**Teacher Notes**

1. **In investigation #1**, students each get a prepared slide of bacteria. They will also receive one of the following
2. **CHEEK CELLS:** Instructions for making a wet mount of your own cheek cells.
   * 1. Add 1-2 drops of water to a slide.
     2. 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.
3. **ONION CELLS:** Instructions for making a wet mount of onion epidermis.
   * 1. Add 1-2 drops of water to a slide.
     2. Cut off a small piece of onion and use your fingernail to peel off the thin, membranous layer of the epidermis. Ask your teacher if you need help.
     3. Add the onion to your slide and observe.
     4. After you observe the onion, add 1-2 drops of iodine to the slide and observe again.
4. **POTATO CELLS:** Instructions for making a wet mount of a potato.
   * 1. Add 1-2 drops of water to a slide.
     2. Use a razor blade to slide off the smallest possible sliver of potato. If it’s not see through, it’s too big. Ask your teacher if you need help.
     3. Add the potato to your slide and observe.
     4. After you observe the onion, add 1-2 drops of iodine to the slide and observe again.
5. **YEAST CELLS:** Instructions for making a wet mount of yeast cells.
   * 1. Add 2 drops of the yeast/water mixture to your slide.
6. Other options include:
   * 1. A piece of anacharis (plant). This plant has very obvious chloroplasts.
     2. A sliver of carrot. This plant has chromoplasts.
     3. A live protist or prepared slide (I recommend Stentor because they’re fat and slow). This would be the best option 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.