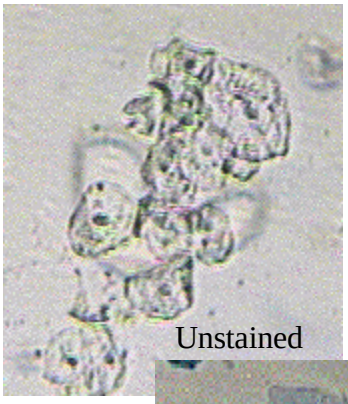
Microscope Lab 4: Staining

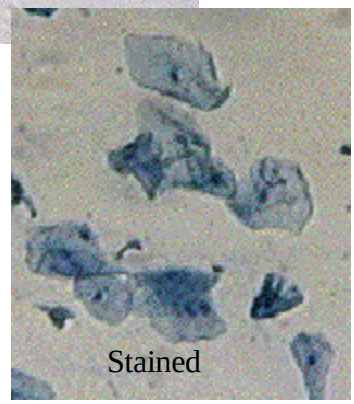
Staining:

In most instances, light must pass through objects to be viewed with a microscope. For this reason, an object to be viewed must be **fairly thin**. Thick objects may be sliced into thin sections for viewing. Many objects do not have distinct, contrasting colors. This makes seeing details difficult. Observation may be improved by staining with a **biological stain**. There are many types of stains. We will be using iodine. Below is a short list of some biological stains and their uses.

Stain	*Final color*	*Application*
Temporary stains		
Iodine solution	blue-black	Starch
Aniline sulfate or Aniline hydrochloride	yellow	Lignin
Schultz's solution	blue	Starch
	blue or violet	Cellulose
	yellow	Protein, cutin, lignin, suberin
Permanent stains		
Methylene blue	blue	Nuclei
Safranin	red	Nuclei; suberin and lignin of plants
Aniline blue	blue	Fungal spores and hyphae
Leishman's stain	red-pink blue	Red blood cells Nucleus of white blood cells
Eosin	pink/red	Cytoplasm/cellulose
Hematoxylin (NOTE: mainly used as a counterstain for eosin)	blue	Nuclei of animal cells
Feulgen's stain	red/purple	DNA (chromosomes in cell division)



Unstained



Stained

1. Obtain a specimen sample and make a wet mount slide.
2. View your specimen without a stain under low power.
3. Remove the slide from the stage.
4. Add a drop of iodine solution along one edge of the coverslip. Do not get any on the top of the coverslip and do not get any on you. It will stain you and your clothing too.
5. Place a piece of tissue paper along the opposite edge of the coverslip. The tissue paper will draw the water from under the coverslip into the tissue paper. This will draw the iodine stain under the coverslip and through the specimen.
6. View your specimen again.
7. Make a good drawing of the stained specimen on low power. Label a stained cell.