

Name _____ Per _____

Lab Partner _____

Introduction

We'll start our observation of cells and their components in much the same way it was first done in 1665 by Robert Hooke, an English naturalist and inventor. You have the same materials and basic equipment that Hooke had – but somewhat improved. The only thing that has not been improved is bottle cork. It has the same structure now as it did the first time it was seen through a microscope.

People obtain cork from the bark of a cork oak tree native to Spain, North Africa, and Italy. In North America it has been introduced to a limited extent in California. The Romans used it as early as 400 B.C. Bottle corks have been made since the 1600's. We know from the way it is used for bottle-stopping, for bobbers on fish lines, for floats on nets, etc., that it is almost impervious to water and other liquids.

Materials

Compound microscope	Slide
Single-edged razor blade	Cover slip
Bottle cork	Pipette

Procedure

CAUTION! Although cork is very easy to cut, freehand thin sections for microscopic examination require careful cutting. *You must be very careful of your fingers.*

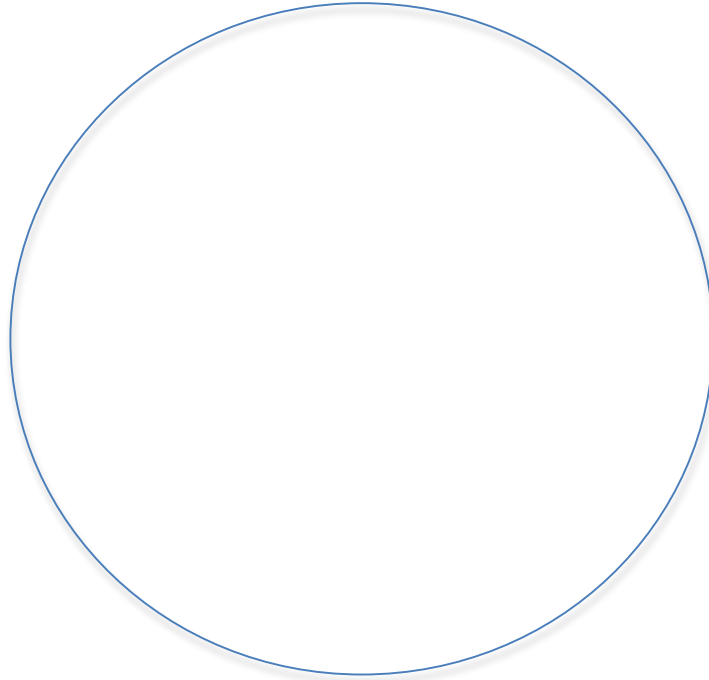
1. Hold the cork firmly in one hand and, with a sharp, single-edged razor blade, slice a thin sliver from the top of the cork by drawing the razor blade at an angle across its surface. With a little practice you can achieve sections thin enough for microscopic examination. *The cells will be most easily seen at the thin edge of your diagonal cut.* Figure 1 shows the method of holding the cork and handling the razor blade while cutting the thin freehand sections.
2. When you have made a properly small and thin section of cork, place the section on a clean slide in a small drop of water; add another small drop of water, and carefully cover with a cover glass. *Try to avoid trapping any air bubbles.*
3. Observe the specimen under the low power of the microscope (low power is not scanning power!). Look along the thinnest edges of the specimen for the clearest view of cork structure. Remember you are looking at cells as they were seen for the first time by Robert Hooke. Hooke was the first to use the word "cell" to describe the units composing the cork.
4. Sketch a small section of the cork to indicate the size and shapes of the cells. Remember the criteria for sketching microscope fields of view (title, total magnification, approximate size of one cell in microns).

Cells Lab 1: Cells as Robert Hooke Saw Them

Biology A

Results:

Title: _____



Total Magnification: _____

Estimated width of one cell: _____

For Lab Quiz: be able to answer the following questions.

1. What structures do you see inside each cell?
2. What part of the cell would keep out the water when cork floats?
3. What do you think would account for the fact that the cork floats in the water?
4. Do you see any evidence that these cells are alive or were once living?