

Microscope Access Agreement

Your signature at the bottom of this form indicates that you have read, and agreed to the terms of this policy. **You will not use a school microscope without signing this form.** Have it with you when working with microscopes.

Microscope Access Policy

1. Each student who is using a microscope must be in possession of *The Microscope Use and Care Guide* issued by your teacher.
2. Each student must pass *the Microscope Care and Use Test*. The passing grade is 85 %.
3. Each lab group will be assigned a numbered microscope. Students must write down their microscope number in their agenda book. **Use this microscope only.**
4. Students will be given one warning if their microscope is stored incorrectly or if they are abusing their microscope. After a second infraction, the student will be removed from the lab and assigned a zero on all future microscope lab assignments
5. Microscopes are very expensive (\cong \$1000). Students will pay for repairs or replacement as required.

Student

Parent/Guardian

Principal



The Compound Microscope

The Microscope Care and Use Guide

THE COMPOUND MICROSCOPE

Man's curiosity has led him to investigate his environment. His instruments have enabled him to probe the vast distances of space, the depths of the ocean and the interior of the earth. He discovered long ago that a piece of glass with a curved surface would magnify the size of objects. [Anton Von Leeuwenhoek](#) (LAY -wen-hook), a Flemish cloth merchant and amateur lens grinder of the 17th century, devised a single glass bead in a metal holder to look at small objects. With this single lens or simple microscope he observed minute living organisms whose existence had been previously unknown. He found them in pond water, cheese and even in the material he scraped from between his teeth. The simple microscope was improved by the addition of a second lens, which magnified the image produced by the first lens. Such a microscope is called compound. By the nineteenth century, compound microscopes of excellent quality had made it possible to examine in detail the cellular structure of living things.

Microscope Care and Use

These very expensive instruments require special respect and care. Get advice and help from your teacher immediately if you find, or believe, anything is wrong with your microscope.

DO's

1. Carry the microscope with two hands. Hold the arm with one hand and support the base with the other.
2. Check that the bulb is switched off before plugging in the microscope.
3. Turn off microscope lamps when finished by turning the brightness down first, then switch it off. Finally unplug the microscope.
4. Except for short periods, put your microscope away. Always cover it with the dust cover.
5. Clean eyepieces or lenses, if you must, **ONLY** with new, lens tissues (supplied).
6. Report any mishaps at once, please.

DONT's

1. Jar your microscope.
2. Dismantle or try to make "adjustments" yourself.
3. Touch eyepieces or lens surfaces.
4. Change or swap objectives or other components with another microscope
5. Ever study a mineral or rock specimen under your microscope.

The Fourteen Commandments!

Of Microscope Use

1. Focus **upwards and away** from the specimen to avoid cracking the slides.
2. Total power = Ocular \times Objective.
3. Use a cover slip to observe specimens in fluids.
4. Use the revolving nosepiece to switch objectives and do not allow the objectives to come in contact with the slides.
5. Always use the lowest power objective, sufficient to see the details you wish to observe.
6. Use **extreme caution** when focusing "down".
7. Always "raise" the objective when removing a slide from the stage.
8. Do not touch or clean the lenses with anything except Lens Paper and Lens Cleaner.
9. When using parfocal Oil Immersion Objectives: Focus with high power, "swing" the objectives away from the specimen, place a drop of immersion oil directly over the specimen, swing the Oil Immersion Lens into place, use Fine Focus Control **only** to focus, **CLEAN** slides and objectives after use.
10. Re-center images when increasing the magnification.
11. Always carry and handle your microscope with **both** hands.
12. Always tie excess illuminator cords -- do not let them hang to the floor.
13. Always **CLEAN** the microscope stage and lenses before and after use.
14. Always report any problems to the instructor.

The Microscope Care and Use Test (45 marks)

(Every student **must** pass the Microscope Use and Care Test! The passing grade is 75 %.)

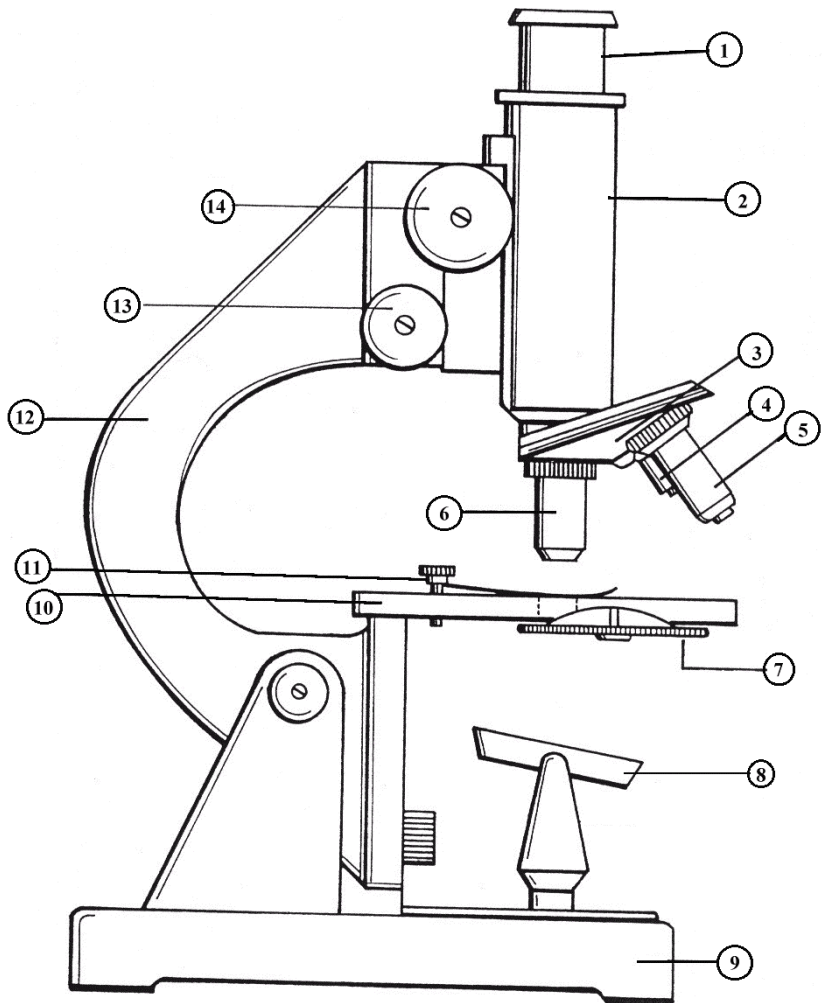
Name: _____

1. The diagram shows a simple, monocular compound microscope similar to the kind used in school during the seventies. It uses a mirror instead of a lamp as a light source.

Identify the fourteen labeled parts.

(14 marks)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____



2. Complete the following “*Commandments*” correctly! (Fill in the Blanks- **15 marks**).

- a) Focus _____ and away from the specimen to avoid cracking the slides.
- b) Total power = _____ × Objective
- c) Use a _____ to observe specimens in fluids.
- d) Use the revolving _____ to switch objectives and do not allow the objectives to come in contact with the slides.
- e) Always use the lowest power _____, sufficient to see the details you wish to observe.
- f) Use extreme caution when focusing "_____".
- g) Always "raise" the _____ when removing a slide from the stage.
- h) Do not touch or clean the _____ with anything except Lens Paper and Lens Cleaner.
- i) When using parafocal Oil Immersion Objectives: Focus with high power, "swing" the objectives away from the specimen, place a drop of immersion oil directly over the specimen, swing the Oil Immersion Lens into place, use _____ Focus Control **only** to focus, CLEAN slides and objectives after use.
- j) Re-center images when _____ the magnification.
- k) Always carry and handle your microscope with both _____.
- l) Always tie excess _____ cords -- do not let them hang to the floor.
- m) Always CLEAN the microscope stage and lenses before and _____ use.
- n) Always report any problems to the _____.

3. Give the function of the following microscope parts. (**16 marks**)

a) nosepiece

b) ocular

c) diaphragm

d) lamp

e) course focus adjustment

f) objective lens

g) stage clips

h) fine focus adjustment