

Laboratory Skills 2

Identifying Laboratory Equipment

Time required: 40 minutes

Introduction

Scientists use a variety of tools to explore the world around them. Tools are very important in the advancement of science. The type of tools scientists use depends on the problems they are trying to solve. A scientist may use something as simple as a metric ruler to measure the length of a leaf. At another time, the same scientist may use a complex computer to analyze large amounts of data concerning hundreds of leaves.

In this investigation, you will identify pieces of laboratory equipment likely to be found in a biology laboratory. You will also learn the function of each piece of laboratory equipment.

Problem

What are the names and functions of some of the pieces of laboratory equipment found in a typical biology laboratory?

Pre-Lab Discussion

Read the entire investigation. Then, work with a partner to answer the following questions.

1. What kinds of measurements might you need to make in the laboratory?

Length, mass, volume, temperature.

2. What kinds of equipment would you need for these tasks?

Metric ruler, triple-beam balance, graduated cylinder, thermometer.

3. Why are there several types of glassware marked for measuring?

Different sizes of glassware, such as the graduated beaker or the graduated cylinder, allow for more accurate measurements of specific volumes.

4. How might glassware be used differently?

Some are used for measuring, some are used for tests or experiments. Ten test tubes are more appropriate for running several different tests on a solution than ten graduated cylinders.

5. When might you need to use a thermometer in the lab?

To make sure the experimental and the control groups are at the same temperature. To record the temperature at which a reaction occurs.

Safety

Handle all glassware carefully. Be careful when handling sharp instruments. Always handle the microscope with extreme care. You are responsible for its proper care and use. Use caution when handling glass slides, as they can break easily and cut you. Note all safety alert symbols next to the steps in the Procedure and review the meanings of each symbol by referring to Safety Symbols on page 8.

Equipment should be set up for display before students begin the investigation.

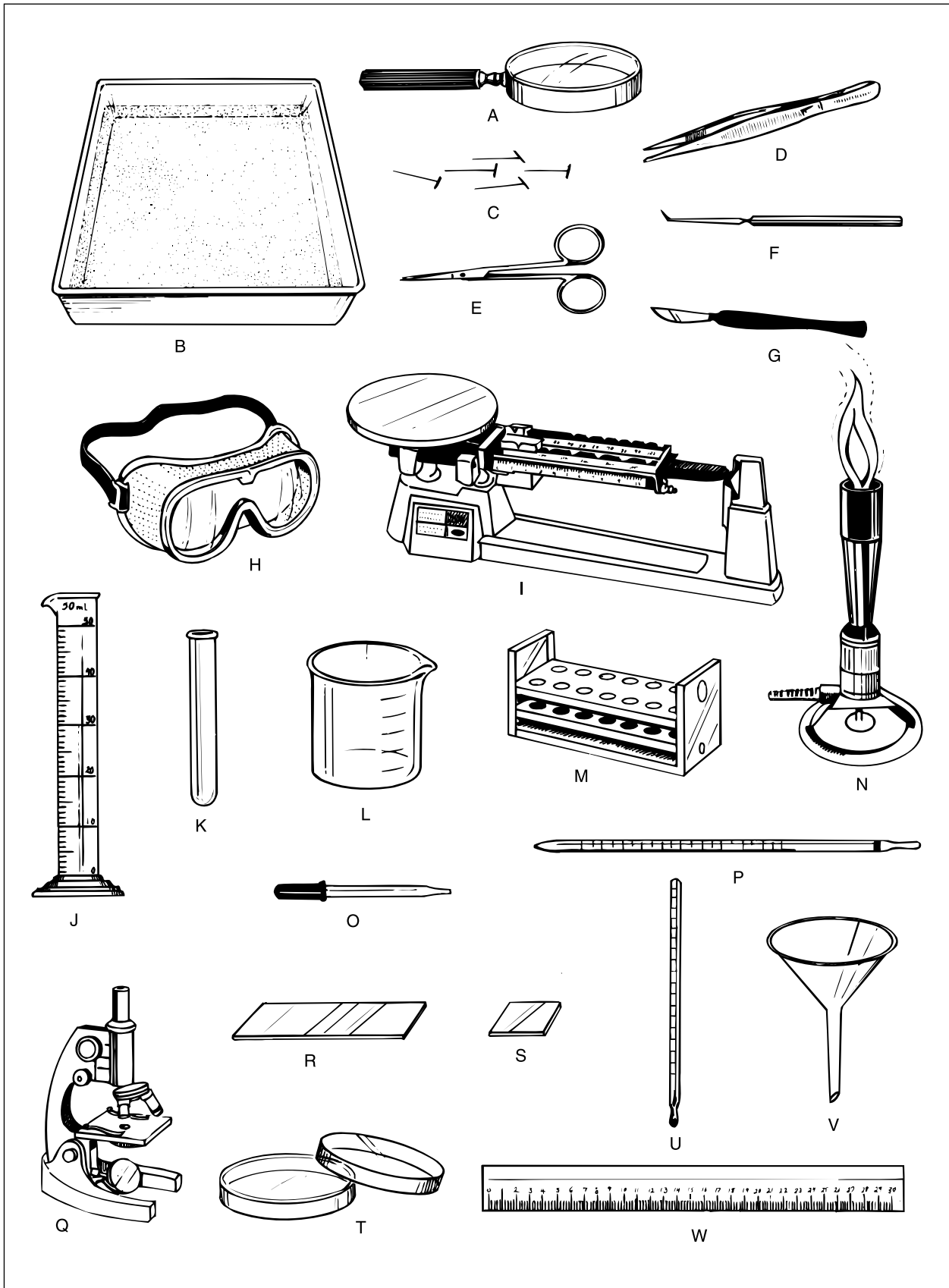
Procedure

1. Look at the drawings of the laboratory equipment in Figure 1. In the space provided, write the name of each piece of laboratory equipment.



2. Carefully inspect the different types of laboratory equipment that have been set out by your teacher. In the space provided write the function of each piece of laboratory equipment.

- A. hand lens; magnifies small objects
- B. dissecting tray; holds specimen for dissection
- C. dissecting pins; hold specimen on dissecting tray
- D. forceps; grasps small objects
- E. dissecting scissors; cut specimens to be studied
- F. dissecting probe; pointed object used to examine specimens
- G. scalpel; cuts specimens to be dissected
- H. safety goggles; protect eyes from fire and chemicals
- I. triple-beam balance; measures mass
- J. graduated cylinder; measures liquids
- K. test tube; holds liquids
- L. beaker; holds and measures liquids
- M. test-tube rack; holds test tubes
- N. Bunsen burner; heats objects
- O. dropper pipette; measures out drops of liquid
- P. pipette; transfers measured amounts of liquid
- Q. compound microscope; magnifies very small objects
- R. microscope slide; holds object for examination with the compound microscope
- S. coverslip; covers material on a glass slide
- T. petri dish; shallow dish used for bacterial cultures
- U. thermometer; measures temperature
- V. funnel; transfers liquid from one container to another; filters materials with filter paper
- W. metric ruler; measures length



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Figure 1

Analysis and Conclusions

1. **Classifying** Which laboratory tools can be used to magnify small objects so they can be seen more easily?

Compound microscope and hand lens.

2. **Classifying** Which laboratory tools are useful when looking at the internal organs of an earthworm?

Dissecting tray, dissecting pins, dissecting scissors, forceps, probe, scalpel, and hand lens.

3. **Applying Concepts** What tool or tools would you use to make each of the following measurements?

- a. amount of milk in a small glass

Graduated cylinder.

- b. length of a sheet of paper

Metric ruler.

- c. temperature of the water in a swimming pool

Thermometer.

- d. mass of a baseball

Triple-beam balance.

4. **Drawing Conclusions** How do laboratory tools improve the observations made by a scientist?

Certain laboratory tools can be used to extend the range and accuracy of the scientist's senses.

Going Further

Examine other types of laboratory equipment that you will be using in the biology laboratory. Try to determine the function of each piece of equipment.

You may wish to include items such as a hot plate, inoculating loop, Erlenmeyer or Florence flask, test-tube holder, beaker tongs, depression slide, or dissecting microscope.