

Cat Model Curriculum



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Curriculum Structure

The Cat Model Curriculum is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Cat Anatomy and the Five Senses	45 minutes – 1 hour
Two	Cat Digestive and Urinary Systems	45 minutes – 1 hour
Three	Cat Reproductive System	45 minutes - 1 hour
Four	Cat Respiratory and Circulatory Systems	45 minutes - 1 hour
	Total	4 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives and a Lesson at a Glance table which lists the lesson activities, materials required, suggested preparation steps and approximate class time.

Lesson Sections

The actual lesson follows the overview, which will contain some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a review of previous lesson information, or a demonstration. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One - Cat Anatomy and the Five Senses

Lesson Overview

The purpose of this lesson is to understand the anatomy of a cat and gain an understanding of the parts and function of the five senses.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify and understand the anatomy of the cat
- Identify the five senses of a cat
- Understand the parts of a cat's senses and the function that these parts play

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Cat Anatomy and the Five Senses Student Notes</i> • <i>Cat Anatomy and the Five Senses</i> slide presentation • <i>Cat Model</i>	1. Prepare <i>Cat Anatomy and the Five Senses</i> slide presentation for viewing 2. Print/photocopy <i>Cat Anatomy and the Five Senses Student Notes</i> (one per participant)	10 minutes
LEARN	• <i>Cat Anatomy and the Five Senses</i> slide presentation • <i>Cat Anatomy and the Five Senses Student Notes</i> • <i>Cat Anatomy and the Five Senses Student Notes - Answer Key</i>	1. Prepare <i>Cat Anatomy and the Five Senses</i> slide presentation for viewing	30 minutes
REVIEW	• <i>Cat Anatomy and the Five Senses Worksheet</i> • <i>Cat Anatomy and the Five Senses Worksheet - Answer Key</i>	1. Print/photocopy <i>Cat Anatomy and the Five Senses Worksheet</i> (one per participant)	10-15 minutes

Lesson One - Cat Anatomy and the Five Senses

FOCUS: Defining Cat Anatomy and Physiology

10 minutes

Purpose:

Participants will come away with a better understanding of how anatomy and physiology are defined.

Materials:

- *Cat Anatomy and the Five Senses Student Notes*
- *Cat Anatomy and the Five Senses* slide presentation
- Cat Model

Facilitation Steps:

1. Begin by displaying the Cat Model in front of the class. Tell participants to take a closer look at it. Explain that while our feline friends may seem very human at times, there are distinct differences.
2. Ask the following question: What is different about cat anatomy and physiology compared to humans? Write down participant answers on a white board.
3. Begin the *Cat Anatomy and the Five Senses* slide presentation with **Slide 1** introducing the lesson on cat anatomy and ask the question on **Slide 2**. As you move to **Slide 3**, compare the initial list of answers that participants shared to the list on the slide. Did students know any of these fun facts?
4. Distribute the *Cat Anatomy and the Five Senses Student Notes* to each participant. Participants should complete this as information is shared during the slide presentation.

5. Share the following information per slide:

Slide 4: Anatomy is the science of the structure of animals. The word is derived from the Greek word, “to cut up.”

Slide 5: Physiology is the science that deals with the functions of the living organism and its parts.

Slide 6 and 7: The following terms are used to describe locations on the animal body:

- Dorsal: pertains to the upper surface of the animal
- Ventral: relates to the lower and abdominal surface
- Cranial (or anterior): applies to the front or head
- Caudal (or posterior): pertains to the tail or rear

Slide 8: Use Cat Model to review parts of the cat’s anatomy.

Name: _____ Class: _____

Cat Anatomy and the Five Senses

Student Notes

Internal Cat Anatomy

_____ is the science of the structure of animals.

_____ is the science that deals with the functions of the living organism and its parts.

The Five Senses

Sense of Sight: Cats have _____ eyesight. Most cats can see kinds of light, such as _____, that are _____ to humans. As far as scientists have been able to tell, cats are more or less _____.

Tapetum lucidum, or “_____”, the glowing of cat’s eyes in the dark. A layer of iridescent cells at the back of the eyeball reflects the light, which adds to the cat’s ability to see at night.

A cat’s eyes appear as large, round globes or orbs, with a transparent covering known as the _____. Around the cornea is a ring of white, shiny tissue called the _____. The _____, or third eyelid, is located in the lower part of the cat’s eye.

This eyelid serves as protection for the eye. Cats have partial vision through the third eyelid and often use it as protection when fighting or when traveling through dense underbrush. When the nictitating membrane is clearly visible, it is usually a sign that the cat does not feel well.

In the center of the eye is the _____. When exposed to bright light, the pupils _____ and in darkness they open _____ to allow in as much light as possible.

Behind the pupil is the _____, which focuses images on the back of the eyeball. It is composed of strong, crystal-like fibrous tissue. Light rays passing through the lens are _____ to rest on a very sensitive area on the back of the eye, the _____. The nerves in the retina receive light and change it into nerve impulses or signals. Impulses are transmitted to the brain by way of the _____. The brain interprets these impulses and lets the cat “see.”

Sense of Hearing: Cats are exceedingly _____ to sound; their range of hearing extends _____ and below the range of human hearing. Cats, like all four-legged animals, have cupped ears which serve as receptors and conductors of sound. When listening, the cat will move its head this way and that, turning its ears

_____. The sound travels down through the _____, which is fitted with small knobs or protuberances. The outer ear tapers and narrows near the cat’s skull, then turns downward and inward, ending in a delicate membrane known as the _____.

Beyond the eardrum are three small, delicate bones: the _____, _____ and _____. The names describe the shapes of the bones that function to transmit sound waves into a section of the inner ear known as the _____. The cochlea, a snail shaped canal, contains the auditory nerve which changes sound waves into nerve impulses (nerve signals) and relays sound messages to the brain. Near the cochlea are three horseshoe-shaped tubes known as the _____. They contain fluid and fine hairs called cilia that function to maintain the cat's excellent sense of balance.

Connecting the middle ear to the throat is the _____. Its main purpose is to equalize pressures. Without this safety device, the eardrum would be _____ when subjected to great pressure. When pressure is exerted on its ears, a cat swallows and sticks out its tongue.

Sense of Smell: The cat's _____, those concerned with its sense of smell, are not as sensitive as those of some other animals, but are quite adequate. Cats can scent people, animals and other objects at a considerable distance, but they do not rely on this sense while hunting as much as other animals do. Fastidious about odors, they dislike many of the same smells that humans do. They will try to cover up _____ smells.

Most cats have a fondness for _____, a member of the mint family. It is believed they are excited by the smell. Some authorities believe that the odor of catnip stimulates the cat sexually. Some cats are not affected by catnip, some become just quietly excited, while others roll, purr and growl in ecstasies of delight. The occasional cat may become disagreeable.

Sense of Taste: The cat's tongue is _____ and _____, with almost parallel sides. It tapers slightly in front and somewhat more in the back of the mouth. The upper surface of the tongue is covered with rasplike _____ which enable the cat to scrape every piece of meat off a bone or to lick its coat clean. The tongue is covered with _____, particularly at the tip and at the back of the throat. These taste buds react to chemical stimuli to produce sensations of _____, _____ and _____.

Sense of Touch (Hair and Skin): The least important sense in a cat is the sense of _____. Both the skin and the hair play a role in that sense.

First of all, the hair or fur serves as _____ against heat and cold. Hair also protects the cat against insect bites, stings, thorns and other dangers and annoyances. The cat raises its hair, particularly the hair along its neck and spine, as a _____ device when frightened or threatened. With its hackles raised, the cat assumes a wary and defiant position. Back arched, tail hairs bristling, muscles tensed, it turns itself broadside. In this attitude, the cat appears larger and more ferocious to its attacker.

Cats shed their hair according to climatic conditions and their state of health. Hair is shed naturally _____, especially in the spring and fall. Excessive shedding is a warning signal of possible disease, poor diet, parasites, or overheating. Therefore, it is important to pay attention to the condition of your cat's hair.

The cat's skin is made up of an outer layer, the _____, and an inner layer, the _____. The epidermis consists of four sub-layers, with the innermost providing for the regeneration of skin cells.

Skin functions to

_____.
Skin protects against _____ and prevents _____,
_____ and _____. The skin has many glands. Sweat glands
are located only on the _____. Sweating is only a small portion of
_____ (keeping the body at a correct operating
temperature). The cat cools itself primarily by _____. Cats also have glands in their skin
that are connected with the hair follicles, known as _____. They
secrete an oily substance known as _____ that solidifies when exposed to the air.

Lesson One - Cat Anatomy and the Five Senses

LEARN: The Five Senses of a Cat

30 minutes

Purpose:

Participants will take notes and discuss the five senses of a cat.

Materials:

- *Cat Anatomy and the Five Senses* slide presentation
- *Cat Anatomy and the Five Senses Student Notes*
- *Cat Anatomy and the Five Senses Student Notes - Answer Key*

Facilitation Steps:

1. Continue with the *Cat Anatomy and the Five Senses* slide presentation. (Start with Five Senses **Slide 9**)
2. Go over the presentation slides while the participants complete the *Cat Anatomy and the Five Senses Student Notes*.
3. Share the following information as the following slides are reviewed:

Slide 10: Sense of Sight - Cats have exceptional eyesight. Particularly in the early evening and at night, they see better than humans. Most cats can see kinds of light, such as ultraviolet, that are invisible to humans. In the course of their development, the ability to see at night while hunting was favored over the ability to see colors during the day. As far as scientists have been able to tell, cats are more or less colorblind.

One phenomenon of cat vision is the tapetum lucidum, or “eyeshine”, the glowing of cat’s eyes in the dark. A layer of iridescent cells at the back of the eyeball reflects the light, which adds to the cat’s ability to see at night.

A cat’s eyes are complicated and delicate organs. Even small injuries can render a cat

blind. The eyes appear as large, round globes or orbs, with a transparent covering known as the cornea. Around the cornea is a ring of white, shiny tissue called the sclera. The nictitating membrane, or third eyelid, is located in the lower part of the cat’s eye. This eyelid serves as protection for the eye. Cats have partial vision through the third eyelid and often use it as protection when fighting or when traveling through dense underbrush. When the nictitating membrane is clearly visible, it is usually a sign that the cat does not feel well. It is not specific to any one area and means you should examine your cat closely for a problem.

In the center of the eye is the pupil. It is a hole, formed by the iris, which expands or contracts to let in the correct amount of light. When exposed to bright light, the pupils contract into linear slits. In darkness they open very wide to allow in as much light as possible.

Behind the pupil is the lens, which focuses images on the back of the eyeball. It is composed of strong, crystal-like fibrous tissue. Light rays passing through the lens are bent to rest on a very sensitive area on the back of the eye, the retina. It is richly lined with nerves. The nerves in the retina receive light and change it into nerve impulses or signals. Impulses are transmitted to the brain by way of the optic nerve. The brain interprets these impulses and lets the cat “see.”

Slide 11: Sense of Hearing - Cats are exceedingly sensitive to sound; their range of hearing extends well above and below the range of human hearing. It is probable that the cat has a keener sense of hearing than most dogs, since it depends more upon sight and hearing than smell when hunting.

Cats, like all four-legged animals, have cupped ears which serve as receptors and conductors of sound. When listening, the cat will move its head this way and that, turning its ears in the direction of the sound. The sound travels down through the outer ear canal, which is fitted with small knobs or protuberances. The outer ear tapers and narrows near the cat's skull, then turns downward and inward, ending in a delicate membrane known as the eardrum. All of the hearing faculties are protected within the skull.

Beyond the eardrum are three small, delicate bones: the hammer, anvil and stirrup. The names describe the shapes of the bones that function to transmit sound waves into a section of the inner ear known as the cochlea. The cochlea, a snail shaped canal, contains the auditory nerve which changes sound waves into nerve impulses (nerve signals) and relays sound messages to the brain. Near the cochlea are three horseshoe-shaped tubes known as the semicircular canals. They contain fluid and fine hairs called cilia that function to maintain the cat's excellent sense of balance.

Connecting the middle ear to the throat is the Eustachian tube. Its main purpose is to equalize pressures. Without this safety device, the eardrum would be ruptured when subjected to great pressure. When pressure is exerted on its ears, a cat swallows and sticks out its tongue.

Slide 12: Sense of Smell - The cat's olfactory nerves, those concerned with its sense of smell, are not as sensitive as those of some other animals, but are quite adequate. Cats can scent people, animals and other objects at a considerable distance, but they do not rely on this sense while hunting as much as other animals do. Fastidious about odors, they dislike many of the same smells that humans do. They will try to cover up disagreeable smells.

Most cats have a fondness for catnip, a member of the mint family. It is believed they are excited by the smell. Some authorities believe that the odor of catnip stimulates the cat sexually. Catnip is harmless and you can give your cat as much of the "feline snuff" as it wants. It may enjoy nibbling on the leaves of a catnip plant, or playing with a catnip-stuffed

toy. Some cats are not affected by catnip, some become just quietly excited, while others roll, purr and growl in ecstasies of delight. The occasional cat may become disagreeable.

Slide 13: Sense of Taste - The cat's tongue is long and flat, with almost parallel sides. It tapers slightly in front and somewhat more in the back of the mouth. The upper surface of the tongue is covered with rasplike papillae which enable the cat to scrape every piece of meat off a bone or to lick its coat clean. The tongue is covered with taste buds, particularly at the tip and at the back of the throat. These taste buds react to chemical stimuli to produce sensations of acidity, sweetness, bitterness and saltiness.

Slide 14: Sense of Touch (Hair) - The least important sense in a cat is the sense of touch. Both the skin and the hair play a role in that sense.

First of all, the hair or fur serves as insulation against heat and cold. Hair also protects the cat against insect bites, stings, thorns and other dangers and annoyances. The cat raises its hair, particularly the hair along its neck and spine, as a protective device when frightened or threatened. With its hackles raised, the cat assumes a wary and defiant position. Back arched, tail hairs bristling, muscles tensed, it turns itself broadside. In this attitude, the cat appears larger and more ferocious to its attacker.

Cats shed their hair according to climatic conditions and their state of health. Hair is shed naturally year-round, especially in the spring and fall. Excessive shedding is a warning signal of possible disease, poor diet, parasites, or overheating. Therefore, it is important to pay attention to the condition of your cat's hair.

Slide 15: Sense of Touch (Skin) - The cat's skin is made up of an outer layer, the epidermis and an inner layer, the dermis. The epidermis consists of four sub-layers, with the innermost providing for the regeneration of skin cells.

Skin functions to protect the body from the external environment. Skin protects against injuries and prevents excess loss of water, electrolytes and large molecules. Skin is the first layer of defense in the immune system as it

physically blocks bacteria, viruses, fungus and other pathogenic (disease causing) organisms. While the cat's skin is somewhat waterproof, it is not impermeable. That is, certain oils and medicines can be absorbed through the skin. This should be kept in mind when you use any insecticides or medications on a cat's skin. A toxic substance may prove fatal if absorbed through the skin.

Slide 16: Sense of Touch (Skin) - The skin has many glands. Sweat glands are located only on the foot pads. Sweating is only a small portion of thermoregulation (keeping the body at a correct operating temperature). The cat cools itself primarily by panting. Cats also have glands in their skin that are connected with the hair follicles, known as sebaceous glands. They secrete an oily substance known as sebum that solidifies when exposed to the air. It coats the hairs, thus protecting the fur and making it glossy. In a healthy state, the cat's skin is always elastic and pliable, with the ability to regenerate at a rapid pace.

4. Answer any questions using the *Cat Anatomy and the Five Senses Student Notes – Answer Key*.

Cat Anatomy and the Five Senses

Student Notes - Answer Key

Internal Cat Anatomy

Anatomy is the science of the structure of animals.

Physiology is the science that deals with the functions of the living organism and its parts.

Five Senses

Sense of Sight: Cats have **exceptional** eyesight. Most cats can see kinds of light, such as **ultraviolet**, that are **invisible** to humans. As far as scientists have been able to tell, cats are more or less **colorblind**.

Tapetum lucidum, or “**eyeshine**”, the glowing of cat’s eyes in the dark. A layer of iridescent cells at the back of the eyeball reflects the light, which adds to the cat’s ability to see at night.

A cat’s eyes appear as large, round globes or orbs, with a transparent covering known as the **cornea**. Around the cornea is a ring of white, shiny tissue called the **sclera**. The **nictitating membrane**, or third eyelid, is located in the lower part of the cat’s eye. This eyelid serves as protection for the eye. Cats have partial vision through the third eyelid, and often use it as protection when fighting or when traveling through dense underbrush. When the nictitating membrane is clearly visible, it is usually a sign that the cat does not feel well.

In the center of the eye is the **pupil**. When exposed to bright light, the pupils **contract** and in darkness they open **very wide** to allow in as much light as possible.

Behind the pupil is the **lens**, which focuses images on the back of the eyeball. It is composed of strong, crystal-like fibrous tissue. Light rays passing through the lens are **bent** to rest on a very sensitive area on the back of the eye, the **retina**. The nerves in the retina receive light and change it into nerve impulses or signals. Impulses are transmitted to the brain by way of the **optic nerve**. The brain interprets these impulses and lets the cat “see.”

Sense of Hearing: Cats are exceedingly **sensitive** to sound; their range of hearing extends **well above** and below the range of human hearing. Cats, like all four-legged animals, have cupped ears which serve as receptors and conductors of sound. When listening, the cat will move its head this way and that, turning its ears **in the direction of the sound**. The sound travels down through the **outer ear canal**, which is fitted with small knobs or protuberances. The outer ear tapers and narrows near the cat’s skull, then turns downward and inward, ending in a delicate membrane known as the **eardrum**.

Beyond the eardrum are three small, delicate bones: the **hammer, anvil and stirrup**. The names describe the shapes of the bones that function to transmit sound waves into a section of the inner ear known as the **cochlea**. The cochlea, a snail shaped canal, contains the auditory nerve which changes sound waves into nerve impulses (nerve signals) and relays sound messages to the brain.

Near the cochlea are three horseshoe-shaped tubes known as the **semicircular canals**. They contain fluid and fine hairs called cilia that function to maintain the cat's excellent sense of balance.

Connecting the middle ear to the throat is the **Eustachian tube**. Its main purpose is to equalize pressures. Without this safety device, the eardrum would be **ruptured** when subjected to great pressure. When pressure is exerted on its ears, a cat swallows and sticks out its tongue.

Sense of Smell: The cat's **olfactory nerves**, those concerned with its sense of smell, are not as sensitive as those of some other animals, but are quite adequate. Cats can scent people, animals and other objects at a considerable distance, but they do not rely on this sense while hunting as much as other animals do. Fastidious about odors, they dislike many of the same smells that humans do. They will try to cover up **disagreeable** smells.

Most cats have a particular fondness for **catnip**, a member of the mint family. It is believed they are excited by the smell. Some authorities believe that the odor of catnip stimulates the cat sexually. Some cats are not affected by catnip, some become just quietly excited, while others roll, purr and growl in ecstasies of delight. The occasional cat may become disagreeable.

Sense of Taste: The cat's tongue is **long** and **flat**, with almost parallel sides. It tapers slightly in front and somewhat more in the back of the mouth. The upper surface of the tongue is covered with rasplike **papillae** which enable the cat to scrape every piece of meat off a bone or to lick its coat clean. The tongue is covered with **taste buds**, particularly at the tip and at the back of the throat. These taste buds react to chemical stimuli to produce sensations of **acidity, sweetness, bitterness and saltiness**.

Sense of Touch (Hair and Skin): The least important sense in a cat is the sense of **touch**. Both the skin and the hair play a role in that sense.

First of all, the hair or fur serves as **insulation** against heat and cold. Hair also protects the cat against insect bites, stings, thorns and other dangers and annoyances. The cat raises its hair, particularly the hair along its neck and spine, as a **protective** device when frightened or threatened. With its hackles raised, the cat assumes a wary and defiant position. Back arched, tail hairs bristling, muscles tensed, it turns itself broadside. In this attitude, the cat appears larger and more ferocious to its attacker.

Cats shed their hair according to climatic conditions and their state of health. Hair is shed naturally **year-round**, especially in the spring and fall. Excessive shedding is a warning signal of possible disease, poor diet, parasites, or overheating. Therefore, it is important to pay attention to the condition of your cat's hair.

The cat's skin is made up of an outer layer, the **epidermis**, and an inner layer, the **dermis**. The epidermis consists of four sub-layers, with the innermost providing for the regeneration of skin cells.

Skin functions to **protect the body from the external environment**. Skin protects against **injuries** and prevents **excess loss of water, electrolytes and large molecules**. The skin has many glands. Sweat glands are located only on the **foot pads**. Sweating is only a small portion of **thermoregulation** (keeping the body at a correct operating temperature). The cat cools itself primarily by **panting**. Cats also have glands in their skin that are connected with the hair follicles, known as **sebaceous glands**. They secrete an oily substance known as **sebum** that solidifies when exposed to the air.

Lesson One - Cat Anatomy and the Five Senses

REVIEW: Assessment of Cat Anatomy and the Five Senses

10 minutes

Purpose:

Assess the understanding of the Anatomy of the Cat and the Five senses.

Materials:

- *Cat Anatomy and the Five Senses Worksheet*
- *Cat Anatomy and the Five Senses Worksheet - Answer Key*

Facilitation Steps:

1. Hand out the *Cat Anatomy and the Five Senses Worksheet*.
2. Have students complete it based on their *Cat Anatomy and the Five Senses Student Notes* that they worked on during the presentation slides.
3. Collect to correct or have participants correct using the *Cat Anatomy and the Five Senses Worksheet - Answer Key*.

Name: _____ Class: _____

Cat Anatomy and the Five Senses Worksheet

Match the term with the correct definition.

- | | |
|---------------------|---------------------|
| A. Cornea | H. Epidermis |
| B. Lens | I. Dermis |
| C. Optic nerve | J. Sweat glands |
| D. Eustachian tube | K. Sebum |
| E. Olfactory nerves | L. Panting |
| F. Papillae | M. Sebaceous glands |
| G. Touch | |

- | | |
|-------|--|
| _____ | How a cat cools itself |
| _____ | Focuses images on the back of the eyeball |
| _____ | Inner layer of the skin |
| _____ | Glands connected with hair follicles |
| _____ | Related to the sense of smell |
| _____ | Upper surface of the tongue is covered with this |
| _____ | Least important senses to a cat |
| _____ | Transparent covering on the eyes |
| _____ | Outer layer of the skin |
| _____ | Located on the foot pads |
| _____ | Oily substance |
| _____ | Impulses are transmitted to the brain by way of this |
| _____ | Connects the middle ear to the throat |

Cat Anatomy and the Five Senses

Worksheet – Answer Key

Match the term with the correct definition.

- A. Cornea
- B. Lens
- C. Optic nerve
- D. Eustachian tube
- E. Olfactory nerves
- F. Papillae
- G. Touch

- H. Epidermis
- I. Dermis
- J. Sweat glands
- K. Sebum
- L. Panting
- M. Sebaceous glands

- L** How a cat cools itself
- B** Focuses images on the back of the eyeball
- I** Inner layer of the skin
- M** Glands connected with hair follicles
- E** Related to the sense of smell
- F** Upper surface of the tongue is covered with this
- G** Least important senses to a cat
- A** Transparent covering on the eyes
- H** Outer layer of the skin
- J** Located on the foot pads
- K** Oily substance
- C** Impulses are transmitted to the brain by way of this
- D** Connects the middle ear to the throat

Lesson Two - Cat Digestive and Urinary Systems

Lesson Overview

Understand the main parts of the cat digestive and urinary systems Learn the parts and functions of the digestive tract and how each help aid in the digestion of food. Also learn about the parts and functions of the urinary system.

Lesson Objectives

After completing this lesson, participants will:

- Gain knowledge in main functions of the digestive tract
- Gain knowledge of the how the parts of the digestive tract work together
- Gain knowledge of the main parts of the urinary system and how they work together to function

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Cat Digestive and Urinary Systems Matching Game</i> • <i>Cat Digestive and Urinary Systems Matching Game - Answer Key</i>	1. Print/photocopy <i>Cat Digestive and Urinary Systems Matching Game</i> (one per participant)	10-15 minutes
LEARN	• <i>Cat Digestive and Urinary Systems</i> slide presentation • <i>Cat Digestive and Urinary Systems Student Notes</i> • <i>Cat Digestive and Urinary Systems Student Notes - Answer Key</i>	1. Prepare <i>Cat Digestive and Urinary Systems</i> slide presentation for viewing 2. Print/photocopy <i>Cat Digestive and Urinary Systems Student Notes</i> (one per participant)	30-35 minutes
REVIEW	• <i>Cat Digestive and Urinary Systems Quiz</i> • <i>Cat Digestive and Urinary Systems Quiz - Answer Key</i>	1. Print/photocopy <i>Cat Digestive and Urinary Systems Quiz</i> (one per participant)	10-15 minutes

Lesson Two - Cat Digestive and Urinary Systems

FOCUS: Matching Game

10 minutes

Purpose:

Participants work in groups or on their own to answer the parts of the *Cat Digestive and Urinary System Matching Game*.

Materials:

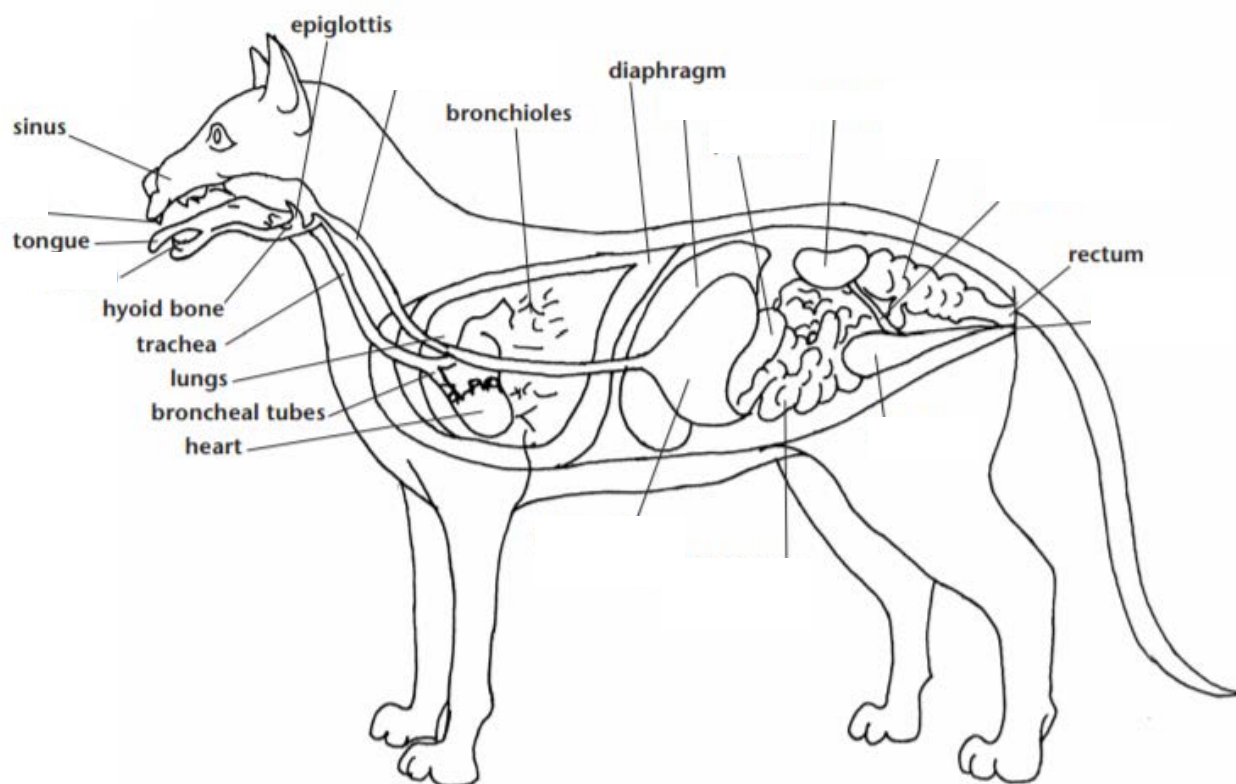
- *Cat Digestive and Urinary Systems Matching Game*
- *Cat Digestive and Urinary Systems Matching Game - Answer Key*

Facilitation Steps:

1. Hand out the *Cat Digestive and Urinary Systems Matching Game*.
2. Have students work on it in groups of 2-4 or individually.
3. Bring the students back together as a group and go over the worksheet together in class.
4. Use the *Cat Digestive and Urinary Systems Matching Game - Answer Key* to correct worksheet.

Name: _____ Class: _____

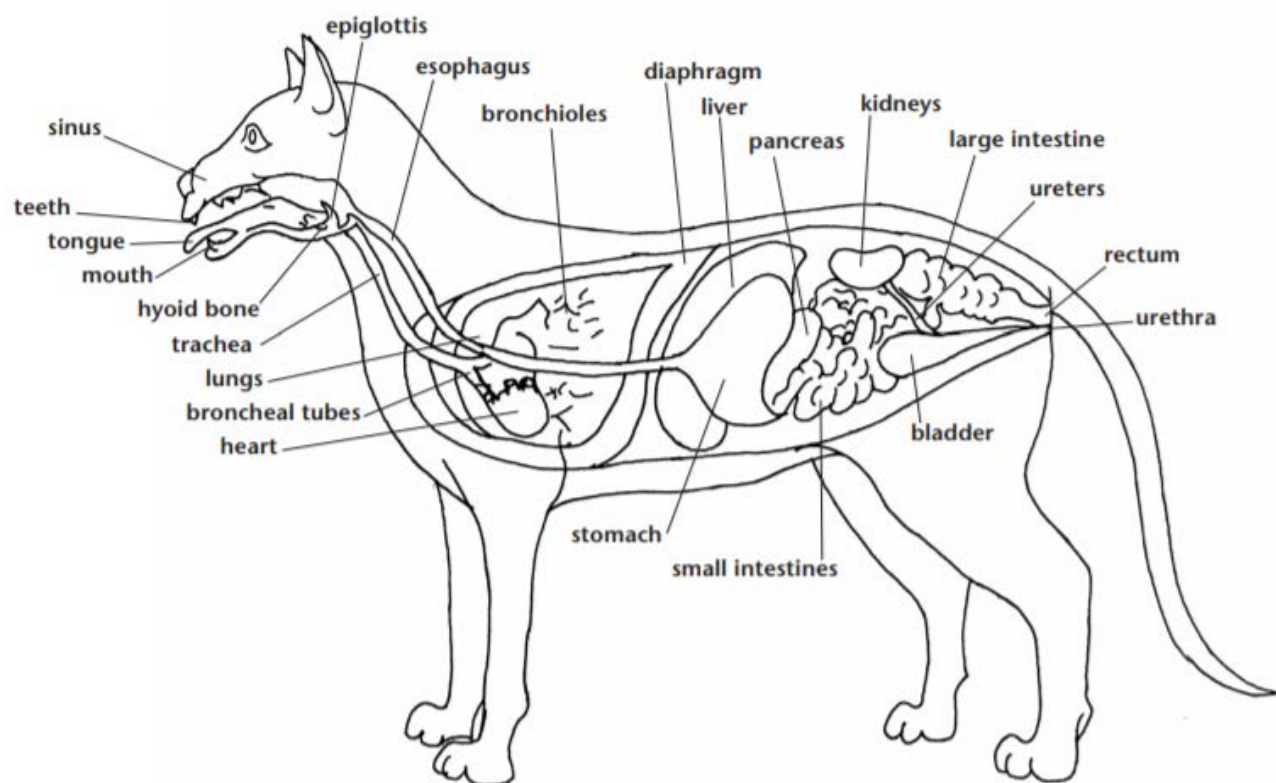
Cat Digestive and Urinary Systems Matching Game



Word Bank:

- Teeth
- Mouth
- Esophagus
- Stomach
- Small intestine
- Large intestine
- Liver
- Pancreas
- Kidneys
- Ureters
- Bladder
- Urethra

Cat Digestive and Urinary Systems Matching Game - Answer Key



Word Bank:

- Teeth
- Mouth
- Esophagus
- Stomach
- Small intestine
- Large intestine
- Liver
- Pancreas
- Kidneys
- Ureters
- Bladder
- Urethra

Lesson Two - Cat Digestive and Urinary Systems

LEARN: Cat Digestive and Urinary Systems Overview

30 minutes

Purpose:

Participants work to gain an understanding on the parts and functions of the dog digestive and urinary systems.

Materials:

- *Cat Digestive and Urinary Systems* slide presentation
- *Cat Digestive and Urinary Systems Student Notes*
- *Cat Digestive and Urinary Systems Student Notes - Answer Key*

Facilitation Steps:

1. Look over the *Cat Digestive and Urinary Systems* slide presentation before class.
2. Print and hand out the *Cat Digestive and Urinary Systems Student Notes* to the class so they can take notes during the presentation.
3. Prepare to present the *Cat Digestive and Urinary Systems* slide presentation to the students. Review and discuss the following information on each slide.

Slide 1: Introductory Slide

Slide 2: Digestive System - comprised of the alimentary canal and accessory glands.

Slide 3: The alimentary canal consists of the lips, mouth, teeth, tongue, esophagus, stomach, small intestine, large intestine and anus.

Slide 4: The accessory glands are the liver, pancreas and the salivary glands. All the organs work to process the food a cat eats. The

intestines work to extract and absorb the nutrients and eliminate the wastes.

Slide 5: Mouth- the doorway to the digestive system—the opening through which it takes in food. Its lips hold in food and retain saliva. The tongue is rough and covered with hook-like appendages. A cat uses its tongue to lap up liquids and to scrape food off bones.

Slide 6: Teeth - Cats have 30 permanent teeth. A first set of 26 teeth, the milk teeth, fall out when the cat is between five and seven months old and are quickly replaced by the permanent teeth. Its permanent teeth are made up of 12 incisors, four canines, 10 premolars and four molars. The ability to hold and tear food is essential to a cat, which is why a cat's canines are so well developed and its molars are so sharp.

Slide 7: Teeth - The crown is the part of the tooth visible above the gums. Below the gums lies the root. At least half of each canine tooth grows below the gum line. Enamel covers the crown and neck of each tooth. Inside each tooth is the pulp, which houses the nerves and blood vessels. Cats have thin enamel that leads to cavities. The teeth also have shallow roots that lead to easy tooth loss if tartar builds up and gingivitis becomes severe.

Slide 8: Salivary Glands - located behind the jaw. Their function is to moisten food as an aid in swallowing and digesting.

Slide 9: Pharynx - a tube shared by the digestive and respiratory systems. Food enters the pharynx from the mouth through the action

of the tongue and leaves through the esophagus. During the act of swallowing the epiglottis closes over the trachea to prevent food from entering it.

Slide 10: Esophagus - a strong elastic tube that carries food from the pharynx to the stomach.

Slide 11: Stomach - a sac-like organ with elastic walls, has a comparatively large capacity for food storage. In the stomach, some of the early stages of digestion take place; acid liquids help to break down proteins. At the bottom of the stomach is the pylorus, a muscular valve that moves the food into the small intestine.

Slide 12: Small Intestine - The duodenum is the first section of the small intestine. The small intestine secretes digestive enzymes. The enzymes break down proteins and carbohydrates. Bile and pancreatic juices enter the intestine here. Together, these substances break down or digest food. Once these substances have broken down the food, it can be absorbed into the body. What is left over is passed on to the large intestine.

Slide 13: Large Intestine – it's purpose is to absorb moisture out of the waste products and then pass the waste products out of the body. The rectum is the last segment of the large intestine. It is very short and is located entirely within the pelvis. The anus is the muscular closure at the very end of the large intestine.

Slide 14: Liver - the largest organ in the cat's body. It is situated just behind the diaphragm and mostly on the right side of the body. Its functions are to filter blood, destroy toxins within the blood, produce many proteins, manufacture bile and store sugar in the form of glycogen. Bile is produced to aid in the digestion of fats. Between meals, it is stored in the gall bladder and moves through the bile duct to the small intestine after a meal.

Slide 15: Pancreas - The pancreas is located near the stomach and is attached to the small intestine. The pancreas makes digestive juices called enzymes. In addition, the pancreas contains the Islets of Langerhans. These small

glands produce insulin that is essential in utilization of blood sugar. Diabetes is a condition that occurs when there is a lack of insulin.

Slide 16: The Urinary System - The important organs of the cat's urinary system are the kidneys, ureters, bladder and urethra.

Slide 17: The kidneys are located on either side of the body in the lumbar region (between ribs and pelvis). Blood is filtered through the kidneys and the liquid waste product is called urine. Urine is passed through the ureters to the bladder where it is stored. The urine is then discharged through the urethra, a tube connecting the bladder to the exterior of the body

4. Answer any questions using the *Cat Digestive and Urinary Systems Student Notes – Answer Key*.

Name: _____ Class: _____

Cat Digestive and Urinary Systems

Student Notes

Digestive System - is comprised of the _____ and _____.

The alimentary canal consists of:

- _____
- Mouth
- _____
- Tongue
- _____
- Stomach
- Small intestine
- _____
- Anus

The accessory glands are the:

- Liver
- _____
- Salivary glands

All the organs work to _____ the food a cat eats. The intestines work to _____ and _____ the nutrients and eliminate the wastes.

Mouth

- Doorway to the _____ system—the opening through which it takes in food
- It's lips _____
- _____ is rough and covered with hook-like appendages
- Uses its tongue to lap up liquids and to scrape food off bones

Teeth

Cats have _____ permanent teeth. A first set of 26 teeth, the _____, fall out when the cat is between five and seven months old and are quickly replaced by the permanent teeth. Its permanent teeth are made up of:

- _____ incisors
- _____ canines
- _____ premolars
- _____ molars

The ability to hold and tear food is essential to a cat, which is why a cat's canines are so well developed and its molars are so sharp.

The crown is the part of the tooth _____. Below the gums lies the _____. At least half of each canine tooth grows below the gum line. _____ covers the crown and neck of each tooth. Inside each tooth is the _____, which houses the nerves and blood vessels. Cats have thin enamel that leads to cavities. The teeth also have shallow roots that lead to easy tooth loss if tartar builds up and gingivitis becomes severe.

Salivary Glands - The salivary glands are located _____. Their function is to _____ as an aid in swallowing and digesting.

Pharynx - The pharynx is a tube shared by the _____ and _____ systems. Food enters the _____ from the mouth through the action of the tongue and leaves through the _____. During the act of swallowing the _____ closes over the trachea to prevent food from entering it.

Esophagus - The esophagus is a strong elastic tube that _____ from the _____ to the _____.

Stomach

- A _____ with elastic walls
- Has a comparatively large capacity for food storage
- In the stomach, some of the _____ take place
- Acid liquids help to _____ proteins
- _____, a muscular valve that moves the food into the small intestine

Small Intestine

- _____ is the first section of the small intestine
- Secretes digestive _____
- Enzymes break down _____ and _____
- Bile and pancreatic juices enter the intestine here
- Together, these substances break down or _____
- Once these substances have broken down the food, it can be _____ into the body
- What is left over is passed on to the _____.

Large Intestine

- Purpose is to _____ out of the waste products and...
- _____ the waste products out of the body
- _____ is the _____ of the large intestine - very short and is located entirely within the pelvis
- _____ is the muscular closure at the very end of the large intestine

Liver

- _____ organ in the cat's body
- Situated just behind the diaphragm and mostly on the _____ side of the body
- Functions are to:
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
- _____ is produced to aid in the digestion of fats. Between meals, it is stored in the gall bladder and moves through the bile duct to the small intestine after a meal.

Pancreas

- Located near the stomach and is attached to the small intestine
- Makes digestive juices called _____
- Contains the _____ (These small glands produce insulin that is essential in utilization of blood sugar)
- _____ is a condition that occurs when there is a lack of _____

The Urinary System

The important organs:

-
-
-
-

The kidneys are located on either side of the body in the lumbar region (between ribs and pelvis). Blood is filtered through the _____ and the liquid waste product is called _____. Urine is passed through the _____ to the _____ where it is stored. The urine is then discharged through the _____, a tube connecting the bladder to the exterior of the body.

Cat Digestive and Urinary Systems

Student Notes - Answer Key

Digestive System - is comprised of the **alimentary canal** and **accessory glands**.

The alimentary canal consists of:

- **Lips**
- Mouth
- **Teeth**
- Tongue
- **Esophagus**
- Stomach
- Small intestine
- **Large intestine**
- Anus

The accessory glands are the:

- Liver
- **Pancreas**
- Salivary glands

All the organs work to **process** the food a cat eats. The intestines work to **extract** and **absorb** the nutrients and eliminate the wastes.

Mouth

- Doorway to the **digestive** system—the opening through which it takes in food
- Its lips **hold in food and retain saliva**
- **Tongue** is rough and covered with hook-like appendages
- Uses its tongue to lap up liquids and to scrape food off bones

Teeth

Cats have **30** permanent teeth. A first set of 26 teeth, the **milk teeth**, fall out when the cat is between five and seven months old and are quickly replaced by the permanent teeth. Its permanent teeth are made up of:

- **12** incisors
- **4** canines
- **10** premolars
- **4** molars

The ability to hold and tear food is essential to a cat, which is why a cat's canines are so well developed and its molars are so sharp.

The crown is the part of the tooth **visible above the gums**. Below the gums lies the **root**. At least half of each canine tooth grows below the gum line. **Enamel** covers the crown and neck of each tooth. Inside each tooth is the **pulp**, which houses the nerves and blood vessels. Cats have thin enamel that leads to cavities. The teeth also have shallow roots that lead to easy tooth loss if tartar builds up and gingivitis becomes severe.

Salivary Glands - The salivary glands are located **behind the jaw**. Their function is to **moisten food** as an aid in swallowing and digesting.

Pharynx - The pharynx is a tube shared by the **digestive** and **respiratory** systems. Food enters the **pharynx** from the mouth through the action of the tongue and leaves through the **esophagus**. During the act of swallowing the **epiglottis** closes over the trachea to prevent food from entering it.

Esophagus - The esophagus is a strong elastic tube that **carries food** from the **pharynx** to the **stomach**.

Stomach

- A **sac-like organ** with elastic walls
- Has a comparatively large capacity for food storage
- In the stomach, some of the **early stages of digestion** take place
- Acid liquids help to **break down** proteins
- **Pylorus**, a muscular valve that moves the food into the small intestine

Small Intestine

- **Duodenum** is the first section of the small intestine
- Secretes digestive **enzymes**
- Enzymes break down **proteins** and **carbohydrates**
- Bile and pancreatic juices enter the intestine here
- Together, these substances break down or **digest food**
- Once these substances have broken down the food, it can be **absorbed** into the body
- What is left over is passed on to the **large intestine**.

Large Intestine

- Purpose is to **absorb moisture** out of the waste products and...
- **Pass** the waste products out of the body
- **Rectum** is the **last segment** of the large intestine - very short and is located entirely within the pelvis
- **Anus** is the muscular closure at the very end of the large intestine

Liver

- **Largest** organ in the cat's body
- Situated just behind the diaphragm and mostly on the **right** side of the body
- Functions are to:
 1. **filter blood**
 2. **destroy toxins within the blood**
 3. **produce many proteins**
 4. **manufacture bile**
 5. **store sugar in the form of glycogen**
- **Bile** is produced to aid in the digestion of fats. Between meals, it is stored in the gall bladder and moves through the bile duct to the small intestine after a meal.

Pancreas

- Located near the stomach and is attached to the small intestine
- Makes digestive juices called **enzymes**
- Contains the **Islets of Langerhans** (These small glands produce insulin that is essential in utilization of blood sugar)
- **Diabetes** is a condition that occurs when there is a lack of **insulin**

The Urinary System - The important organs:

- Kidneys
- Ureters
- Bladder
- Urethra

The kidneys are located on either side of the body in the lumbar region (between ribs and pelvis). Blood is filtered through the **kidneys** and the liquid waste product is called **urine**. Urine is passed through the **ureters** to the **bladder** where it is stored. The urine is then discharged through the **urethra**, a tube connecting the bladder to the exterior of the body.

Lesson Two - Cat Digestive and Urinary Systems

REVIEW: Cat Digestive and Urinary System Quiz

10 minutes

Purpose:

Participants will work on the *Cat Digestive and Urinary Systems Quiz*. The purpose is to for an assessment on what they have learned on the parts and function of the cat digestive and urinary systems.

Materials:

- *Cat Digestive and Urinary Systems Quiz*
- *Cat Digestive and Urinary Systems Quiz - Answer Key*

Facilitation Steps:

1. Print/photocopy the *Cat Digestive and Urinary Systems Quiz*.
2. Hand out the quiz to the students.
3. Allow time for the students to finish the quiz.
4. Correct the quiz in class or on your own using the *Cat Digestive and Urinary Systems Quiz - Answer Key*.

Name: _____ Class: _____

Cat Digestive and Urinary Systems Quiz

Answer the following questions:

1. A cat has how many permanent teeth?
 - a. 12
 - b. 15
 - c. 30
 - d. 7
2. True or False: A cat's digestive system includes the elementary canal.
 - a. True
 - b. False
3. What are parts of the accessory glands?
 - a. Teeth, lips and mouth
 - b. Liver, pancreas and salivary glands
 - c. Esophagus, stomach and anus
 - d. Tongue, small intestine and rectum
4. What is the function of the stomach?
 - a. Break down protein
 - b. Create bile
 - c. Create oxygen
 - d. Moisten food
5. Which of the following is a muscular valve that moves food into the small intestine?
 - a. Fundus
 - b. Cardia
 - c. Pylorus
 - d. Body
6. Which of the following is a function of the large intestine? (Choose all that apply)
 - a. Absorb moisture
 - b. Chew food
 - c. Pass waste products out of the body
 - d. Make digestive juices
7. Which of these organs is the largest in a cat's body?
 - a. Teeth
 - b. Large intestine
 - c. Liver
 - d. Small intestine

8. What is produced to aid in the digestion of fats?
 - a. Water
 - b. Enzymes
 - c. Blood
 - d. Bile
9. True or False: The pancreas is attached to the small intestine.
 - a. True
 - b. False
10. Which of the following organs are part of the urinary system? (Choose all that apply)
 - a. Kidneys
 - b. Pancreas
 - c. Bladder
 - d. Urethra
11. What is the liquid waste product called?
 - a. Bladder
 - b. Urine
 - c. Feces
 - d. Lumbar
12. True or False: Blood is filtered through the urethra.
 - a. True
 - b. False

Cat Digestive and Urinary Systems Quiz – Answer Key

Answer the following questions: Answer the following questions:

1. A cat has how many permanent teeth?
 - a. 12
 - b. 15
 - c. 30**
 - d. 7
2. True or False: A cat's digestive system includes the elementary canal.
 - a. True
 - b. False**
3. What are parts of the accessory glands?
 - a. Teeth, lips and mouth
 - b. Liver, pancreas and salivary glands**
 - c. Esophagus, stomach and anus
 - d. Tongue, small intestine and rectum
4. What is the function of the stomach?
 - a. Break down protein**
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 - c. Pylorus**
 - d. Body
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 - a. Absorb moisture**
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 - c. Pass waste products out of the body**
 - d. Make digestive juices
7. Which of these organs is the largest in a cat's body?
 - a. Teeth
 - b. Large intestine
 - c. Liver**
 - d. Small intestine

8. What is produced to aid in the digestion of fats?
- a. Water
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 - c. Blood
 - d. Bile**
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 - b. False
10. Which of the following organs are part of the urinary system? (Choose all that apply)
- a. Kidneys**
 - b. Pancreas
 - c. Bladder**
 - d. Urethra**
11. What is the liquid waste product called?
- a. Bladder
 - b. Urine**
 - c. Feces
 - d. Lumbar
12. True or False: Blood is filtered through the urethra.
- a. True
 - b. False**

Lesson Three - Cat Reproductive System

Lesson Overview

Understand the main reproductive systems of the male and female cat. Allowing for students to gain understanding of the main parts and functions of the cat reproductive system.

Lesson Objectives

After completing this lesson, participants will be able to:

- Display knowledge of both male and female cat reproductive systems
- Understand the parts and functions of cat reproduction

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Whiteboard/Marker • <i>Cat Reproductive Focus List</i>	1. Print/photocopy <i>Cat Reproductive Focus List</i> (one per participant) 2. Write the titles of each list on the whiteboard	5 minutes
LEARN	• <i>Cat Reproductive System</i> slide presentation • <i>Cat Reproductive System Student Notes</i> • <i>Cat Reproductive System Student Notes - Answer Key</i>	1. Prepare <i>Cat Reproductive System</i> slide presentation for viewing 2. Print/photocopy <i>Cat Reproductive System Student Notes</i> (one per participant)	30 minutes
REVIEW	• <i>Cat Reproductive System Worksheet</i> • <i>Cat Reproductive System Worksheet - Answer Key</i>	1. Print/photocopy <i>Cat Reproductive System Worksheet</i> (one per participant)	10-15 minutes

Lesson Three - Cat Reproductive System

FOCUS: Self-Assessment on the Cat Reproductive System

5 minutes

Purpose:

Participants work in groups or individually to check how much they know about reproductive parts and functions.

Materials:

- Whiteboard/Marker
- *Cat Reproductive Focus List*

Facilitation Steps:

1. Write down on the whiteboard two titles: Male Reproduction and Female Reproduction.
2. Have students discuss and write down on their list the parts that make up each part of the reproductive system for both male and female reproduction of the cat.
3. After a few minutes, discuss the answers the students wrote down on their *Cat Reproductive Focus List*.
4. End with talking about how students will now learn the parts and that the students will be able to reflect on the parts that they knew versus the parts that they learned by the end of the lesson.

Name: _____ Class: _____

Cat Reproductive Focus List

Male Reproduction	Female Reproduction

Lesson Three - Cat Reproductive System

LEARN: Cat Reproductive System

30 minutes

Purpose:

Participants will learn the parts and function of the Cat reproductive system.

Materials:

- Projector
- *Cat Reproductive System* slide presentation
- *Cat Reproductive System Student Notes*
- *Cat Reproductive System Student Notes - Answer Key*

Facilitation Steps:

1. Look over the *Cat Reproductive System* slide presentation to get a good understanding of what you will be presenting.
2. Hand out the *Cat Reproductive System Student Notes* to the class participants.
3. Present the *Cat Reproductive Systems* slide presentation to your class. Share and discuss the following information from each slide.

Slide 1: The Cat Reproductive System

Slide 2: Cats are fertile animals. A queen, or intact female cat, may produce two or three litters of kittens a year, which is one reason for the large number of stray, unwanted kittens. Female cats go into heat during which time they are interested in mating and can conceive (get pregnant) if they do mate. A female can mate with more than one male. Periods of heat last a few days. Rolling, stretching, rubbing, crying and yowling characterize a female cat in heat. If the cat does not mate and conceive, the cycle will be repeated in a few weeks. It is possible to prevent a female cat from becoming pregnant. You can keep her in the house, isolated from any tomcats (unneutered males) during her heat,

or you can have her spayed (ovariohysterectomy).

Slide 3: Spaying is a surgical procedure which involves removal of the female reproductive organs. The operation is usually performed at age six to seven months, although it can be done successfully later on, after a cat has had kittens. After being spayed, a cat is no longer interested in mating and she is unable to conceive. Many cat owners choose to have their pets neutered or spayed. This is done to prevent the birth of unwanted kittens. It also makes male cats more suitable house pets.

Slide 4: Neutering a male cat involves surgical removal of the testicles. A neutered male no longer shows interest in mating. A tomcat tends to roam a lot, get into many fights and mark his territory. Territory is marked by spraying urine on walls, inside and outside of your house. The odor of the urine is unpleasant and enduring. Tomcats seldom live to an old age. A neutered male tends to stay home, fight less and live much longer than toms. A common myth against spaying and neutering is that the pet will get obese. This can be successfully prevented by not overfeeding the pet.

Slide 5: Male Reproduction introductory slide

Slide 6: Male Reproductive Organs - The tomcat's (male cat) organs of reproduction are the penis, testicles and prostate gland. A male cat has two testicles that are suspended in a sac-like structure, the scrotum, outside of its body. The testicles produce and store sperm, which is the seed that fertilizes the eggs produced by the female. Testosterone, a hormone that is essential to the male's sexual development and activity, is also produced by the testicles. The prostate gland produces seminal fluid, which transports the sperm.

Slide 7: When two cats mate, the male mounts the female and inserts his penis into her vagina. This is called copulation. The act of copulation ends after the male ejaculates (squirts) seminal fluid into the female's vagina. The sperm in the seminal fluid then swim up through the vagina into the uterus and finally into the oviduct. It is in the oviduct where the sperm fertilize the eggs.

Slide 8: Female Reproduction introductory slide

Slide 9: Female Reproductive Organs - The female cat's reproductive system consists of the vulva, vagina, cervix, uterus, oviducts and ovaries. The vulva is the external opening of the reproductive tract. The lips of the vulva are located just below the anus. The vagina is a tube just inside the vulva. It is where the male's penis will be during copulation as well as the passageway for kittens being born. The vagina is also the location of the end of the urethra.

Slide 10: The cervix is next. (It is the opening between the uterus and vagina.) During pregnancy, it serves as a seal or barrier between the sterile uterus and the outside world. It relaxes at birth and allows the kittens to enter the vagina. The uterus is a tubular organ that is shaped like a "Y", the body being the bottom part of the Y and the horns the top part. The uterus extends from the pelvis to the kidneys. It consists of a body and two horns. It is in the horns of the uterus that kitten embryos are implanted and develop. The oviduct is a tiny tube that connects the uterus to the ovaries. The oviduct is the actual site where fertilization occurs. The ovaries are a peanut-sized organ located near the kidneys.

Slide 11: Ovaries and the Estrous Cycle The ovaries are where ova or eggs are produced. The ovaries control the estrous cycle. The estrous cycle is the recurrent pattern of sexual receptivity followed by periods of time without sexual receptivity in the female. The most distinct period is estrus, or heat and this is the time of sexual receptivity or breeding. The hormones estrogen and progesterone are made in the ovary during stages of the estrous cycle.

The estrous cycle begins with the development of several follicles. A follicle is a small fluid sac that will contain an egg. Each follicle will grow and produce estrogen. Estrogen is the hormone which is responsible for the "in heat" or estrus behaviors of the female.

Slide 12: Ovulation is the rupture of the follicle and release of the egg into the oviduct. Cats are induced ovulators, meaning ovulation occurs as the result of mating. After ovulation, the follicle changes to form a corpora leuta (CL). The CL produces progesterone, which is a hormone needed to maintain pregnancy. If the cat does not have kittens the CL will keep her "out of heat." When the CL quits producing progesterone, follicles will begin to grow and another estrus cycle will begin. The cat is known as a seasonally polyestrous animal. This means she will have many estrous cycles only during certain times of the year. It is photoperiod, or length of day, which controls the estrous cycle. Therefore, cats usually will not come into heat during the winter but will wait until springtime.

4. Answer any questions using the *Cat Reproductive System Student Notes – Answer Key*.

Name: _____ Class: _____

Cat Reproductive System Student Notes

Cat Reproduction

A _____, or intact female cat may:

- produce two or three litters of kittens a year
- go into heat during which time they are interested in _____ and can _____ (get pregnant)
- mate with more than one male

In Heat

- Periods of heat last a _____ days.
- _____ characterize a female cat in heat.
- If the cat does not mate and conceive, the cycle will be _____ in a few weeks.
- It is _____ to prevent a female cat from becoming pregnant.
 - o Keep her in the house, isolated from any _____ (unneutered males)
 - o Have her spayed (_____)

Spaying

- Is a surgical procedure which involves _____
- Usually performed at age six to seven months
- Result: _____

Neutering

- Involves _____
- Results: 1) No longer shows interest in mating 2) Tends to stay home 3) Fight less 4) Live much longer

Male Reproductive Organs

The _____'s (male cat) organs of reproduction are:

-
-
-

A male cat has two testicles that are suspended in a sac-like structure, the _____, outside of its body. The testicles _____ and _____ sperm, which is the seed that fertilizes the eggs produced by the female. _____, a hormone that is essential to the male's sexual development and activity, is also produced by the testicles. The prostate gland _____, which transports the sperm.

Copulation

- _____, the male mounts the female and inserts his penis into her vagina
- Ends after the male ejaculates _____ into the female's vagina
- Sperm in the seminal fluid then swim up through the vagina into the uterus and finally into the _____
- Oviduct where the sperm actually _____ the eggs

Female Reproductive Organs

The female cat's reproductive system consists:

- _____
 - o The _____ opening of the reproductive tract
 - o The lips of the vulva are located just below the anus
- _____
 - o A tube just inside the vulva
 - o Where the male's penis will be during _____
 - o The passageway for kittens being born
 - o The location of the end of the urethra
- _____
 - o The opening between the uterus and vagina
 - o During pregnancy, it serves as a _____ between the sterile uterus and the outside world
 - o Relaxes at birth and allows the kittens to enter the vagina

- _____
 - o Tubular organ that is shaped like a “Y”, the body being the bottom part of the Y and the horns the top part
 - o Extends from the pelvis to the kidneys
 - o Consists of a _____
 - o It is in the horns of the uterus that kitten embryos are _____
- _____
 - o Tiny tube that connects the uterus to the ovaries
 - o The actual site where _____ occurs
- _____
 - o A peanut-sized organ located near the kidneys
 - o Where _____ are produced

Ovaries and the Estrous Cycle

- _____ control the estrous cycle
- Estrous cycle is the _____ followed by periods of time without sexual receptivity in the female
- Most distinct period is estrus, or heat, and this is the time of sexual receptivity or breeding
- Hormones _____ and _____ are made in the ovary during different stages
- Begins with the development of several follicles
- A follicle is a small fluid sac that will contain an _____
- Each follicle will grow and produce estrogen which is responsible for the “_____” or estrus behaviors of the female

Ovulation

- Is the _____
- _____ - ovulation occurs as the result of mating
- After ovulation, the follicle changes to form a _____ (CL)
- CL produces progesterone, which is a hormone needed to maintain pregnancy
- If the cat does not have kittens the CL will keep her “out of heat”
- When the CL quits producing progesterone, follicles will begin to grow and another estrus cycle will begin

The cat is known as a seasonally _____ animal. This means she will have many estrous cycles only during certain times of the year. It is _____, or length of day, which controls the estrous cycle. Therefore, cats usually will not come into heat during the winter but will wait until _____.

Cat Reproductive System Student Notes - Answer Key

Cat Reproduction

A **queen**, or intact female cat may:

- Produce two or three litters of kittens a year
- Go into heat during which time they are interested in **mating** and can **conceive** (get pregnant)
- Mate with more than one male

In heat

- Periods of heat last a **few** days.
- **Rolling, stretching, rubbing, crying and yowling** characterize a female cat in heat.
- If the cat does not mate and conceive, the cycle will be **repeated** in a few weeks.
- It is **possible** to prevent a female cat from becoming pregnant.
 - o Keep her in the house, isolated from any **tomcats** (unneutered males)
 - o Have her spayed (**ovariohysterectomy**)

Spaying

- Is a surgical procedure which involves **removal of the female reproductive organs**
- Usually performed at age six to seven months
- Result: **no longer interested in mating and she is unable to conceive.**

Neutering

- Involves **surgical removal of the testicles**
- Results: 1) No longer shows interest in mating 2) Tends to stay home 3) Fight less 4) Live much longer

Male Reproductive Organs

The **tomcat's** (male cat) organs of reproduction are:

- **Penis**
- **Testicles**
- **Prostate gland**

A male cat has two testicles that are suspended in a sac-like structure, the **scrotum**, outside of its body. The testicles **produce and store** sperm, which is the seed that fertilizes the eggs produced by the female. **Testosterone**, a hormone that is essential to the male's sexual development and activity, is also produced by the testicles. The prostate gland **produces seminal fluid**, which transports the sperm.

Copulation

- **When two cats mate**, the male mounts the female and inserts his penis into her vagina
- Ends after the male ejaculates **seminal fluid** into the female's vagina
- Sperm in the seminal fluid then swim up through the vagina into the uterus and finally into the **oviduct**
- Oviduct where the sperm actually **fertilizes** the eggs

Female Reproductive Organs

The female cat's reproductive system consists:

- **Vulva**
 - o The **external** opening of the reproductive tract
 - o The lips of the vulva are located just below the anus
- **Vagina**
 - o A tube just inside the vulva
 - o Where the male's penis will be during **copulation**
 - o The passageway for kittens being born
 - o The location of the end of the urethra
- **Cervix**
 - o The opening between the uterus and vagina
 - o During pregnancy, it serves as a **seal or barrier** between the sterile uterus and the outside world
 - o Relaxes at birth and allows the kittens to enter the vagina

- **Uterus**

- Tubular organ that is shaped like a “Y”, the body being the bottom part of the Y and the horns the top part
- Extends from the pelvis to the kidneys
- Consists of a **body and two horns**
- It is in the horns of the uterus that kitten embryos are **implanted and develop**

- **Oviducts**

- Tiny tube that connects the uterus to the ovaries
- The actual site where **fertilization** occurs

- **Ovaries**

- A peanut-sized organ located near the kidneys
- Where **ova or eggs** are produced

Ovaries and the Estrous Cycle

- **Ovaries** control the estrous cycle
- Estrous cycle is the **recurrent pattern of sexual receptivity** followed by periods of time without sexual receptivity in the female
- Most distinct period is estrus, or heat and this is the time of sexual receptivity or breeding
- Hormones **estrogen** and **progesterone** are made in the ovary during different stages
- Begins with the development of several follicles
- A follicle is a small fluid sac that will contain an **egg**
- Each follicle will grow and produce estrogen which is responsible for the “**in heat**” or estrus behaviors of the female

Ovulation

- Is the **rupture of the follicle and release of the egg into the oviduct**
- **Induced ovulators** - ovulation occurs as the result of mating
- After ovulation, the follicle changes to form a **corpora leuta** (CL)
- CL produces progesterone, which is a hormone needed to maintain pregnancy
- If the cat does not have kittens the CL will keep her “out of heat”
- When the CL quits producing progesterone, follicles will begin to grow and another estrus cycle will begin

The cat is known as a seasonally **polyestrous** animal. This means she will have many estrous cycles only during certain times of the year. It is **photoperiod**, or length of day, which controls the estrous cycle. Therefore, cats usually will not come into heat during the winter but will wait until **springtime**.

Lesson Three - Cat Reproductive System

REVIEW: Recap of Cat Reproductive System

10 minutes

Purpose:

Participants will do a review of what they learned about the Cat Reproductive System.

Materials:

- *Cat Reproductive System Worksheet*
- *Cat Reproductive System Worksheet - Answer Key*

Facilitation Steps:

1. Print/Photocopy the *Cat Reproductive System Worksheet*.
2. Hand out the worksheet to the participants.
3. Have students complete the worksheets and hand in for correcting.
4. Correct using the *Cat Reproductive System Worksheet - Answer Key*.

Name: _____ Class: _____

Cat Reproductive System Worksheet

Match the female reproductive part with its corresponding name:

Oviducts (fallopian tubes)

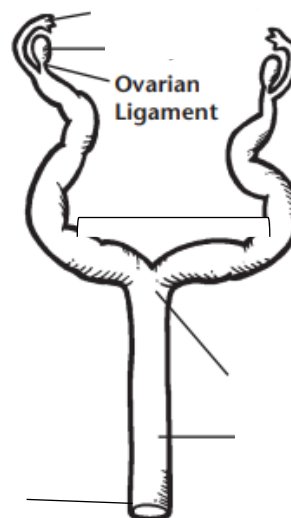
Ovary

Uterus

Cervix

Vagina

Vulva



Match the male reproductive part with its corresponding name:

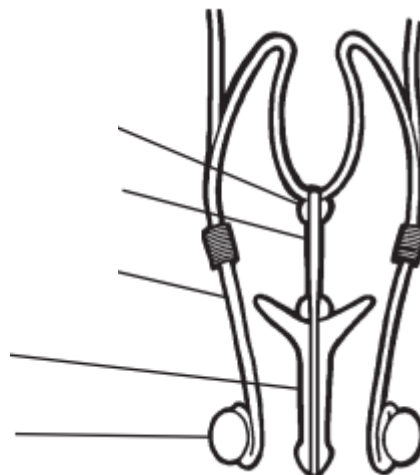
Testicles

Penis

Prostate gland

Spermatic cord

Urogenital canal



Fill in the blanks:

1. What is the technical term for spaying? _____

At what age can this be done? _____

2. Neutering a male cat is done by removing the _____. In addition to not producing kittens, a neutered male is less likely to _____, less likely to _____, less likely to _____ and may live longer.

3. Sperm fertilize the eggs in the _____. The fertilized eggs implant and develop in the _____ of the _____.

4. The three hormones involved in reproduction are _____, _____ and _____. The male hormone, _____, is essential to a male cat's _____. One female hormone, _____, is responsible for the _____ or _____ cycle. The other, _____, is needed to maintain _____.

5. What is the difference between estrous and estrus? Estrous is _____
_____. Estrus is _____.

6. A follicle is _____ that produces _____ and an _____. The follicle _____ to release the _____ into the _____. This process is called _____.

Cat Reproductive System Worksheet Answer Key

Match the female reproductive part with its corresponding name:

Oviducts (fallopian tubes)

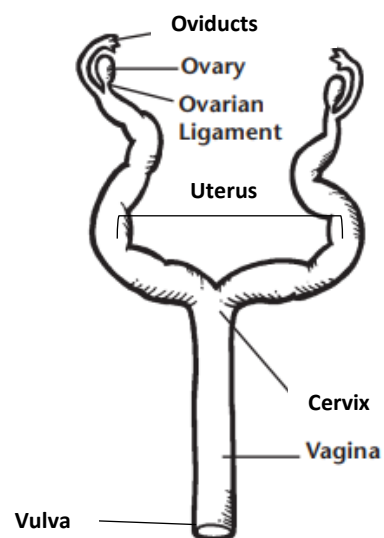
Ovary

Uterus

Cervix

Vagina

Vulva



Match the male reproductive part with its corresponding name:

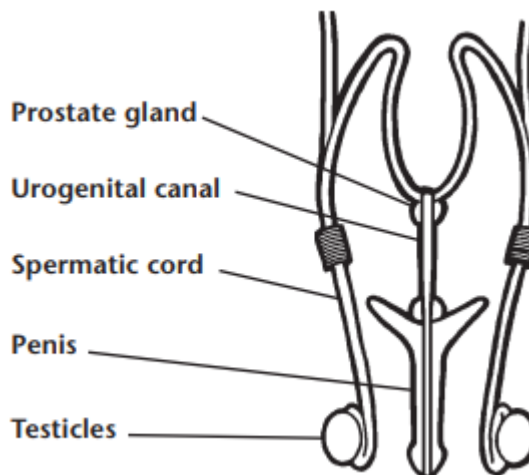
Testicles

Penis

Prostate gland

Spermatic cord

Urogenital canal



Fill in the blanks:

1. What is the technical term for spaying? **ovariohysterectomy**

At what age can this be done? **6-7 months**

2. Neutering a male cat is done by removing the **testicles**. In addition to not producing kittens, a neutered male is less likely to **roam**, less likely to **fight**, less likely to **mark territory** and may live longer.

3. Sperm fertilize the eggs in the **oviducts**. The fertilized eggs implant and develop in the **horns** of the **uterus**.

4. The three hormones involved in reproduction are **estrogen, progesterone and testosterone**. The male hormone, **testosterone** is essential to a male cat's **sexual development**. One female hormone, **estrogen** is responsible for the **in heat** or **estrous** cycle. The other, **progesterone** is needed to maintain **pregnancy**.

5. What is the difference between estrous and estrus? Estrous is **recurrent pattern of sexual receptivity followed by times without receptivity**. Estrus is **heat, the time of sexual receptivity or breeding**.

6. A follicle is **a small fluid sac** that produces **estrogen** and an **egg**. The follicle **ruptures** to release the **egg** into the **oviduct**. This process is called **ovulation**.

Lesson Four - Cat Respiratory and Circulatory Systems

Lesson Overview

Understand the main respiratory and circulatory systems of the cat. Allowing for students to gain understanding of the main parts and functions of the cat respiratory and circulatory systems.

Lesson Objectives

After completing this lesson, participants will be able to:

- Display knowledge of both respiratory and circulatory systems
- Understand the parts and functions of cat reproduction

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Whiteboard/Marker • <i>Cat Anatomy Worksheet</i> • <i>Cat Anatomy Worksheet – Answer Key</i> • Cat Model	1. Print/photocopy <i>Cat Anatomy Worksheet</i> (one per participant)	5 minutes
LEARN	• <i>Cat Respiratory and Circulatory Systems</i> slide presentation • <i>Cat Respiratory and Circulatory Systems Student Notes</i> • <i>Cat Respiratory and Circulatory Systems Student Notes - Answer Key</i>	1. Prepare <i>Cat Respiratory and Circulatory Systems</i> slide presentation for viewing 2. Print/photocopy <i>Cat Respiratory and Circulatory Systems Student Notes</i> (one per participant)	30 minutes
REVIEW	• <i>Cat Respiratory and Circulatory Systems Worksheet</i> • <i>Cat Respiratory and Circulatory Systems Worksheet - Answer Key</i>	1. Print/photocopy <i>Cat Respiratory and Circulatory Systems Worksheet</i> (one per participant)	10-15 minutes

Lesson Four - Cat Respiratory and Circulatory Systems

FOCUS: Self-Assessment on Cat Anatomy

5 minutes

Purpose:

Participants work in groups or individually to check how much they know about cat anatomy parts and functions.

Materials:

- Cat Model
- *Cat Anatomy Worksheet*
- *Cat Anatomy Worksheet - Answer Key*

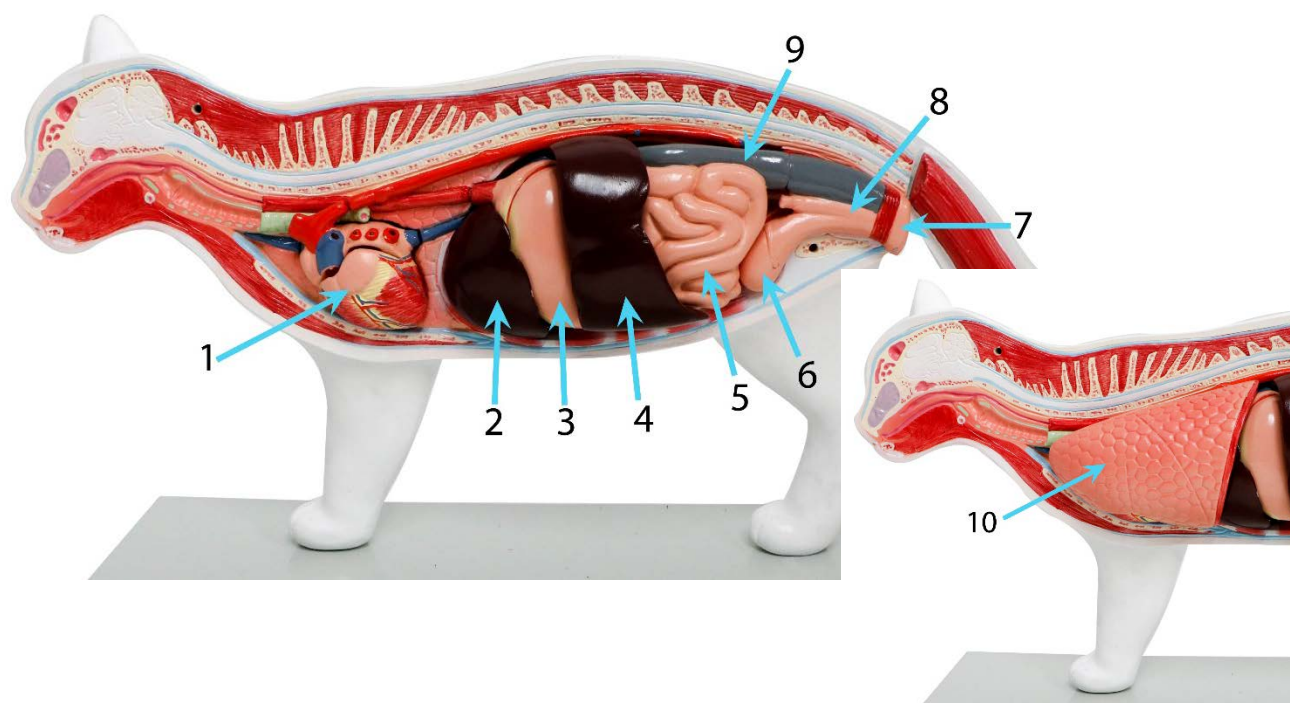
Facilitation Steps:

1. Hand out the *Cat Anatomy Worksheet*.
2. Have students complete it based on their knowledge of cat anatomy.
3. Collect to correct or have participants correct for assessment. Explain to participants that they may have identified parts of the anatomy correctly that you have covered in prior lessons on the digestive, reproductive and urinary systems. However now they will learn more anatomy with the respiratory and circulatory systems.
4. Display the Cat Model as a reference during this lesson.

Name: _____ Class: _____

Cat Anatomy Worksheet

Internal Cat Anatomy



Match the internal anatomy with the correct number:

_____ Heart

_____ Lung

_____ Stomach

_____ Small intestine

_____ Bladder

_____ Spleen

_____ Liver

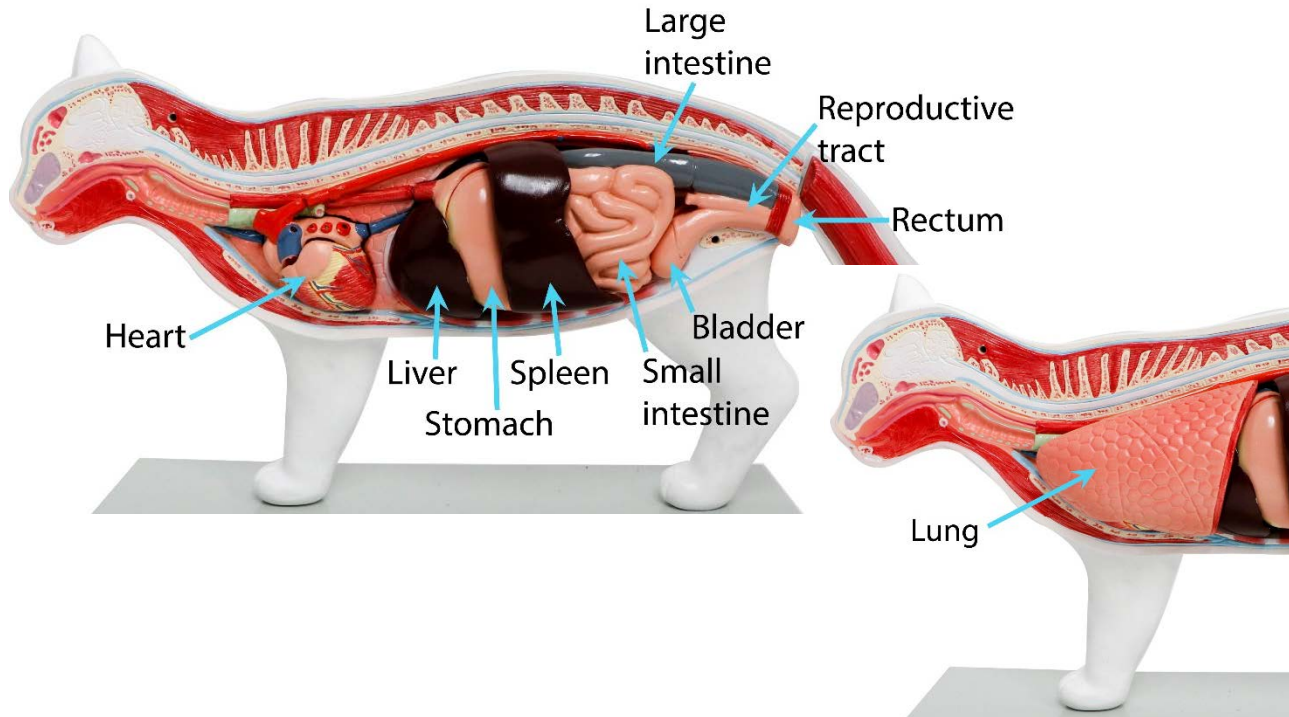
_____ Rectum

_____ Reproductive Tract

_____ Large intestine

Cat Anatomy Worksheet - Answer Key

Internal Cat Anatomy



Match the internal anatomy with the correct number:

1 Heart

10 Lung

3 Stomach

5 Small intestine

6 Bladder

4 Spleen

2 Liver

7 Rectum

8 Reproductive Tract

9 Large intestine

Lesson Four - Cat Respiratory and Circulatory Systems

LEARN: Cat Respiratory and Circulatory Systems

30 minutes

Purpose:

Participants will learn the parts and function of the cat reproductive system.

Materials:

- *Cat Respiratory and Circulatory Systems* slide presentation
- *Cat Respiratory and Circulatory Systems Student Notes*
- *Cat Respiratory and Circulatory Systems Student Notes - Answer Key*

Facilitation Steps:

1. Look over the *Cat Respiratory and Circulatory Systems* slide presentation to get a good understanding of what you will be presenting.
2. Hand out the *Cat Respiratory and Circulatory Systems Student Notes* to the class participants.
3. Present the *Cat Respiratory and Circulatory Systems* slide presentation to your class. Share and discuss the following information from each slide.

Slide 1: Respiratory System

Slide 2: The respiratory system functions primarily to transfer oxygen from the air to the blood and to remove carbon dioxide from the blood and carry it out of the body into the air. Oxygen is vital to the body's maintenance. Carbon dioxide is a waste product of the maintenance process.

Slide 3: The cat breathes in air through its nose and mouth. The nose and mouth join to form the pharynx. The trachea is a tube that extends from the pharynx to the lungs. The epiglottis covers the trachea when swallowing occurs to prevent food and water from entering the lungs. At the lungs, the trachea branches into smaller tubes called bronchi or bronchial tubes. The bronchi divide into smaller and smaller bronchioles until they become dead end sacs called alveoli. It is in the alveoli where the actual exchange of oxygen and carbon dioxide occur.

Slide 4: All mammals have a muscle that separates the respiratory system (lungs) from the rest of the internal organs. This muscle is called the diaphragm. The diaphragm works with the muscles between the ribs called "intercostals" to produce inspiration (or breathing in). Exhalation (or breathing out) is muscle relaxation, causing the air to move out of the lungs and body. When the diaphragm is torn or ruptured, usually as a result of being hit by an automobile, a diaphragmatic hernia is created. This allows abdominal organs into the chest, collapses the lungs and creates a life-threatening condition. The respiratory system also aids in regulating the body temperature.

Slide 5: Circulatory System

Slide 6: The circulatory system consists of the heart, blood, blood vessels, lymphatic system and spleen. The circulatory system functions are to deliver oxygen and nutrients to the cells of the body and to remove waste products.

Slide 7: Heart - The heart is a marvelously specialized muscle. The heart has four chambers with four valves and contracts in a specific squeezing pattern. This squeezing action pumps blood through the heart out to the lungs and body. At a resting pulse of 120 beats per minute, a cat's heart will beat 63 million beats in a year! It is the closure of the heart valves that gives the "lub dub" heart sounds.

Slide 8: Blood Vessels - The blood vessels include arteries, veins and capillaries. Arteries are the vessels that carry blood away from the heart and veins carry blood back to the heart. The largest artery is called the aorta. It carries freshly oxygenated blood to the body. Capillaries are tiny vessels where the arteries end and the veins begin. Capillaries are only large enough for one blood cell to pass through at a time. It is in the capillaries where nutrients, oxygen and waste products are exchanged with individual body cells. Most live healthy cells in the body are in contact with a capillary. The largest veins are called the cranial and caudal vena cava. They carry the oxygen-depleted blood back to the heart. The heart then pumps that blood to the lungs via the pulmonary artery. Following oxygenation in the lungs the blood is carried back to the heart through the pulmonary vein and the cycle begins again.

Slide 9: Blood - Blood is composed of cells suspended in a special fluid called plasma. The majority of the cells in the blood are red blood cells. Red blood cells contain hemoglobin, which functions by carrying oxygen and carbon dioxide. It is hemoglobin that gives blood its characteristic red color. Blood also carries white blood cells. The job of the white blood cells is to fight infection or invasion by anything foreign. The blood

also includes platelets. Platelets are small cells that help in blood clotting.

Slide 10: Lymphatic System - The lymphatic system helps to return to the heart the fluid that has leaked out of blood vessels. Lymph vessels are the tubes that carry lymph fluid and lymph nodes are the filters for lymph fluid. Lymph nodes also make some white blood cells. Lymph fluid is not pumped by the heart. Instead, it moves by muscular and intestinal activity.

Slide 11: Spleen - The spleen is a long narrow purplish organ situated behind the stomach. It functions to filter blood, destroy old red blood cells, store red blood cells and produce certain kinds of white blood cells.

4. Answer any questions using the *Cat Respiratory and Circulatory Systems Student Notes - Answer Key*.

Name: _____ Class: _____

Cat Respiratory and Circulatory Systems

Student Notes

Respiratory System

Functions:

- To _____ from the air to the blood
- To _____ from the blood
- Carry it _____ into the air
- Aids in _____

_____ is vital to the body's maintenance. _____ is a waste product of the maintenance process.

Parts of the respiratory system:

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

The cat breathes in air through its nose and mouth. The nose and mouth join to form the _____. The trachea is a tube that extends from the _____. The _____ covers the trachea when swallowing occurs to prevent food and water from entering the lungs. At the lungs, the _____ branches into smaller tubes called bronchi or _____. The bronchi divide into smaller and smaller _____ until they become dead end sacs called alveoli. It is in the _____ where the actual exchange of oxygen and carbon dioxide occur.

Diaphragm

All mammals have a muscle that separates the respiratory system (lungs) from the rest of the internal organs. This muscle is called the _____. The diaphragm works with the muscles

between the ribs called “_____” to produce inspiration (or breathing in). _____ (or breathing out) is muscle relaxation, causing the air to move out of the lungs and body.

Circulatory System

The circulatory system consists of:

- _____
- _____
- _____
- _____
- _____

Functions are to:

- Deliver _____ and _____ to the cells of the body
- To remove _____ products.

Heart

- Has four _____ with four _____ and contracts in a specific squeezing pattern
- This squeezing action pumps blood through the _____ out to the lungs and body
- At a resting pulse of _____ beats per minute, a cat’s heart will beat _____ million beats in a year
- It is the _____ of the heart valves that gives the “lub dub” heart sounds

Blood Vessels

The blood vessels include

- Arteries - _____
- Vein - _____
- Capillaries - _____

The largest artery is called the _____. It carries freshly oxygenated blood to the body. Capillaries are only large enough for one blood cell to pass through at a time. It is in the capillaries where _____ are exchanged with individual body cells. Most live healthy cells in the body are in contact with a _____. The largest veins are called the cranial and caudal _____. They carry the oxygen-depleted blood back to the heart. The heart then pumps that blood to the lungs via the _____ artery. Following oxygenation in the lungs the blood is carried back to the heart through the pulmonary vein and the cycle begins again.

Blood

- Blood is composed of cells suspended in a special fluid called _____
- Majority of the cells in the blood are _____ blood cells
- Red blood cells contain _____, which functions by carrying oxygen and carbon dioxide and gives blood its characteristic _____ color
- Blood also carries white blood cells, to _____ or invasion by anything foreign
- Blood also includes _____, small cells that help in blood clotting

Lymphatic System

The lymphatic system helps to return to the heart the _____ that has leaked out of _____. Lymph _____ are the tubes that carry lymph fluid and lymph _____ are the filters for lymph fluid. Lymph nodes also make some white blood cells. Lymph fluid is not pumped by the heart. Instead, it moves by _____ and _____ activity.

Spleen

_____ situated behind the stomach

Functions to:

- _____ blood
- _____ old red blood cells
- _____ red blood cells
- _____ certain kinds of white blood cells

Cat Respiratory and Circulatory Systems

Student Notes - Answer Key

Respiratory System

Functions:

- To **transfer oxygen** from the air to the blood
- To **remove carbon dioxide** from the blood
- Carry it **out of the body** into the air
- Aids in **regulating the body temperature**

Oxygen is vital to the body's maintenance. **Carbon dioxide** is a waste product of the maintenance process.

Parts of the respiratory system:

- **Nose**
- **Mouth**
- **Trachea**
- **Pharynx**
- **Epiglottis**
- **Lungs**
- **Bronchi**

The cat breathes in air through its nose and mouth. The nose and mouth join to form the **pharynx**. The trachea is a tube that extends from the **pharynx to the lungs**. The **epiglottis** covers the trachea when swallowing occurs to prevent food and water from entering the lungs. At the lungs, the **trachea** branches into smaller tubes called bronchi or **bronchial tubes**. The bronchi divide into smaller and smaller **bronchioles** until they become dead end sacs called alveoli. It is in the **alveoli** where the actual exchange of oxygen and carbon dioxide occur.

Diaphragm

All mammals have a muscle that separates the respiratory system (lungs) from the rest of the internal organs. This muscle is called the **diaphragm**. The diaphragm works with the muscles between the ribs called "**intercostals**" to produce inspiration (or breathing in). **Exhalation** (or breathing out) is muscle relaxation, causing the air to move out of the lungs and body.

Circulatory System

The circulatory system consists

- Heart
- Blood
- Blood vessels
- Lymphatic system
- Spleen

Functions are to:

- Deliver oxygen and nutrients to the cells of the body
- To remove waste products.

Heart

- Has four chambers with four valves and contracts in a specific squeezing pattern
- This squeezing action pumps blood through the heart out to the lungs and body
- At a resting pulse of 120 beats per minute, a cat's heart will beat 63 million beats in a year
- It is the closure of the heart valves that gives the "lub dub" heart sounds

Blood Vessels

The blood vessels include:

- Arteries - vessels that carry blood away from the heart
- Vein - carry blood back to the heart
- Capillaries - tiny vessels where the arteries end and the veins begin

The largest artery is called the aorta. It carries freshly oxygenated blood to the body. Capillaries are only large enough for one blood cell to pass through at a time. It is in the capillaries where nutrients, oxygen and waste products are exchanged with individual body cells. Most live healthy cells in the body are in contact with a capillary. The largest veins are called the cranial and caudal vena cava. They carry the oxygen-depleted blood back to the heart. The heart then pumps that blood to the lungs via the pulmonary artery. Following oxygenation in the lungs the blood is carried back to the heart through the pulmonary vein and the cycle begins again.

Blood

- Blood is composed of cells suspended in a special fluid called plasma
- Majority of the cells in the blood are red blood cells
- Red blood cells contain hemoglobin, which functions by carrying oxygen and carbon dioxide and gives blood its characteristic red color
- Blood also carries white blood cells, to fight infection or invasion by anything foreign
- Blood also includes platelets, small cells that help in blood clotting

Lymphatic System

The lymphatic system helps to return to the heart the **fluid** that has leaked out of **blood vessels**. Lymph **vessels** are the tubes that carry lymph fluid and lymph **nodes** are the filters for lymph fluid. Lymph **nodes** also make some white blood cells. Lymph fluid is not pumped by the heart. Instead, it moves by **muscular** and **intestinal** activity.

Spleen

Long narrow purplish organ situated behind the stomach

Functions to:

- **Filter** blood
- **Destroy** old red blood cells
- **Store** red blood cells
- **Produce** certain kinds of white blood cells

Lesson Four - Cat Respiratory and Circulatory Systems

REVIEW: Recap of Cat Respiratory and Circulatory Systems

10 minutes

Purpose:

Participants will do a review of what they learned about the Cat Respiratory and Circulatory Systems.

Materials:

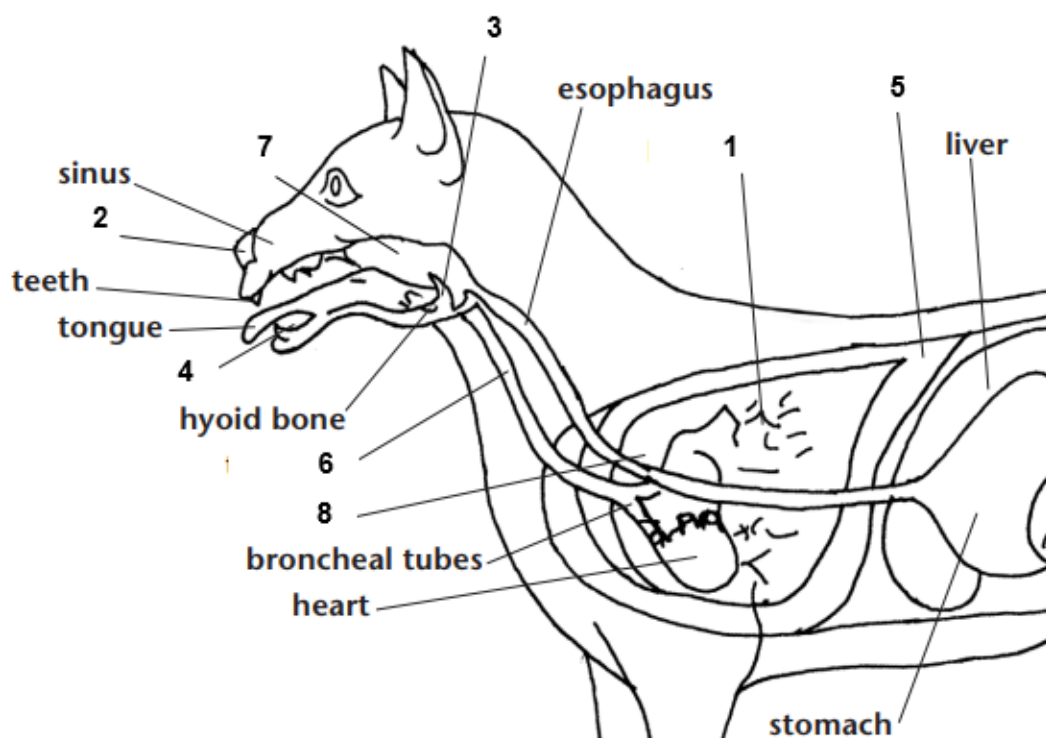
- *Cat Respiratory and Circulatory System Systems Worksheet*
- *Cat Respiratory and Circulatory Systems Worksheet - Answer Key*

Facilitation Steps:

1. Print/Photocopy the *Cat Respiratory and Circulatory Systems Worksheet*.
2. Hand out the worksheet to the participants.
3. Have students complete the worksheets and hand in for correcting.
4. Correct using the *Cat Respiratory and Circulatory Systems Worksheet - Answer Key*.

Name: _____ Class: _____

Cat Respiratory and Circulatory Systems



Worksheet

Match the internal anatomy with the correct number:

_____ Nose

_____ Mouth

_____ Trachea

_____ Pharynx

_____ Epiglottis

_____ Lungs

_____ Bronchioles

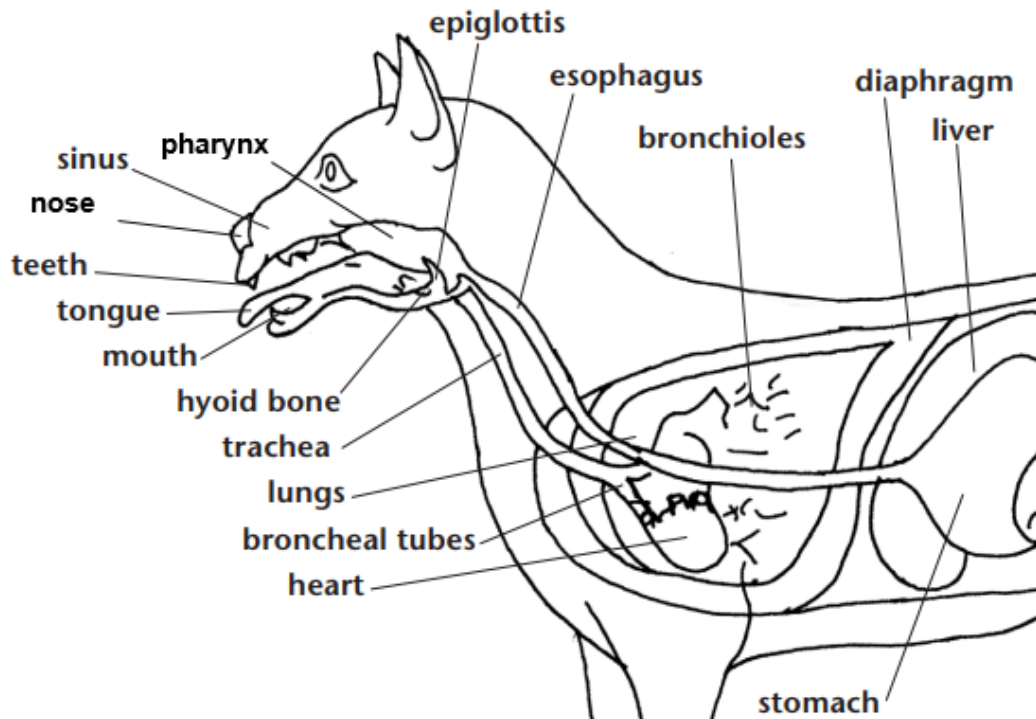
_____ Diaphragm

Fill in each blank with the correct answer:

1. The primary function of the respiratory system is to transfer _____ from _____ to the _____ and remove _____ from the _____ and carry it out of the _____ to the _____.
2. Air travels through the _____, _____. _____ and _____ before entering the _____ where the exchange of _____ and _____ occurs.
3. The _____ is the muscle that separates the respiratory system from the rest of the body. It works with other muscles to produce _____ (breathing in) and _____ (breathing out).
4. In addition to breathing, the respiratory system also does what? _____

5. The circulatory system delivers _____ and _____ to the cells of the body and removes _____.
6. The heart has _____ chambers. The three types of blood vessels are _____. _____ and capillaries. _____ carry blood from the heart, _____ carry blood to the heart and capillaries are where nutrients and _____ are exchanged for _____ from the individual cells.
7. The components of blood are _____, _____. _____ and _____. The red color of blood comes from _____, the component that carries _____ and _____.
8. The spleen is an organ that filters blood, _____ old blood cells, stores red blood cells and _____ some white blood cells.

Cat Respiratory and Circulatory Systems Worksheet – Answer Key



Match the internal anatomy with the correct number:

- 2 Nose
- 4 Mouth
- 6 Trachea
- 7 Pharynx
- 3 Epiglottis
- 8 Lungs
- 1 Bronchioles
- 5 Diaphragm

Fill in each blank with the correct answer.

1. The primary function of the respiratory system is to transfer **oxygen** from **air** to the **blood** and remove **carbon dioxide** from the **blood** and carry it out of the **body** to the **air**.
2. Air travels through the **nose, mouth, pharynx** and **trachea** before entering the **lungs** where the exchange of **oxygen** and **carbon dioxide** occurs.
3. The **diaphragm** is the muscle that separates the respiratory system from the rest of the body. It works with other muscles to produce **inspiration** (breathing in) and **expiration** (breathing out).
4. In addition to breathing, the respiratory system also does what? **Regulates the body temperature**
5. The circulatory system delivers **oxygen** and **nutrients** to the cells of the body and removes **waste**.
6. The heart has **4** chambers. The three types of blood vessels are **arteries, veins** and capillaries. **Arteries** carry blood from the heart, **veins** carry blood to the heart and capillaries are where nutrients and **oxygen** are exchanged for **waste products** from the individual cells.
7. The components of blood are **plasma, red blood cells, white blood cells and platelets**. The red color of blood comes from **hemoglobin** the component that carries **oxygen** and **carbon dioxide**.
8. The spleen is an organ that filters blood, **destroys** old blood cells, stores red blood cells and **produces** some white blood cells.

Sources

Washington State University Extension.” WSU - Cat Anatomy & Physiology Unit 3, John and Sandy Edminster, Thurston County, and Mary Smith and Sue Hall, King County. Also Roy J. Hostetler, DVM, Former Extension Veterinarian. Revised 2008 by Michael A. Foss, DVM, Skamania County; Nancy Stewart, King County; and Jean Swift, Skagit County, 2008.

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