The O^2 Factor

Everest: The Death Zone
NOVAactivity

Climbers on Mt. Everest are at risk because of the low levels of oxygen at high altitudes. The oxygen levels where you live are probably much higher. How much oxygen is in the air where you live? Do this activity and find out.

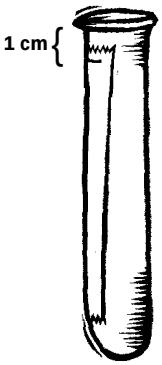
Materials

- small piece of plain steel wool (without soap or oil)
- 2 test tubes
- 2 beakers
- 2 burette clamps
- 100 ml graduated cylinder
- pencil
- masking tape
- water

1 Before you begin, predict what percentage of the air you breathe is oxygen. _____%
Explain your prediction on a separate sheet of paper.

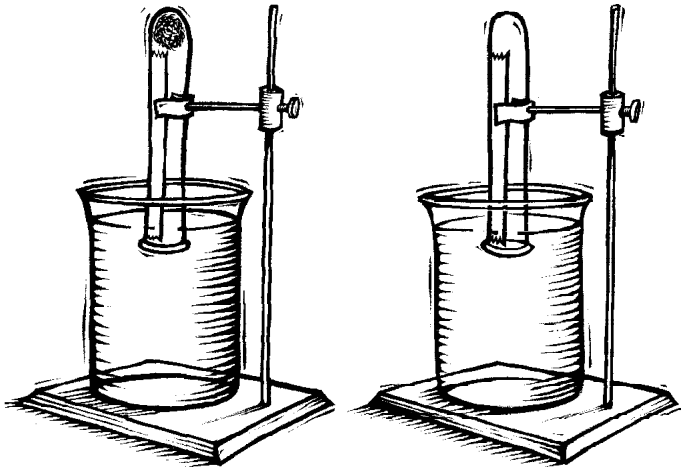
2 Place a vertical strip of masking tape along the side of each test tube.

3 Use a pencil to make a mark 1 cm (.40 in.) below the rim of each test tube.



4 Wet a small piece of steel wool, about the size of a quarter. Press the steel wool into the bottom of one of the test tubes. Use a pencil to wedge it in tightly.

5 Fill each beaker almost full with water. Turn the test tube with the steel wool upside down and attach it to a burette clamp. Lower the test tube into the water until the water rises to the 1 cm (about .40 in.) mark. Repeat with the second test tube and beaker. Let the test tubes stand for a day or two.



6 Each day mark the water level in both test tubes. Be careful not to move the test tubes as you mark them. Also describe the amount of rust on the steel wool. When the water stops rising, mark the final height of the water on each test tube. Compare the water level in both test tubes.

Questions

1 In which tube did the water level change most?

2 Why do you think so?