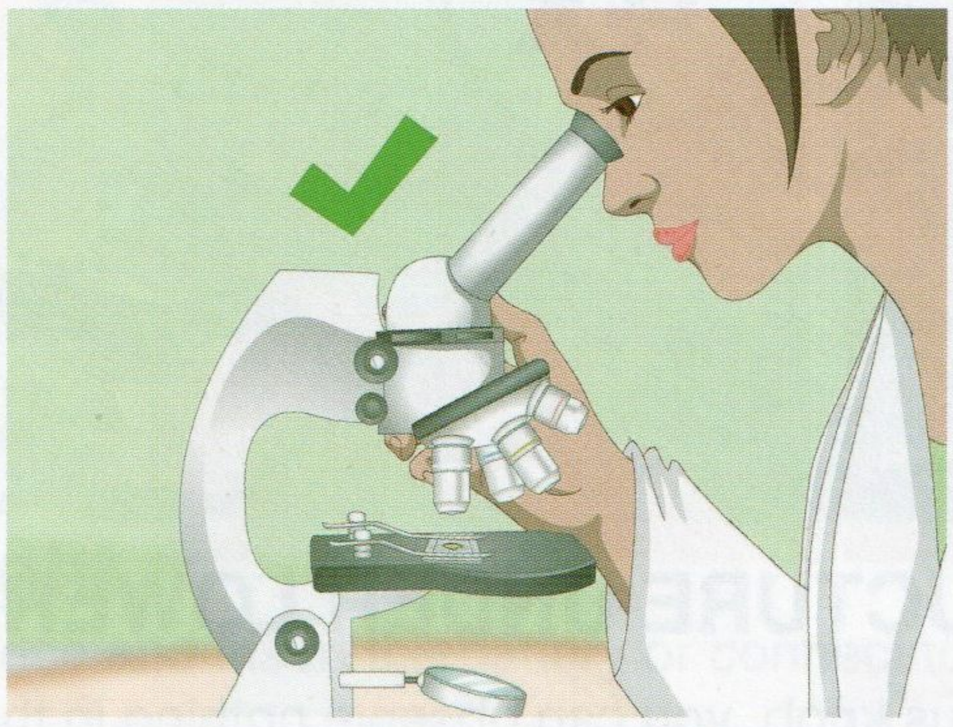
2.6 Adjust the coarse focus knob.

While looking into eyepiece, Begin to focus on the object by adjusting the coarse focus knob. Rotate the knob clockwise and counterclockwise until you see the best possible picture through the eyepiece.

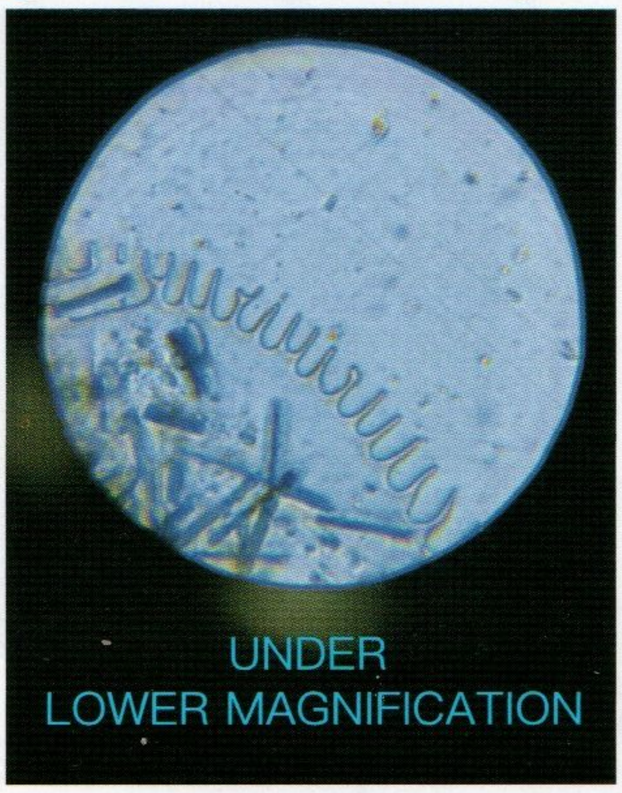


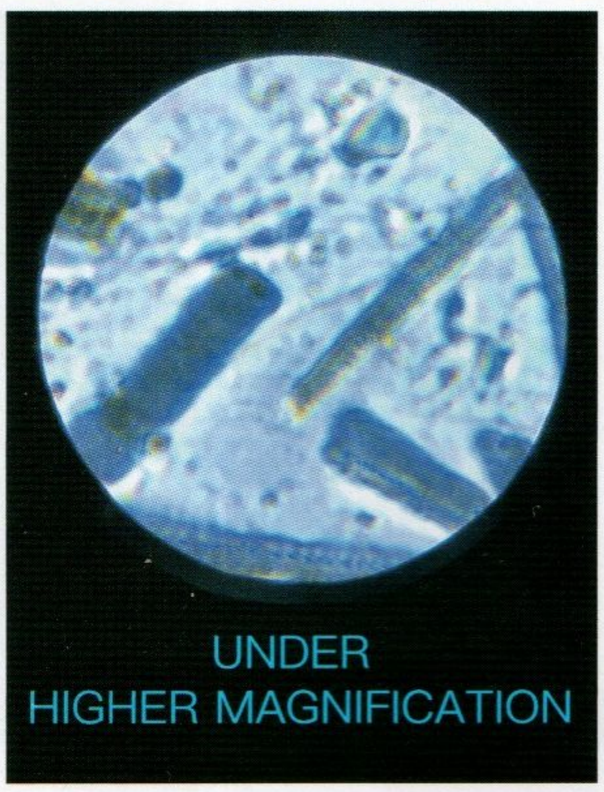
2.7 Change To A Higher Objective

Start with 4x objective lens, focus the microscope in the same way that you did with the lower magnification. Move the objective adaptor, change the magnifications from Min to Max. Use caution when switching between objectives to avoid breaking the slide. Switch between different objectives and adjust the focus knobs until you are comfortable using the microscope



The higher magnification will allow you to see more detail in your specimen.





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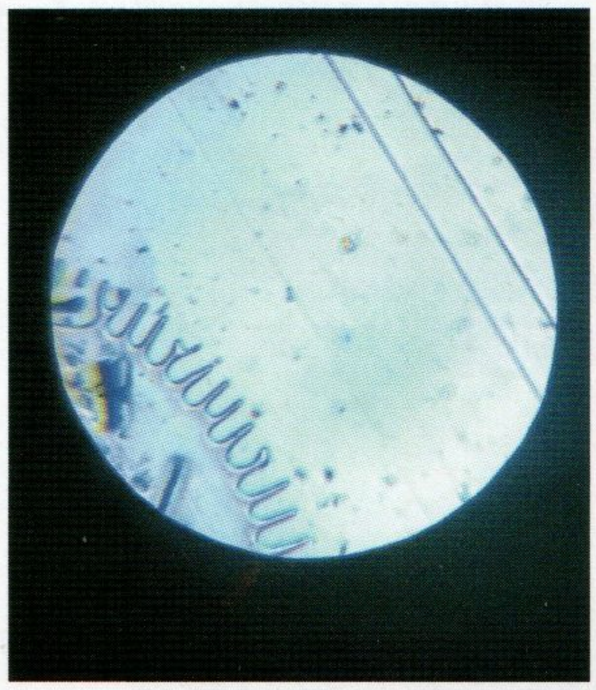
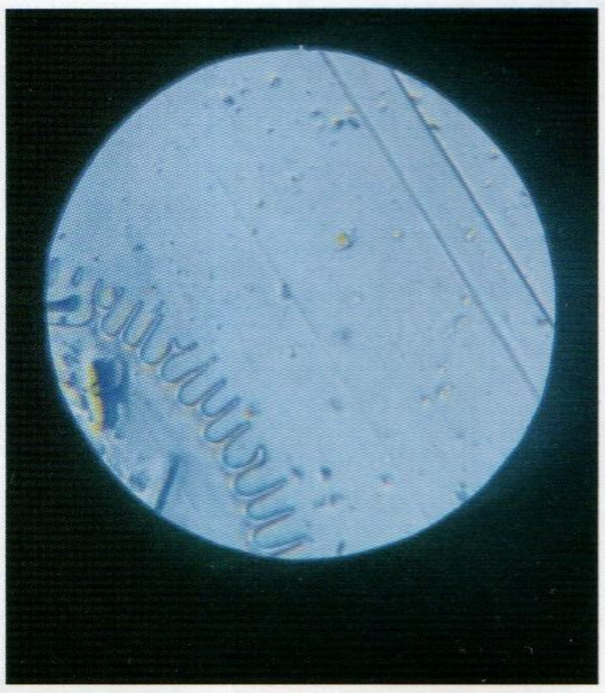


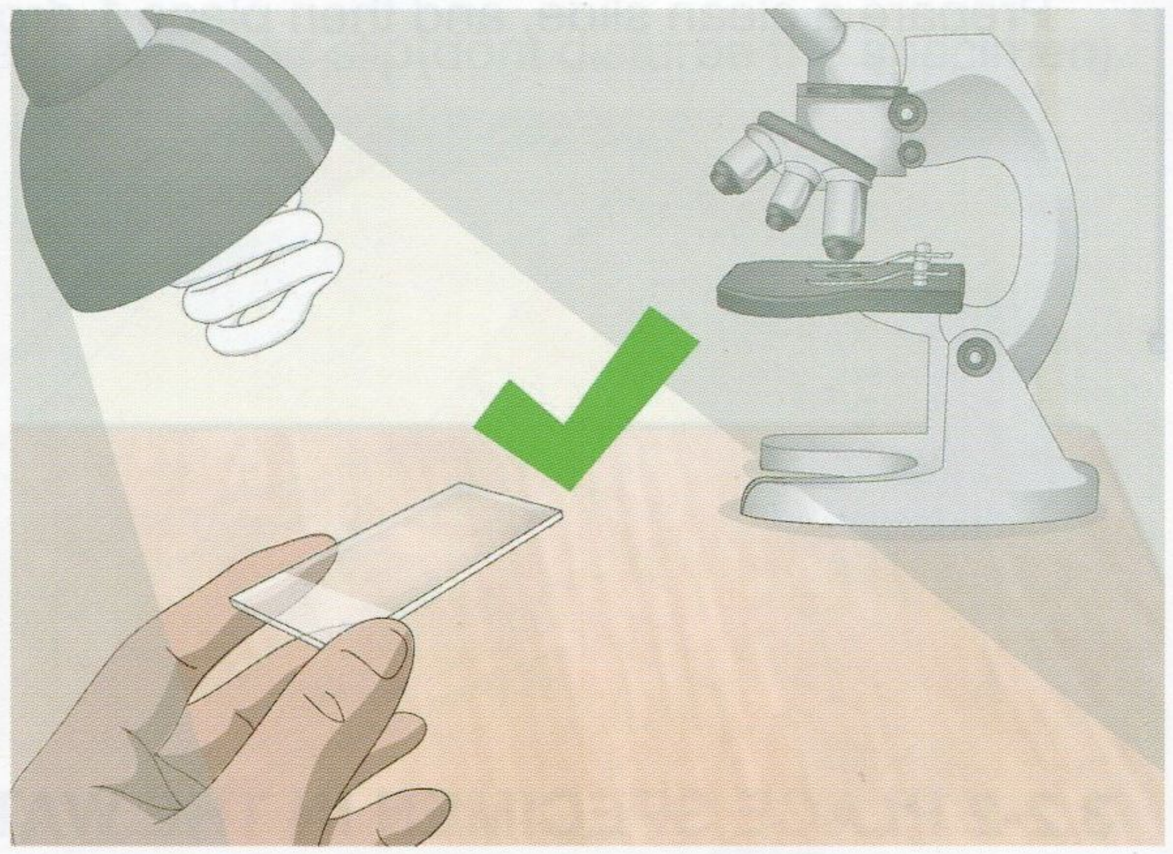


3.How to Prepare Microscope Slides

3.1 PREPARING DRY MOUNT

3.1-1 SELECT A CLEAN SLIDE

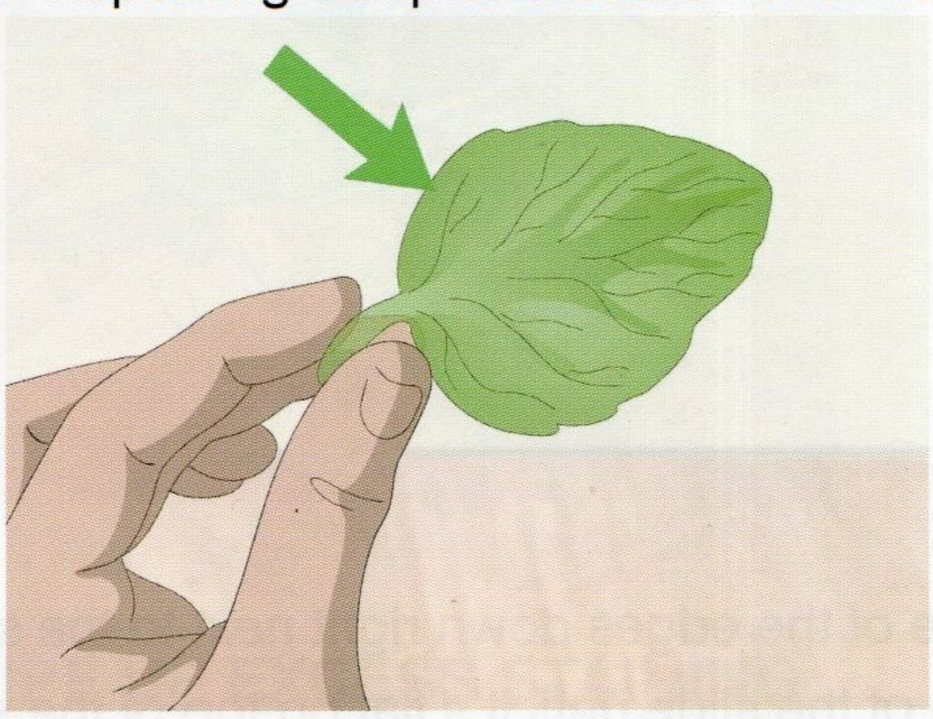
Hold a slide up to a light source and look through to make sure it' s free from smudges and dirt. If you find the slide has any contamination on it—including your own fingerprints—give it a quick wash with liquid soap and water. Dry the slide using a clean cloth. Do not use tissues or paper towels, as these can leave lint behind.

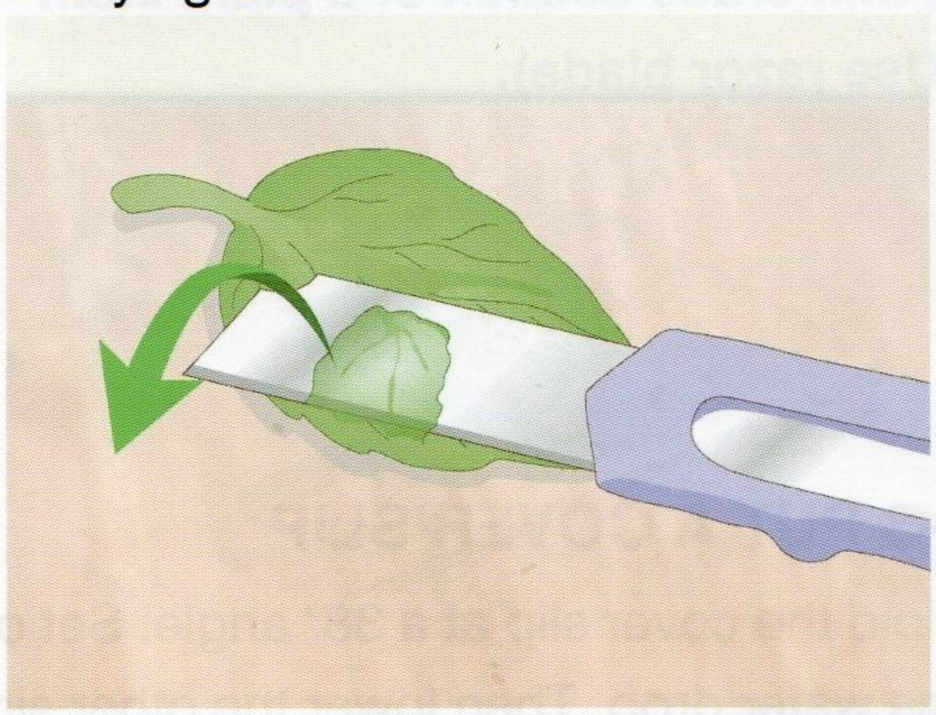


3.1-2 PREPARE THE SPECIMEN

1.Inspect the specimen to determine if it needs to be sliced.(The sample specimen needs to be translucent or transparent.)

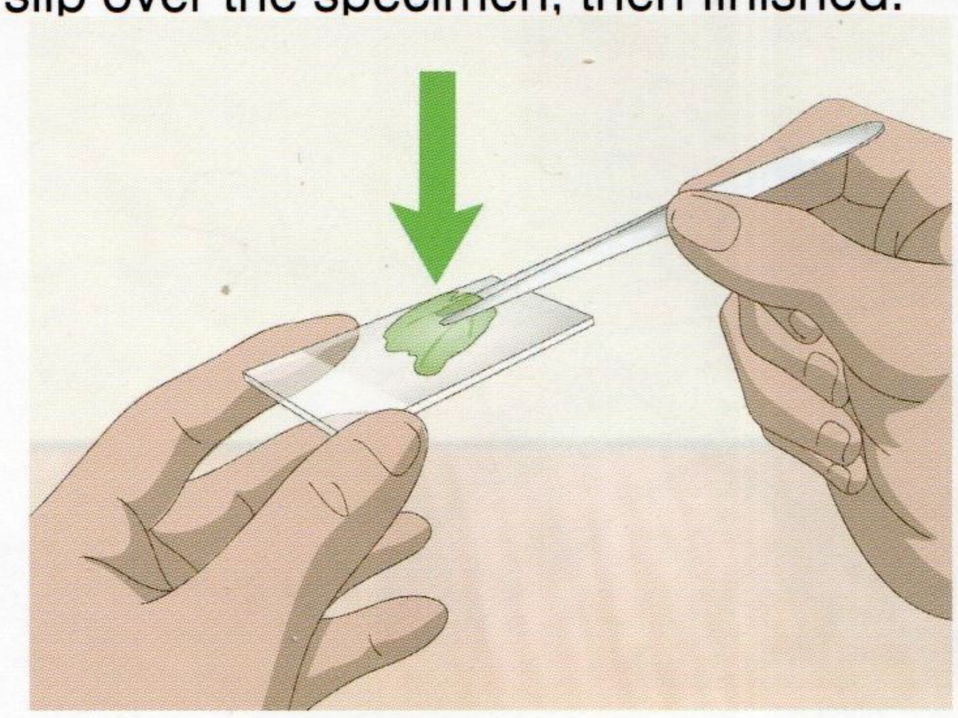
2.Use a razor blade to cut your specimen material into a thin,translucent slice.A dry mount is ideal for inspecting samples that are not at risk of drying out.

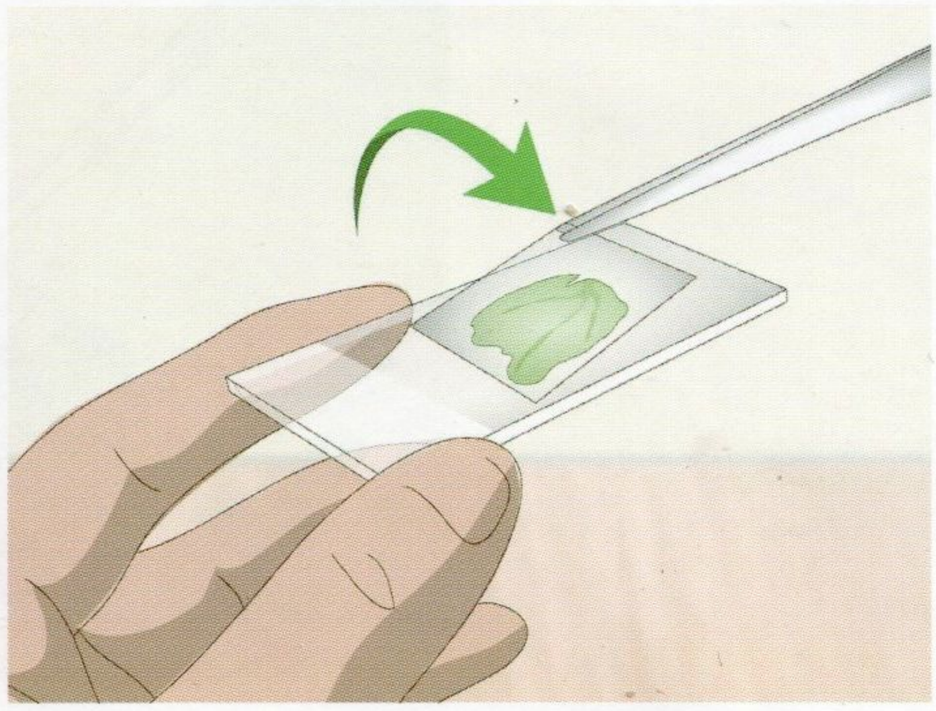




3.1-3 SET A COVER SLIP OVER THE SPECIMEN

Use a pair of forceps to pick up the thin slice of your sample specimen, and then place a cover slip over the specimen, then finished.

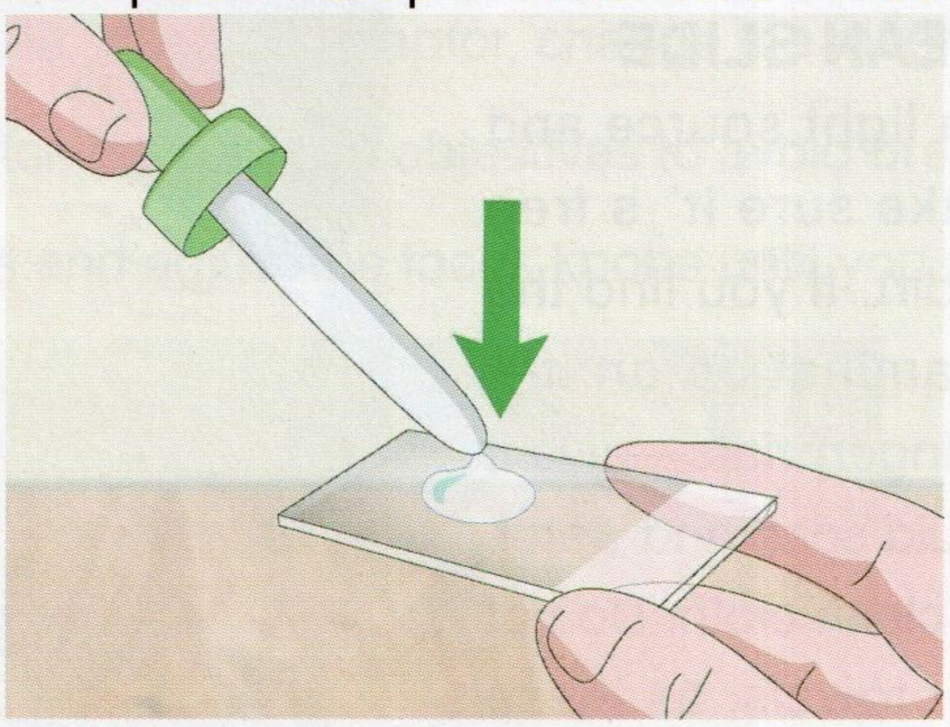




3.2 PREPARING A WET MOUNT

3.2-1 DRIP A WATER ON THE SLIDE

Prepare a clean slide, and then place 1 drop of water onto the cental of slide.



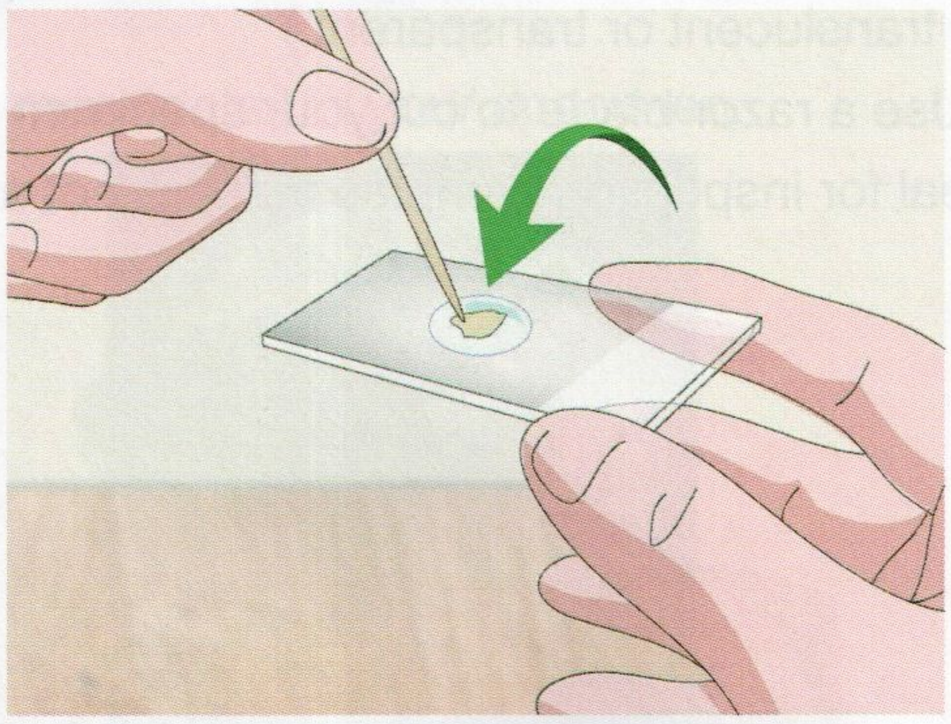
3.2-2 PLACE SPECIMEN IN THE WATER

slice a section of wet sample specimen and use tweezers to transfer it place it in the water.

Materials commonly used to make wet mount slides include:

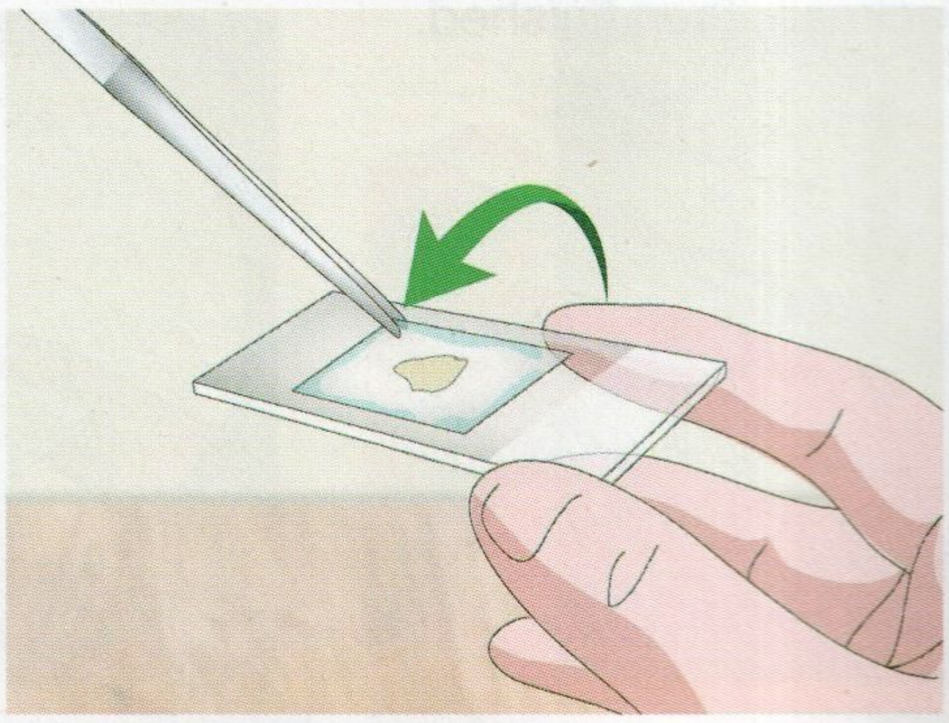
Cheek cells or tooth plaque (Use toothpick).

A thin cross-section of a plant stem (Use razor blade).



3.2-3 PUT A COVER SLIP

Hold the cover slip at a 38° angle. Set one of the edges down right next to the specimen on the water drop. Then lower the other side of the slide until it's flat on top of the specimen. Do not tap or press on the cover slip once it is in place. If you do you'll risk squishing the sample specimen and water off of the slide.

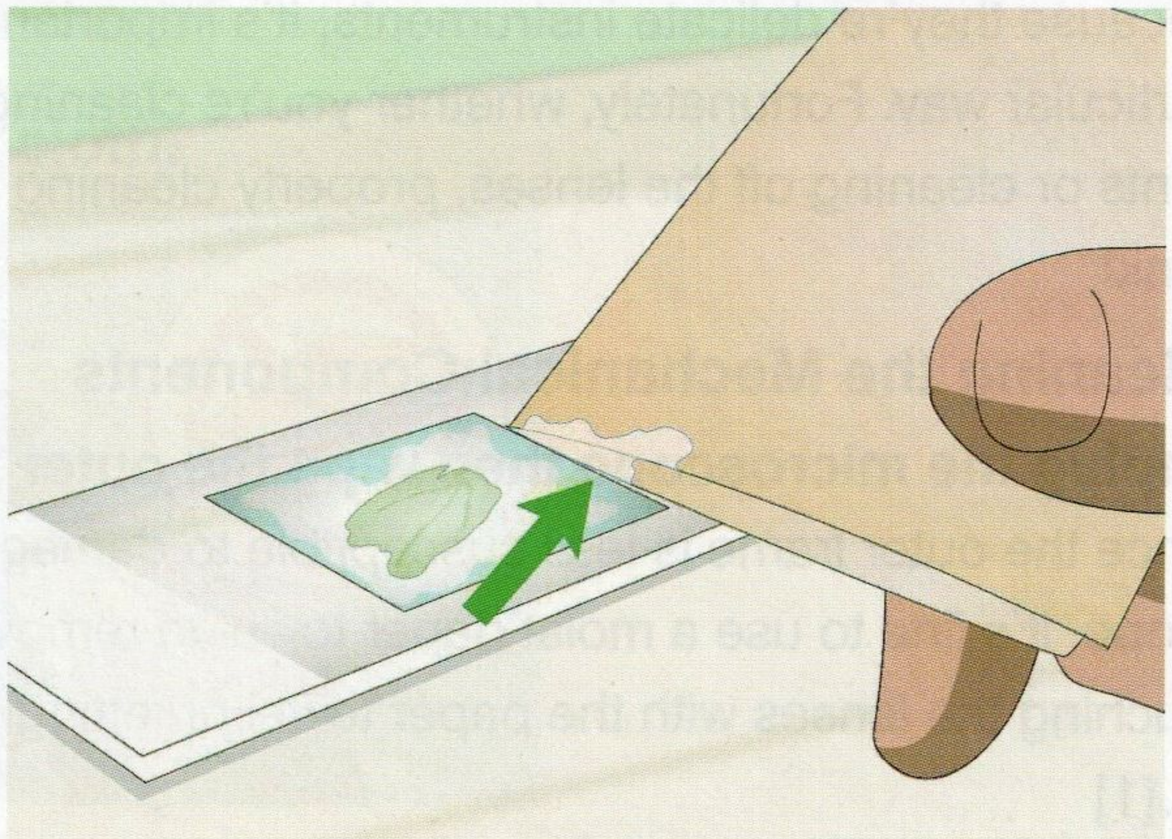


3.3 PREPARING A WET MOUNT

3.3-1 PREPARE PAPER TOWEL SHEET

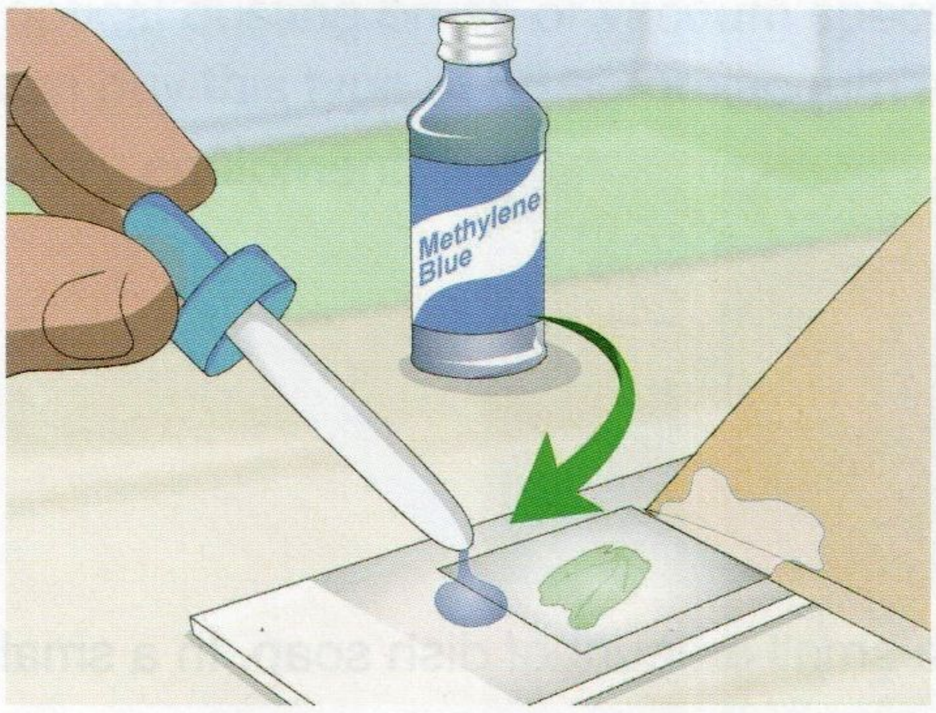
Place a paper towel sheet against one edge of the cover slip(dont disturbe the specimen)

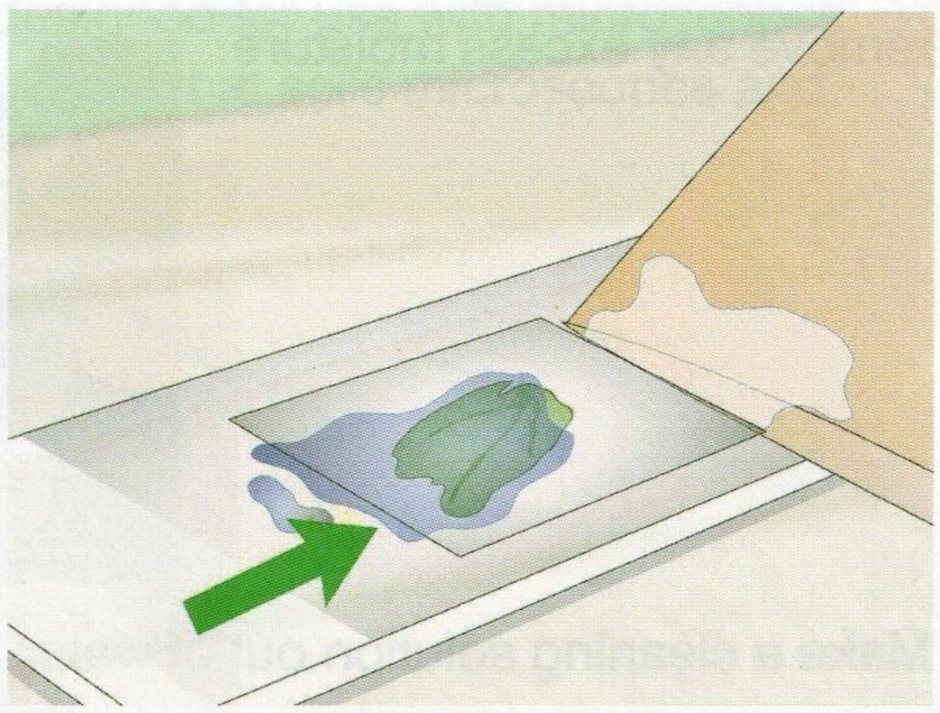
If your wet-mounted slide specimen is pale or colorless,staining the specimen will allow you to better see its shape and texture.



3.3-2 DROP IODINE

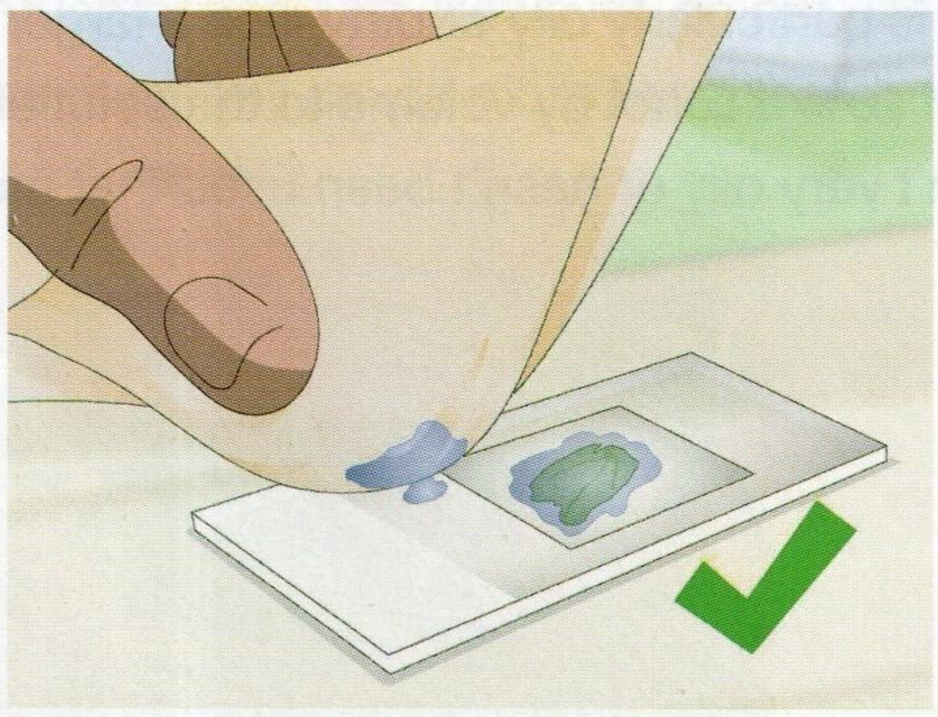
Drop iodine on the other side of the cover slip. Be careful to only dispense 1 drop. Excess staining agent may run off of the slide.





3.3-3 WIPE UP EXCESS STAINING

After the specimen is completely dip,wipe up excess staining agent with a clean paper towel.



4.How to Clean a Microscope

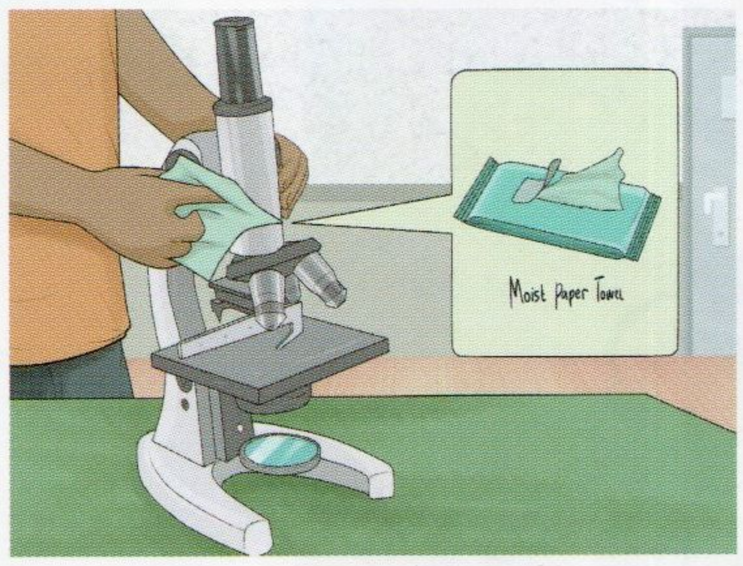
Microscopes are a terrific tool for conducting scientific research and introducing young students to science. Unfortunately, like most things, microscopes tend to get dirty over time. Because they're delicate instruments, it's important that you clean your microscope in a very particular way. Fortunately, whether you're cleaning the microscope's mechanical components or cleaning off the lenses, properly cleaning a microscope is easier than you might think!

1. Cleaning the Mechanical Components

Unplug the microscope then wipe the outer frame with a moist paper towel.

Since the outer frame is less susceptible to damage than the actual lenses of the microscope, it's fine to use a moist paper towel to remove any dust and dirt on the frame. Avoid touching the lenses with the paper towel or letting any of the water drip down into the lenses.[1]

- For best results, use distilled water that doesn't contain any impurities that might inadvertently damage the microscope.
- Be sure to wipe down the microscope frame with a separate, dry paper towel to remove any excess moisture.



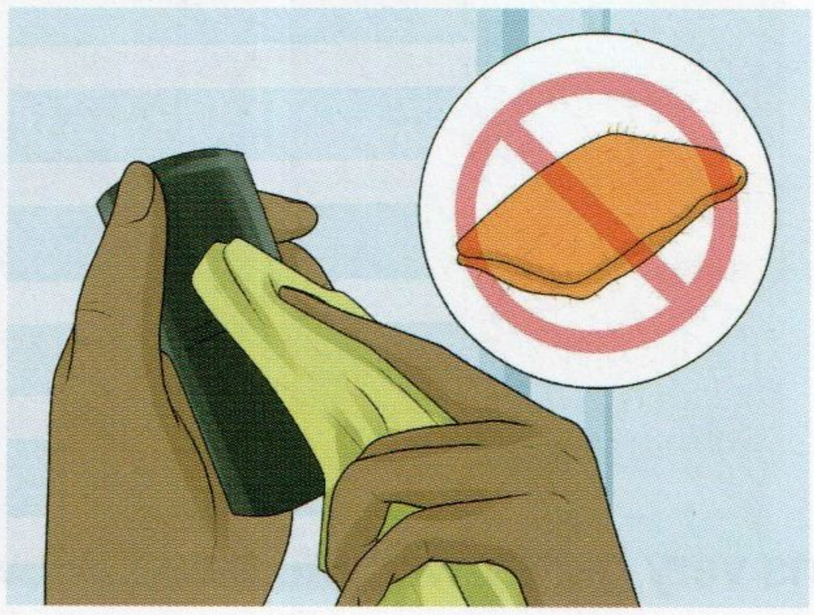
Make a cleaning solution out of water and a small amount of dish soap. In a small container, mix warm water with a few drops of dishwashing soap. This will be a strong enough cleaning solution for most microscopes. The solution only needs to be a little sudsy, so err on the side of adding too little soap rather than too much.

[2]If your microscope is particularly oily or dirty, use a larger ratio of dish soap to water or add a small amount of 10% alcohol by volume to the solution.

If your microscope isn't very oily or hasn't been used that much, you may be able to clean it with just warm water.

[3]Dip a cloth into the solution and use it to clean the mechanical parts. This solution should be used to clean the stage and stage clips, the control knobs, the eyepiece tube, the nose-piece, and the illuminator. Use a gentle scrubbing motion to effectively clean these areas. Avoid bringing your damp cloth too close to the lenses of the microscope, especially when you're cleaning around the eyepiece.

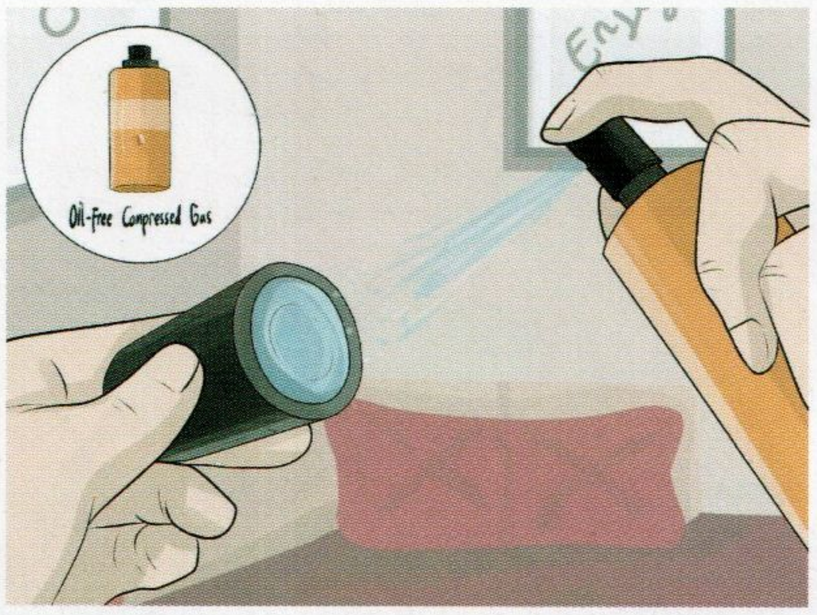
For best results, use a microfiber cloth.



Cleaning the Lenses

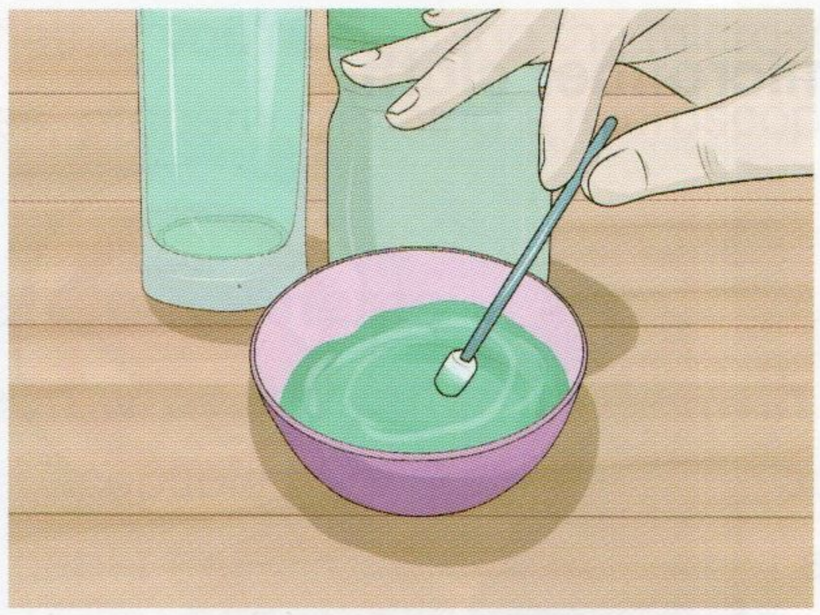
1.Use a vacuum or dusting brush to clean dust off of the lenses. Since dust can be highly abrasive to your microscope, you need to remove it with great care. Gently brush the dust off with an optical dusting brush or vacuum specially designed for use with microscopes. Note: You can buy this type of brush or vacuum at any store that sells microscopes and other laboratory equipment.

2. Spray oil-free compressed gas on the lenses to avoid damaging them. Using compressed air or gas is the best way to easily remove dust from your optical
lenses if you don't have a dust brush or vacuum. However, do not use a compressed air product that contains solvents, as these will cause more harm than good to your lenses.



3. Dip the end of a lint-free cotton swab into a cleaning solution. This can be a solution of mild dish detergent and water or a pure grade of isopropyl alcohol. Be sure to only use lint-free cotton swabs, since lint may damage the optical lenses.

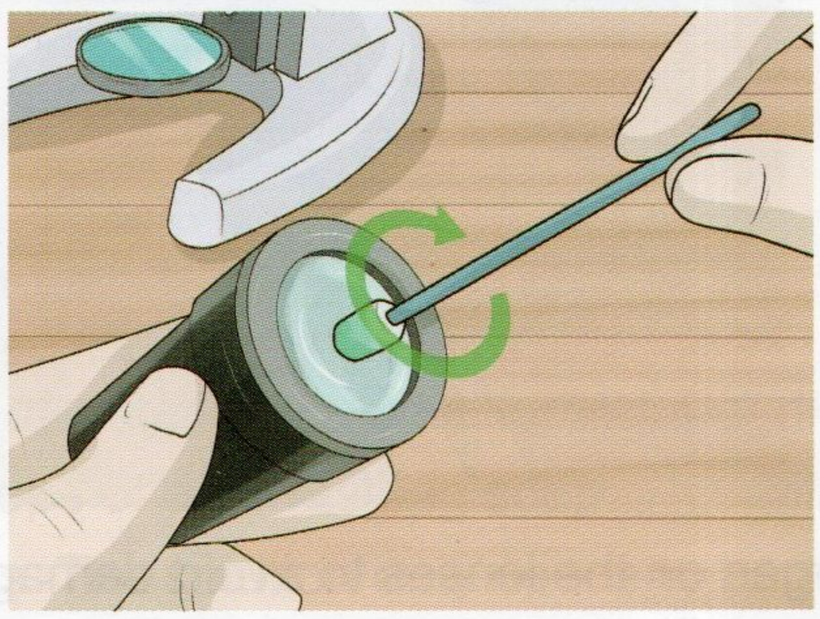
Note: You can buy these cleaning supplies at most stores that sell microscopes and other lab equipment.



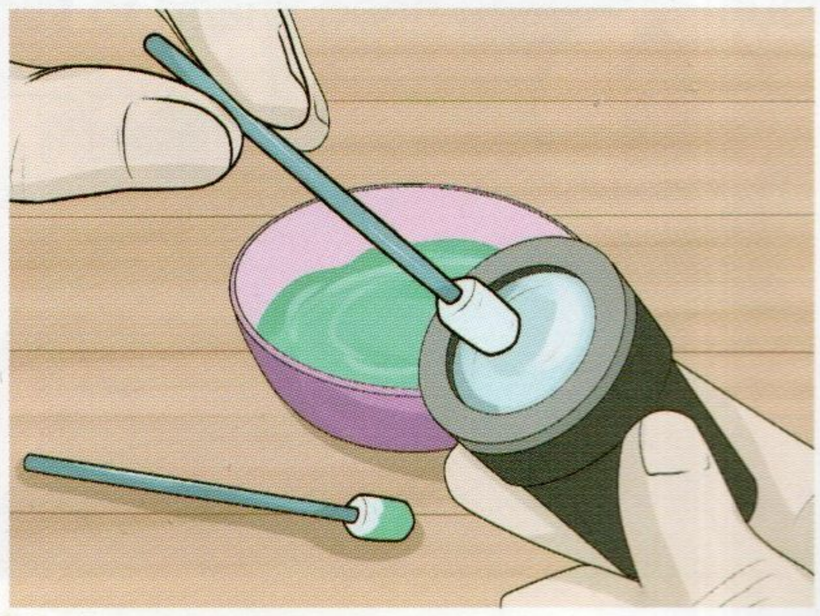
4. Scrub the center of the lens very gently with the swab. Move outwards with the cotton swab to clean the rest of the lens. Scrub in a circular motion, moving steadily away from the center of the lens and towards the periphery. Continue this motion until the entire lens is clean.[8]

Use a light hand in your scrubbing, since the lens is very easily damaged.

Refrain from cleaning the lens by moving the cotton swab in straight lines. These may leave streaks or even scratches on the lens.



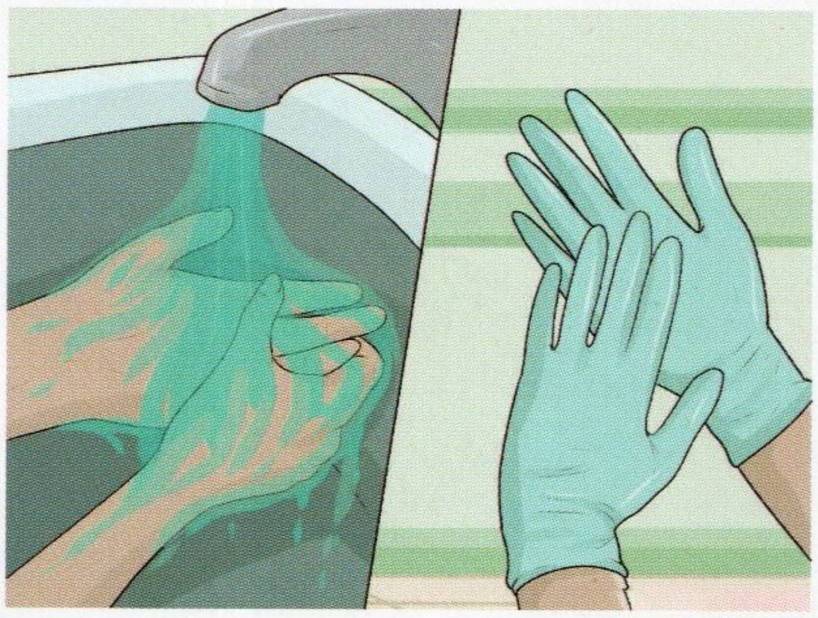
5.Use a separate, clean swab to wipe away any excess cleaner. Be very gentle with this second swab to avoid damaging the lens. Make sure to only use a lint-free cotton swab or towel.



Note; Keeping Your Microscope Clean

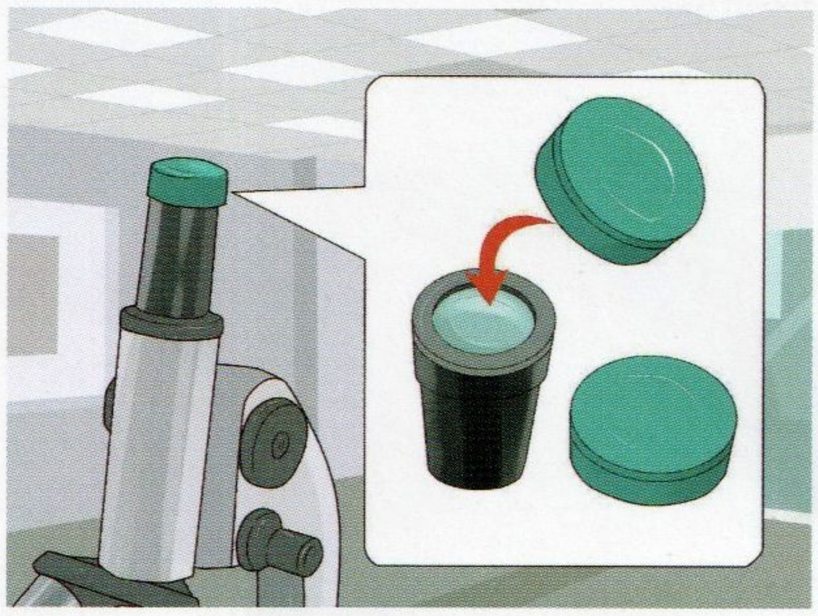
Wash your hands before handling your microscope. Remove any grease, dirt, or oil on your hands before touching your microscope to keep it from getting dirty. For best results, wear clean latex gloves whenever working with your microscope.

Note: To keep your microscope as clean as possible, avoid eating with your hands immediately before you use the microscope and certainly don't eat or drink while you're using it.



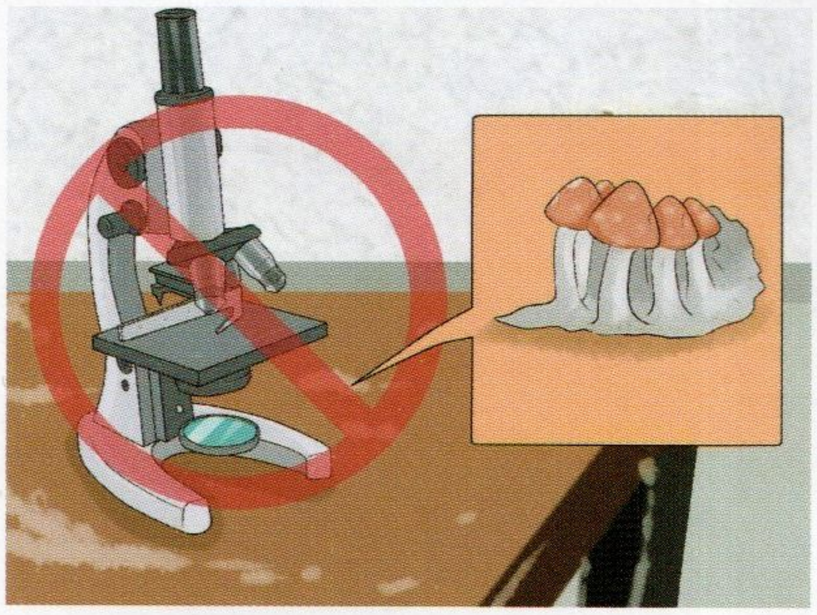
Put a cover on your microscope whenever you put it away. Use the dust cover provided by the microscope manufacturer for best results. However, if you no longer have this cover, you can also use a plastic bag to protect the microscope from dust.

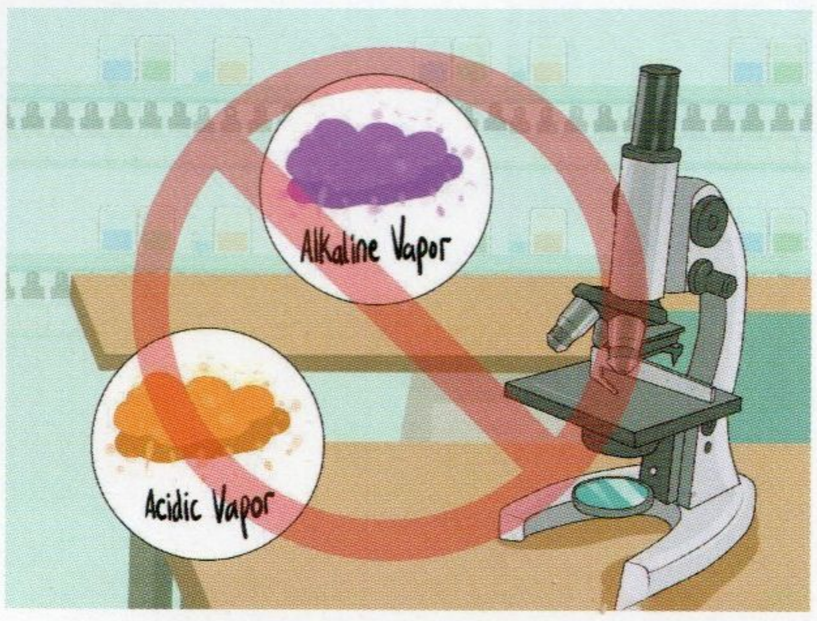
Note: Refrain from putting your microscope in a dusty environment, such as a storage closet, since this will only make your microscope more likely to get dusty.



Avoid storing your microscope anywhere it might be exposed to fungus. Don't leave your microscope in a humid room where fungus is likely to grow.

Keep the microscope away from acidic or alkaline vapors. These vapors are corrosive and might cause serious damage to your microscope.





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