**Histology**

The focus of this lab is for students to be able to correctly use the microscopes and to identify the different tissue types. Students will likely need quite a bit of help finding these tissue types on the slides as there are multiple tissue types on each slide. It might help to project the tissue types on the instructor scope throughout the lab. Before students begin looking at slides, you may want to cover the following concepts as a class”

* The differences between epithelial and connective tissue (generally)
* How epithelial tissues are named (shape of cell and number of layers)
* Differences in the ECM of connective tissue
* Write an outline of the different types of tissues on the board

This lab works really well with the ipads connected to the scopes so students can share their work. There will be 6 microscopes on the back bench connected to cameras and an ipad for taking images.

Materials Needed: 6 microscopes, adaptors and cameras attached. Instructors can sign out and connect the ipads to the camera for each lab session.

**PART I: This is covered in the first week – you have time to lecture on the different tissues types this week! The idea is to get through activities 1 & 2 this week and the next the following week. If students are getting through the lab, please have them continue on to activity 3. Alternatively you can complete activities 1 and 4 and 5 this week and the rest next week.**

**Case Study: “Case of the Persistent Cough”**

The idea behind this case study is that the patient has respiratory issues and it requires viewing the epithelial lining of the respiratory tract using an endoscopy. We will use this idea to have them learn the different types of tissues that make up the respiratory tract.

**Activity 1**- Epithelial Tissue (students work individually on the microscope but share work as a lab group – see below)

Students need to observe (1) simple squamous, (2) simple cuboidal, (3) simple columnar, (4) nonkeratinized stratified squamous, (5) pseudostratified columnar, and (6) transitional. Everyone should find each tissue type under the microscope (unless this lab is being done in one week – them students can split up the work in their group), observe and make scientific drawings of each slide. To find the correct tissues type, I recommend that you project these on the teaching scope AND that students use the paper histology guides in the lab as well as the online histology guide.

Material Needed for Each Tray: dropper bottle isopropyl alcohol (1), lens paper (1), slide box with simple squamous, simple cuboidal, simple columnar, ciliated pseudostratified columnar, nonkeratinized stratified squamous, and transitional

Other Material Needed for Lab: compound microscope per student

**Activity 2**- Connective Tissue Proper (students work individually on the microscope but share work as a lab group – see below)

Students will follow the same procedure as outlined in the activity above. Students should be working individually on their microscope as they must learn how to find these tissues but they can share among their group. Each student should find 3-4 tissue types and share among their group.

Material Needed for Each Tray: dropper bottle isopropyl alcohol (1), lens paper (1), slide box with areolar, adipose, reticular, dense regular, dense irregular, and dense regular elastic

Other Material Needed for Lab: compound microscope per student

**Activity 3**- Supportive Connective Tissue (students work individually on the microscope but share work as a lab group – see below)

Students will follow the same procedure as outlined in the activity above. Students should be working individually on their microscope as they must learn how to find these tissues but they can share among their group. Each student should find 3-4 tissue types and share among their group.

Material Needed for Each Tray: dropper bottle isopropyl alcohol (1), lens paper (1), slide box with elastic cartilage, hyaline cartilage, fibrocartilage, compact bone and blood

Other Material Needed for Lab: compound microscope per student

**PART II: This will be conducted on the second week along with Integument (if this lab is done over two weeks, otherwise please have students complete this part as well)**

**Activity 4**- Muscle Tissue (students work in pairs)

Students will use the images in the lab manual to complete this activity, they will not be viewing slides.

No Materials Needed

**Activity 5**- Nervous Tissue (students work in pairs)

Students will use the images in the lab manual to complete this activity, they will not be viewing slides.

No Materials Needed

**Activity 6**: Exploring an Organ (students work individually on the microscope but share work as a lab group – see below)

In this activity student will be applying what they learned in the previous activities. They will use an unknown slide to locate a type of each tissue and show it to the instructor for a signature.

Material Needed for Each Tray: dropper bottle isopropyl alcohol (1), lens paper (1), slide box with elastic unlabeled organ

Other Material Needed for Lab: compound microscope per student

**Lab Clean-up:**

Be sure that students put microscopes away properly!! Please check each microscope before it is put away OR check each in the cubby before you leave. Students must place slides back neatly in the slide boxes and all material stored back neatly in the tray.