**Teacher Notes for Cell Investigation**

1. **In investigation #1**, students each get a prepared slide of bacteria. They will also receive one of the following which will require wet mount preparation:
   1. A piece of onion epidermis. This team should also get a bottle of iodine to use to stain the cells if they find them difficult to see. Great for cell wall observation.
   2. A piece of anacharis (plant). This plant has very obvious chloroplasts.
   3. A sliver of potato. This team should be instructed to observe the potato and then add a drop of iodine in order to see a reaction with the starch in the potato’s leucoplasts (they turn purple-black).
   4. Instructions for making a wet mount of their own cheek cells.
      * Add 1-2 drops of water to a slide.
      * GENTLY scrape the inside of your cheek with a clean toothpick. Smear this into the water droplet on your slide. Add a drop of methylene blue and a cover slip.
   5. A sliver of carrot. This plant has chromoplasts.
   6. A few pellets of dry yeast.
   7. A live protist would be best (I recommend Stentor because they’re fat and slow) so that students can observe all the kingdoms of life; however, a prepared slide will do OR another plant with obvious cell walls (like celery or green onion) would be fine.

NOTES:

* Prepared slides can also be used. Additionally, any eukaryotic cells will do! Don’t feel as though you have to limit yourself to my selections.
* If you have the space the easiest way to set this up is to have a bacteria slide and materials for eukaryotic slide preparation at each station. That way in investigation #2 students can simply rotate stations.
* Also, students WILL have trouble finding the bacteria on the slide because they are so small. That should be there major observation at first. After letting them struggle a bit, hand them color copies of a blown up image of the bacteria they are looking at on the slide OR let them use the internet. If looking for your own images on the internet, be sure to look for “transmission electron microscope” images in order to find images of inside the bacterium.



From <http://fineartamerica.com/featured/e-coli-bacterium-tem-dr-klaus-boller.html>

1. During **investigation #1 discussion**, the teacher will introduce the terms prokaryote and eukaryote and compile a list of similarities and differences between them on the board based on the observations posted by students on the padlet. Teacher will fill in anything students missed in their observations and students will copy the chart down at the end into their notebooks.
2. During **investigation #2**, teacher will tell students what the names of each of the specimens are in order to clear up confusion.
3. During **investigation #2 discussion**, teacher will walk students through the PowerPoint provided.