How to Use a Microscope

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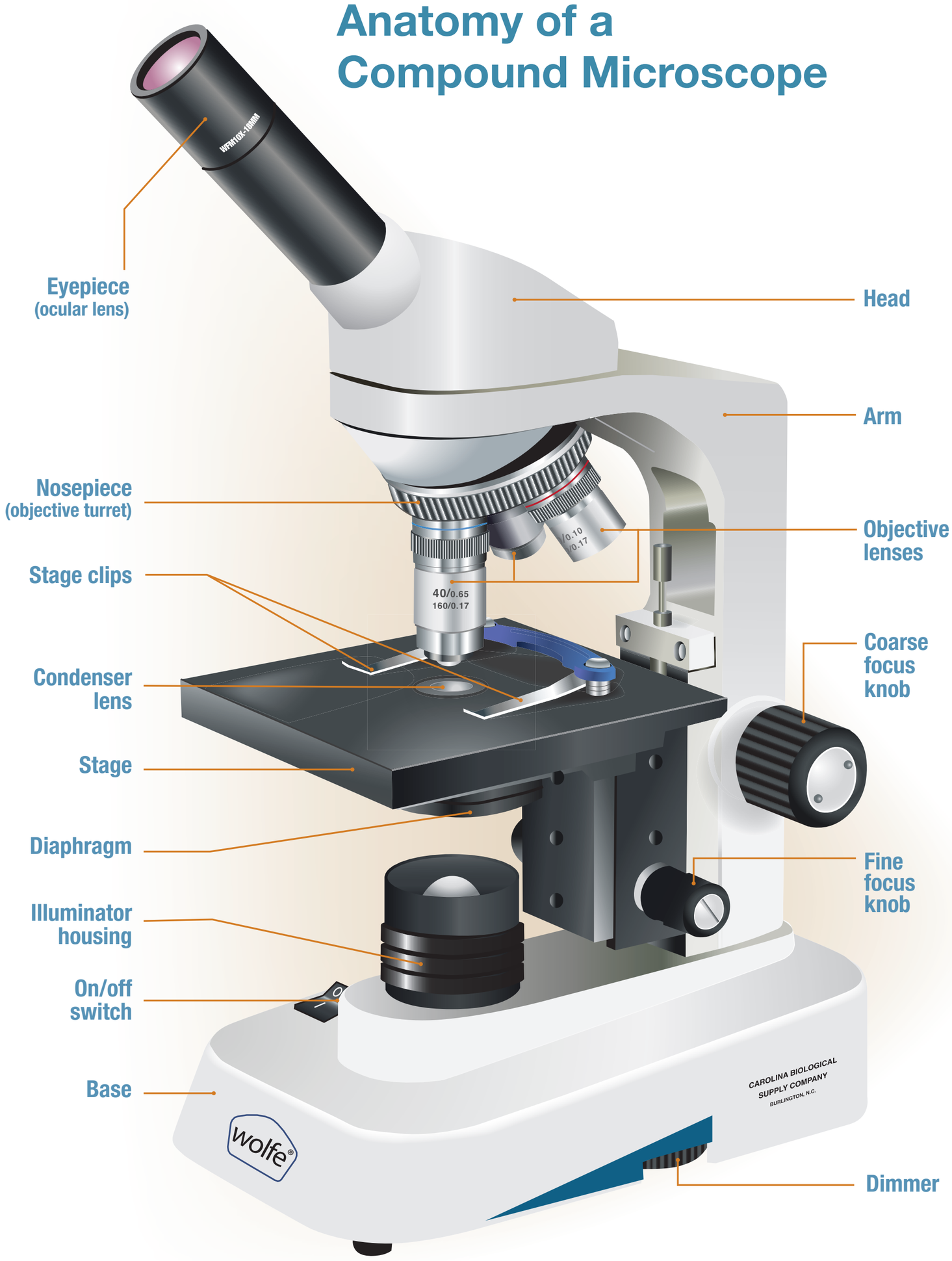
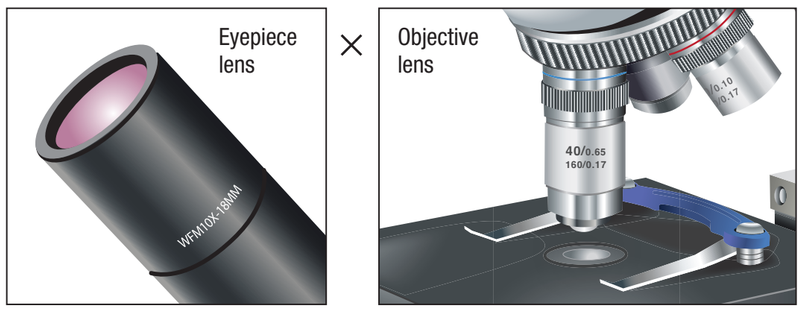
Anatomy of a Compound Microscope



Measuring Magnification

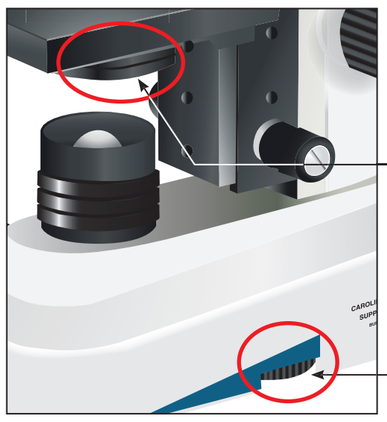
Compound microscopes utilize 2 lenses.



Total Magnification = Eyepiece Lens × Objective Lens

Examples: 10× Eyepiece with a 4× Objective = 40× Magnification
10× Eyepiece with a 10× Objective = 100× Magnification
10× Eyepiece with a 40× Objective = 400× Magnification

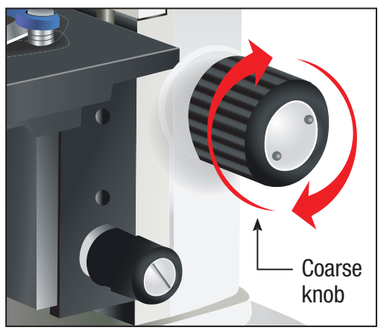
Lighting



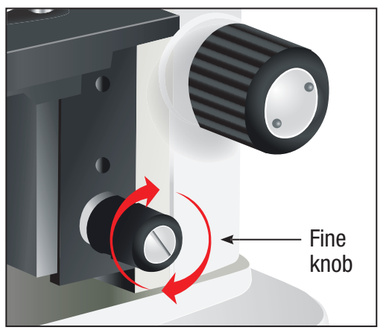
To adjust the light, use the dimmer and diaphragm, which improve the quality of the slide image.

Focusing

1. Start with the 4× objective.

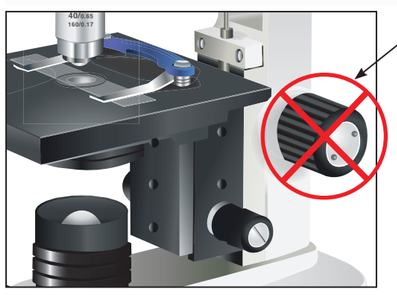


2. Use the coarse focus (large knob) to focus on the slide.

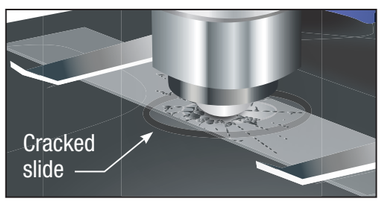


3. Use the fine focus (small knob) to sharpen the image.

4. After moving to a larger objective, only use the fine focus knob to refine the image. This prevents damage to the slide and objective.



DO NOT USE COARSE ADJUSTMENT AT HIGH POWER



Real World Connections

Microbiology

Microscopes are used in microbiology to study microscopic organisms such as bacteria, fungi, viruses, and algae. Microbiologists work in many different industries, including agriculture, food, health, and environmental.

Forensic Science

Forensic scientists use microscopes to identify trace evidence from a crime scene. This includes fibers, fingerprints, hair, and fragments. Microscopy is also used in studying bones and body tissue to determine cause of death.

Environmental Science

Microscopes can be used by geologists to study the composition of rocks. Environmental scientists also use microscopes to inspect soil and water samples for contaminants.

Botany

Also known as plant science, botany focuses on plant development, interaction, and structure. Some botanists use microscopes to study the structure of plant cells.

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