

TIP!

You can use a lamp or a mirror to illuminate the microscope. A replacement bulb is included.

What's in your experiment kit:



Checklist: Find – Inspect – Check off

✓	No.	Description	Qty.	Item No.
<input type="radio"/>	1	Microscope	1	708223
<input type="radio"/>	2	Tweezers	1	700595
<input type="radio"/>	3	Dissecting needle	1	000208
<input type="radio"/>	4	Slicing tool (microtome)	1	000211
<input type="radio"/>	5	Pipette	1	000210
<input type="radio"/>	6	Sample container	1	000214
<input type="radio"/>	7	Slides	4	062018
<input type="radio"/>	8	Box of cover slips	1	062206
<input type="radio"/>	9	Natural fiber specimens (silk, cotton, wool)	1	708224
<input type="radio"/>	10	Replacement bulb	1	000218

You will also need:

Two 1.5-volt batteries (AA/LR6/penlight), water glass, plate, teaspoon, blotting paper (or paper towels), white paper (letter size), newspaper, razor blade, fabric tape, permanent marker, cotton swabs, polystyrene foam pieces, string, small plastic bags, pocket knife, plastic bag with gravel or sand, wine cork, desk lamp.

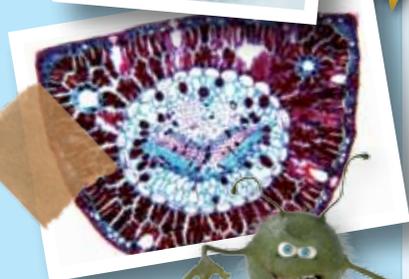
Also, for viewing under the microscope:

Onion, elodea waterweed, pine needle, raw meat, hair and fabric samples, dust sample, honey (more precise descriptions accompany each experiment).

TIP!

You will find additional information here: "Check It Out"
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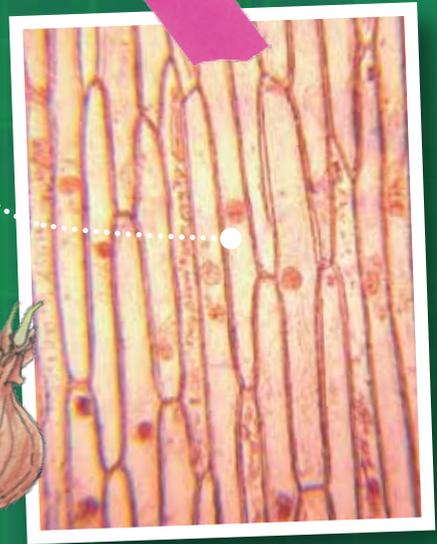
Build your own algae collecting device and examine flower pollen in honey!

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Onion Skin and Chloroplasts

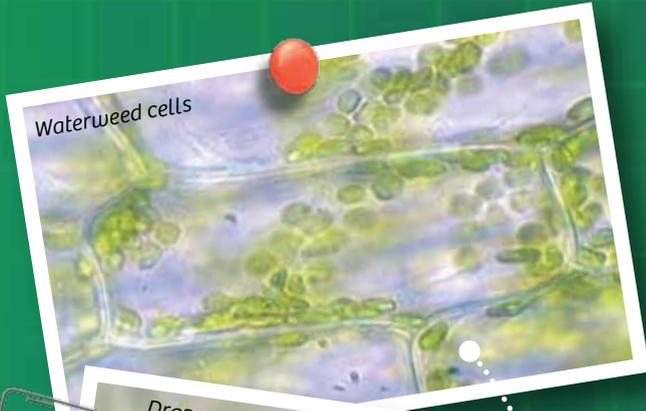
An onion is composed of many layers, with each individual layer covered by a very thin skin. This skin has a silvery sheen and consists of just a single layer of cells. You can easily view this “prototypical” plant cell under the microscope — a typical cell with a large round cell nucleus. The living portion of the elongated cells is surrounded by a protective cell wall. The cytoplasm (the substance filling the cells) of a white onion is colorless. If you take a red onion, you can see the deep purple cytoplasm inside the cells.



DID YOU KNOW?

A bacterial cell is just one thousandth of a millimeter in size. That means that about 70 bacterial cells placed side by side will be about as thick as a hair! At the other extreme, the egg cell of an ostrich is a veritable giant, measuring 15 cm in length. Giant cells like that are the exception however.

Waterweed cells



Draparnaldia algae

**TIP!**

Bubbles of air in the microscope slide can interfere with your viewing. Almost all specimens should lie in water in order to yield a really good image. You can easily get rid of air bubbles by placing a drop of water along one edge of the cover slip with the pipette, and then holding a piece of blotting paper or paper towel along the opposite edge. That will pull the drop of water under the cover slip and the bubbles will disappear. Repeat if necessary...

The green color of plant cells comes from tiny leaf-green structures that biologists call **chloroplasts**. You can very easily study the way these green granules look and move in the elodea "waterweed," a common aquarium plant. Its leaves consist of just two layers of cells, so they can be viewed directly under the microscope without any preparation. If you happen to know someone who owns an aquarium, just ask for a little branch of **waterweed**. Or you can ask for one in an aquarium or pet supply store. Either elodea or egeria, another closely related waterweed species, would work.

