

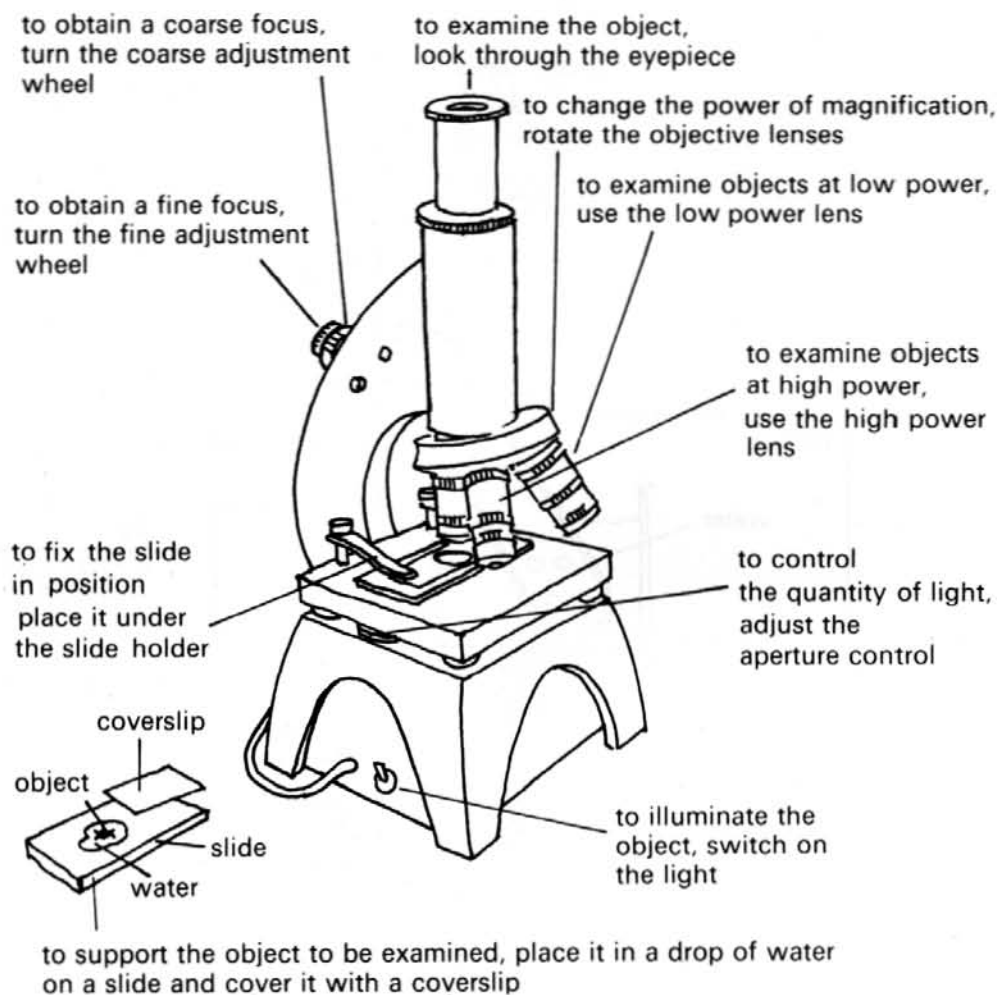
## 2. Ask and answer questions like this:

How *should* samples of the leaf *be obtained*?

Samples of the leaf should be obtained *by cutting out* small circular sections of the leaf.

## Section 2 Development

### 3. Look and read:



The student microscope

Ask and answer questions like this:

How  $\left\{ \begin{array}{l} \text{may} \\ \text{can} \end{array} \right\}$  the object *be examined*?

The object  $\left\{ \begin{array}{l} \text{can} \\ \text{may} \end{array} \right\}$  *be examined by looking through the eyepiece.*

**4. Complete these sentences, then rearrange them into the correct order:**

**Instructions for the use of the student microscope**

The apparatus is now ready, and the object can be examined by . . . .

Next, the slide should be . . . by placing it . . . .

If necessary, the quantity of light can be controlled by . . . .

During the initial examination at low power, a coarse focus is obtained by . . . .

First of all, the object to be examined should be supported by . . . .

The object is subsequently examined again at high power by using . . . .

Before examining the object, the light must be . . . in order to . . . .

The object is usually first examined at low power of magnification by means of . . . .

During the second examination, a fine focus is obtained by . . . .

In order to change from low to high power, the objective lenses . . . .

### Section 3 Reading

**5. Read this passage:**

**Biological experiments**

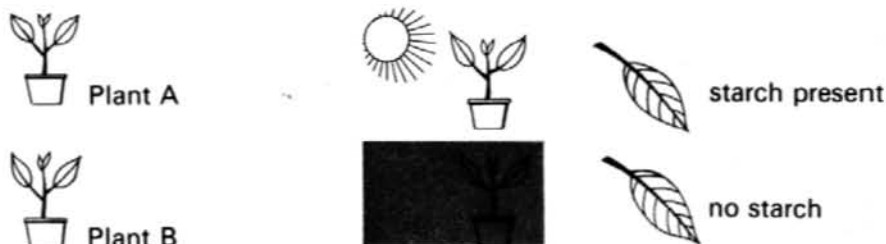
Experiments are carried out in the laboratory in order to observe the effects of changes in the environment on organisms. Two similar organisms may be studied in the experiment. One of these is kept in a normal environment. This is called the control. The other organism is placed in an environment in which one condition, such as temperature, is changed. The results are then compared. The control provides a standard against which changes in the other organism may be measured.

Complete these sentences:

- The purpose of experiments in the laboratory is . . . .
- The organism which . . . is called the control.
- During the experiment one organism . . . while the other . . . .
- . . . is an example of a condition which may be changed in an experiment.
- The purpose of the control . . . .

**6. Look and read:**

**An experiment to investigate the effect of light on photosynthesis**



Two similar green plants are used in this experiment. One plant (B) is kept in the dark for several days. The other plant (A) is exposed to sunlight for the same period. Both plants are kept at the same temperature and watered daily. The leaves of both plants are then tested for starch.

It can be observed that the leaves of plant B do not contain starch, whereas starch is still present in plant A. We can conclude that the plant which was kept in the dark was unable to produce starch. The reason for this is that energy from sunlight is necessary for photosynthesis. During photosynthesis starch is produced in the leaves of plants.

Answer these questions:

- a) Which plant is used as a control?
- b) What condition is different for the two plants?
- c) What conditions are the same for both plants?
- d) What difference is observed after the experiment?
- e) Why must green plants be used in this experiment?

**7. Now read this:**

#### **Reporting experiments**

A report of an experiment should usually include the following:

- a) a statement of the purpose of the experiment;
- b) a description or diagram of the apparatus or equipment used;
- c) a report of the procedure followed in the experiment;
- d) an observation of the results;
- e) conclusions drawn from the experiment, or facts demonstrated by the experiment;
- f) an explanation of the results, where this is known.

Now match the stages in the report of an experiment (a-f) with different parts of the report of the experiment on photosynthesis (exercise 6).