

## **Lab #2: Organs of the thoracic and abdominal cavities.**

**Important:** All dissections of the thoracic and abdominal cavities will be done as a class. Do Not get ahead of the class for you may cut into something that we will want to examine later.

**Goals:** Be able to ....

❖ Locate and explain the functions of the structures listed below:

### **Neck Region:**

thymus gland

thyroid gland

larynx

trachea

esophagus

### **thoracic Cavity:**

right and left pleural cavities

right and left lungs

pericardial cavity

heart

### **Thoracic/Abdominal Division:**

diaphragm

### **Abdominal Cavity:**

umbilical chord

peritoneum

mesenteries

liver

stomach

spleen

small intestine (locate duodenum)

pancreas

large intestines

cecum

colon

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### **13.3 Thoracic and Abdominal Incisions**

- ✓ Pp. 164 – 165 **Make incisions with class and instructor!!!**

### **13.4 Neck Region, Thoracic Cavity and Abdominal Cavity**

- ✓ Pp. 166-170 – Read all introductions, follow the procedures to locate the organs specified and answer all the questions.
- ✓ Pp. 172 – Answer questions #6-8, 11-17, 19

Arrange the organs in order by the way food travels through them:

- ✓ Stomach, esophagus, large intestines, mouth, small intestines, anus, rectum

The inhalation of a breath of travels through several organs. Put the following organs in their proper order:

- ✓ Bronchi, nasal passages, bronchioles, larynx, pharynx, alveoli, trachea

## **II. Respiration and Digestion Stations**

### **Goals:**

After this lab you should be able to.....

1. Describe the appearance of villi and explain how the structure of villi supports their function.
2. Describe the internal structure of the lungs and explain the process of gas exchange.
3. Explain the difference in appearance and function between healthy alveoli and diseased alveoli.
4. Explain how lung capacities can be determined with a spirometer.
5. Compare and contrast the respiratory surfaces/ventilation methods of fish, frogs and humans.

### **Key terms and concepts:**

- ✓ Bronchi
- ✓ Bronchioles
- ✓ Alveoli
- ✓ Gas exchange by diffusion
- ✓ Negative pressure breathing
- ✓ Positive pressure breathing
- ✓ Methods of ventilation ( fish/frog/humans )
- ✓ villi
- ✓ spirometer
- ✓ surface area (of lungs and small intestines)

### **Station 1: Small Intestine**

- Dissecting scope with small intestine villi. How does the structure of the small intestine support their function (think surface area!!?)

### **Station 2: Respiratory Organs**

- Pp. 216-217. Read about the structure and function of the lungs and view the diagram.
- Dissected pig with the heart removed. Find the respiratory organs: **trachea, multiple lobes of the lung, bronchi, diaphragm.**
- Observe lungs under the dissecting microscope. Find the bronchioles and alveoli. Think about how alveoli increase the surface area of the lungs. Can you think of a reason why surface area would be important?
- Under the compound microscopes, view the slides of healthy vs. diseased lungs. Which slide has the greater surface area exposed in the alveoli? How does the amount of surface area affect gas exchange?
- Pp. C-43. Use this section of your manual to determine your lung capacity with the spirometer.

### **Station 3: Aerobic Respiration**

- P. C-45. Read thoroughly, and then make observations to help you fill out the table at the bottom of the page.
- Preserved perch & live goldfish: Find the respiratory organs (operculum, mouth and gills). Observe movement of water for respiration (in mouth→through the gills→out operculum). Is there a diaphragm?
- Dissected and live frogs: Locate respiratory organs: lungs, nares, & skin. Is there a diaphragm? Observe the gulping of air (positive pressure breathing). Frogs use the bottom of the oral cavity/throat to actively push air into the glottis. Adults also use skin to assist gas exchange. Tadpoles respire with gills, which disappear as they mature.
- Lung model: Use model to demonstrate negative pressure breathing. Think about what is happening here!
- Complete the table on p.C-47: **Please ask questions if you need help!!!**