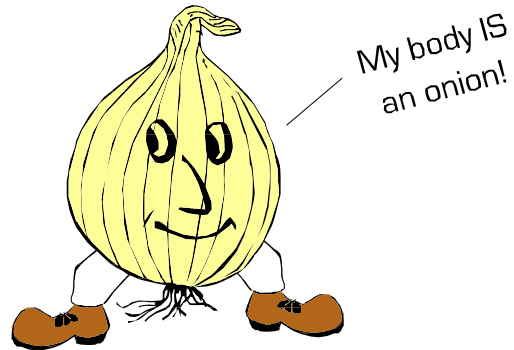


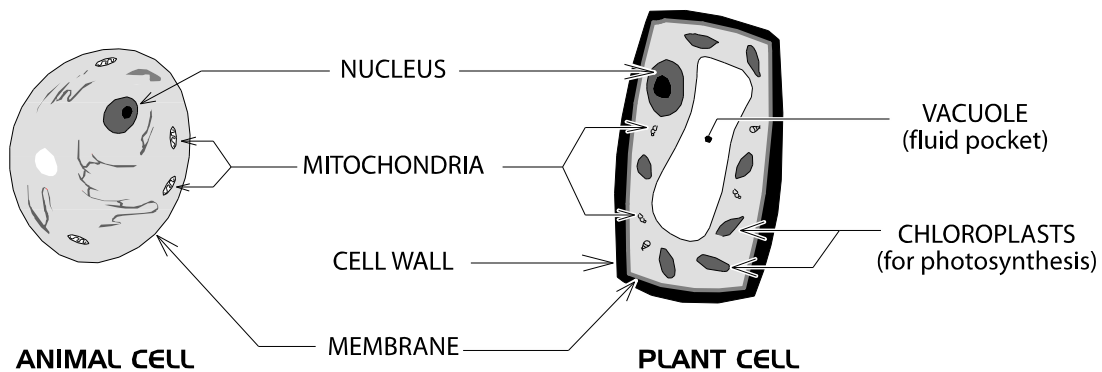
# Cells in an Onion Membrane

How is your body like an onion?!

Like all living things, people and onions are made of tiny living building blocks called **cells**.



Here are some enlarged pictures of cells:



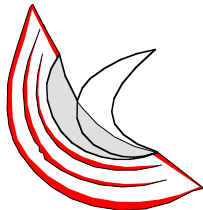
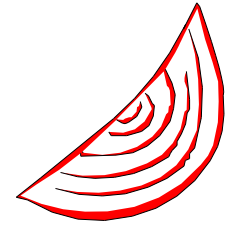
Think of a cell as being like a water balloon. The cell's **membrane** holds the **cytoplasm** the way the balloon holds the water. Bobbing around in the cytoplasm are the **nucleus**, which tells the cell what to do, and **mitochondria**, which turn food into energy for the cell. One difference between animal cells and plant cells is that plant cells have a tough cell wall. This gives the plant cell its shape and makes it easier to see under a microscope.

Of course, you are much more complicated than an onion! You have skin cells, blood cells, brain cells - over two hundred kinds of cells working together to keep your body alive. Can you see your skin cells or blood cells? No. No matter how hard you stare, they are too small to see, even with the pocket microscope.

But not all cells are too small! Today we'll look at cells in an onion.

**WHAT YOU NEED:** Use the pocket microscope. Also, you will need to provide an onion, a knife, and an adult.

**WHAT TO DO:** With adult supervision, cut a wedge from the onion.



Between each layer of the onion is a very thin, see-through membrane. Peel off one of the membranes.

Stretch the membrane smoothly over the end cap of the microscope. Moisture will make it stay.

**Onion juice on your fingers could sting your eyes. Be careful, and wash your hands when you're done.**

Look through the microscope at a light or the daytime sky (but not at the sun; that's dangerous.) Focus on the membrane and observe.

Can you see the cells?

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What you are seeing is the tough cell walls and the cytoplasm within. The nucleus and mitochondria are too small to see with this microscope.

Draw and describe what the onion membrane looks like through the microscope.

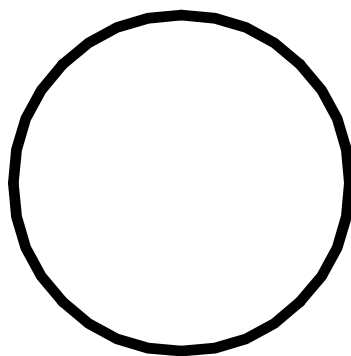
What is the shape of an onion cell?

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Are the cells all the same size and shape?

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How many onion cells would fit into a millimeter? Compare the cells, seen through the microscope, with the scale below, seen through the microscope.



ONION MEMBRANE

0 10 20 30 40 50 mm



This scale shows distance in millimeters