

# Cat Dissection Lab

## Title: The Muscular System of the Cat

**Materials:** shirt, gloves, paper towels, blade, forceps, probe, cat, bag, colored pencils, rubber band, tape, pins, paper

### Muscles of the Thigh (Ventral) (9)

#### Procedure:

1. Identify and locate the **Sartorius, Gracillis, Rectus femoris, Semimembranosus, Semitendinosus, Vastus medialis, Vastus lateralis, Adductor femoris, Adductor longus**
2. remove CT with forceps
3. dissect muscles
4. probe/tease muscles
5. transect and reflect Sartorius and Gracillis to expose the deep muscles
6. remove CT from Rectus femoris, Semimembranosus, Semitendinosus, and Vastus medialis
7. dissect muscles
8. probe/tease muscles
9. draw and label **all** muscles of the ventral thigh

### Muscles of the Thigh (Dorsal) (2)

#### Procedure:

1. Identify and locate the **Tensor fascia latae, Biceps femoris**
2. remove CT with forceps
3. dissect muscles
4. probe/tease muscles to identify the line of demarcation
5. draw and label **all** muscles of the dorsal thigh.

### Muscles of the Lower Leg (6)

#### Procedure:

1. Identify and locate the **Peroneus longus, Extensor digitorum longus, Gastrocnemius, Soleus, Tibialis anterior**, and the **Achilles tendon**
2. remove CT with forceps
3. dissect muscles
4. probe/tease muscles to identify the lines of demarcation

#### Draw:

5. draw and label **all** muscles and (1) tendon of the lower leg.

#### Conclusion Questions:

Create a three 2-column tables for the following muscles. Title each table with headings “Muscles of the Thigh (Ventral), Muscles of the Thigh (Dorsal), and Muscles of the Lower Leg.

1. List the muscles and actions of the ventral thigh muscles.
2. List the muscles and actions of the dorsal thigh muscles
3. List the muscles and actions of the lower leg muscles.

# Cat Dissection

## **Title: The Cardiovascular System Lab**

**Materials:** shirt, gloves, paper towels, scalpel, forceps, scissors, probes, cat, colored pencils, rubber bands, drawing paper, lab manuals

### Opening the Thoracic Cage

#### **Procedure:**

1. Use the illustration manual to aid in identifying the structures of the cat cardiovascular system
2. Find the **sternum** of the cat and locate the **xiphoid process** by tracing the bottom of the rib cage
3. Using the scalpel make an incision from the xiphoid process to just below the chin (Be careful not to cut too deep and damage internal organs)
4. Using scissors and your first incision as a guide, penetrate the chest cavity below the xiphoid process and cut through the sternum just below the chin (Be careful not to cut too deep and damage internal organs)
5. Carefully spread apart the walls of the thoracic cage and locate the **diaphragm** at the caudal end of the incision
6. Make a cut just superior to the diaphragm laterally and dorsally toward the spine on both sides
7. Spread apart the walls of the thoracic cage to expose the internal organs
8. Identify the heart
9. Remove CT surrounding the heart using your forceps (Be careful not to remove major blood vessels coming off of the heart)

### Identification of Structures of the Heart

#### **Procedure:**

1. Identify the **pericardial sac**
2. Using your forceps and scalpel, make an incision through the pericardial sac from the apex to the base
3. Peel the pericardial sac dorsally
4. Identify the following structures externally:
  - **right and left atria\***
  - **right and left ventricle\***
  - **superior and inferior vena cava\***
  - **pulmonary arteries and veins \***
  - **ascending aorta, descending aorta, and aortic arch\***
  - **pulmonary trunk\***
  - **brachiocephalic artery\***
  - **left subclavian artery\***
  - **common carotid artery\***
  - **jugular vein\***

(**Note-** arteries and veins have been color coded for you)

#### **Draw:**

5. Draw an anterior external view of a heart. Be sure to label all of the structures that are \* from steps 4. Use the at least  $\frac{3}{4}$  of the page to draw and label the hearts. (Pay attention to detail!)

**Conclusion Questions:**

1. Create a table that lists the names and functions of each of the structures that are \* in steps 4. (14 organs total)
2. Draw a flow map of the path of blood through the heart starting from right atrium and ending in the right atrium.
3. Name the 2 branches that come off of the aorta and name the **REGIONS** of the body they provide oxygen-rich blood to.
4. Draw a flow map of the cardiac conduction system of the heart.
5. Find an EKG graph and label the 3 major parts of the EKG.



6. Create a table, as shown, about the 3 major parts of an EKG and their actions in the heart.

Part of EKG	Action in the Heart

# Cat Dissection

**Title:** The Respiratory System

**Purpose:** To dissect and observe the structures of the respiratory system.

**Materials:** shirt, gloves, paper towels, scalpel, forceps, scissors, probes, cat, colored pencils, rubber bands, drawing paper, lab manuals, handouts

## Dissection of the Cat Respiratory System

**Procedure:**

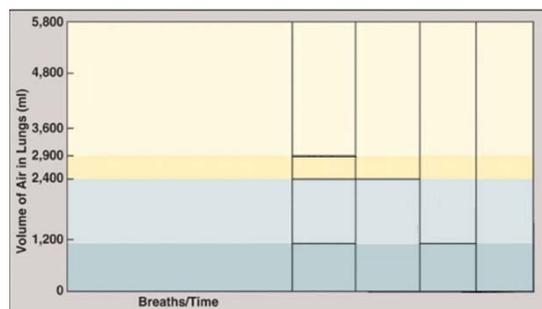
1. Use the illustration manual to aid in identifying the structures of the cat respiratory system
2. Using the cranial incision from the cardiovascular system, carefully spread apart tissues surrounding the larynx
3. Using the scissors, make a transverse cut through each of the **sternothyroid, thyrohyoid, and sternohyoid** muscles.  
(Do not cut the larynx!)
4. Gently free the cartilaginous larynx anteriorly until it is free of its muscle attachments (Do not pull out the larynx!)
5. Observe the following structures:
  - **Larynx**\*
  - **Epiglottis (do not draw)**
  - **vocal cords (do not draw)**
  - **trachea**\*
  - **primary bronchi (do not draw)**
  - **visceral and parietal pleura (do not draw)**
  - **pleural cavity (do not draw)**
  - **pulmonary veins and arteries (do not draw)**
  - **lungs (all lobes)**\*
  - **diaphragm**\*

**Draw:**

6. Using the diagrams provided draw, in detail, the respiratory system of the cat.
7. Label and color each of the parts that are \* from step 5

**Conclusion Questions:**

1. Create a table that lists the names and functions of each of the structures that are \* in step 5. (4 organs total)
2. Draw a flow map of airflow in the respiratory system starting from the nose to the alveoli.
3. Define and explain the process of inspiration (include volume and pressure changes).
4. Define and explain the process of expiration (include volume and pressure changes).
5. Find a spirogram graph and label the following lung volumes: tidal volume, inspiratory reserve volume, expiratory reserve volume, residual volume, vital capacity, and total lung capacity.



# Cat Dissection

**Title:** The Digestive System Lab

**Purpose:** To dissect and observe the structures of the cat digestive system

**Materials:** shirt, gloves, paper towels, scalpel, forceps, scissors, probes, cat, colored pencils, rubber bands, drawing paper, lab manuals, handouts

## Dissection of the Cat Digestive System

**Procedure:**

1. Use the illustration manual to aid in identifying the structures of the cat digestive system
2. Using scissors, continue your incision from the cardiovascular system from the **xiphoid process** to the pelvic region just above the **genitalia**
3. At the pelvic region, make cuts laterally and dorsally toward the spine on both sides
4. Carefully peel back the abdomen, remove the **greater omentum**, and observe the following structures:
  - **esophagus (behind the trachea)\***
  - **liver\***
  - **gall bladder\***
  - **stomach\***
  - **pancreas\***
  - **small intestine (3 sections)\***
  - **large intestine (4 sections)\***
  - **cecum\***
  - **mesentery\***
  - **rectum (do not draw)**
  - **anal canal (do not draw)**

**Draw:**

5. Draw, in detail, the digestive system of the cat. Use at least ½ of the page
6. Label and color each of the parts that are \* in step 4
7. Optional- Ask the teacher if you would like to observe the contents of the stomach

**Conclusion Questions:**

1. Create a 2-column table and list and define the terms ingestion, digestion, absorption, assimilation, and excretion.
2. Create a table that list the names and functions of each of the structures that are \* in step 4. (14 organs total)
3. Draw a flow map of the path of food through the alimentary canal starting from the mouth and ending in the anus.
4. Create a 3-column table, as shown below, of the accessory organs, what they secrete, and what they food they break down.

Name of Accessory Organ	Secretion	Food Broken Down

# Cat Dissection

**Title:** The Urinary System Lab

**Purpose:** To dissect and observe the structures of the cat urinary system

**Materials:** shirt, gloves, paper towels, scalpel, forceps, scissors, probes, cat, colored pencils, rubber bands, drawing paper, lab manuals, handouts

## Dissection of the Cat Urinary System

**Procedure:**

8. Use the illustration manual to aid in identifying the structures of the cat urinary system
9. Push the intestines to one side until you locate the kidneys.
10. Carefully remove the thin, filmy, transparent connective tissue called the **peritoneum**. Also, carefully remove adipose tissue around the kidney to gain a clearer view of the kidney.
11. Identify the **medial** and **lateral borders** of the kidney. Next identify the **hilum**, which is the indentation on the medial border where the renal artery, renal vein, and ureter enter and exit.
12. Identify and observe the following external structures:
  - **Kidney\***
  - **Adrenal glands (on top of kidney) (do not draw)**
  - **Hilum**
  - **renal artery\***
  - **renal vein\***
  - **ureter\***
  - **urinary bladder\***
  - **urethra (do not draw)**
13. Carefully remove one of the kidneys by cutting the renal artery, renal vein, and ureter.
14. Cut the kidney in half by making a cut parallel to the transverse plane so that you have an anterior and a posterior section of kidney.
15. Identify and observe the following internal structures:
  - **Renal cortex\***
  - **Renal medulla\***
  - **Renal pyramid (do not draw)**
  - **Renal pelvis\***
  - **Renal artery**
  - **Renal vein**
  - **Ureter**

**Draw:**

16. Draw, in detail, the structures of the urinary system of the cat. Use at least ½ of the page
17. Label and color each of the structures that are \* in step 5 and step 8.

**Conclusion Questions:**

1. Create a table that list the names and functions of each of the structures that are \* in steps 5 and 8 (8 organs total).
2. Draw a flow map of the path of urine through the urinary system starting from the renal corpuscle to the urethra.
3. What is the function of the kidney?
4. Explain the function of the nephron. Be sure to include glomerular filtration, tubular reabsorption, and tubular secretion.