

Canine Intubation Curriculum



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This curriculum will teach proper canine intubation as well as the anatomy and reason for intubation.

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Curriculum Structure

The *Canine Intubation Curriculum* is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Understanding Anatomy	40 minutes
Two	How, Why, and When We Need to Intubate	45-60 minutes
	Total	1-2 hours

Lesson Structure

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

Lesson Sections

The actual lesson follows the overview, which contains 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 demonstration, or a review of previous lesson information. 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 – Understanding Anatomy

Lesson Overview

The proper anatomy knowledge of the oral cavity is vital in your ability and understanding of how to intubate a canine patient. Knowing the proper anatomy will help you successfully intubate.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify the different parts of the oral cavity
- Understand the different parts of an endotracheal tube and how they work

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• <i>Anatomy of the Neck</i> worksheet • <i>Anatomy of the Neck – Answer Key</i> • <i>Understanding Anatomy</i> slide presentation	1. Print/photocopy <i>Anatomy of the Neck</i> (one per participant). 2. Prepare slide presentation for viewing.	15 minutes
LEARN	• <i>Understanding Anatomy</i> slide presentation • Endotracheal tube • Visual guide or reference site: https://www.theveterinarynurse.com/content/practical/endotracheal-intubation-of-the-dog-and-cat/ • <i>Anatomy of the Endotracheal Tube</i> worksheet • <i>Anatomy of the Endotracheal Tube – Answer Key</i>	1. Print/photocopy <i>Anatomy of the Endotracheal Tube</i> (one per participant). 2. Prepare slide presentation for viewing.	15 minutes
REVIEW	• <i>Lesson One Quiz</i> • <i>Lesson One Quiz – Answer Key</i>	1. Print/photocopy the <i>Lesson One Quiz</i> (one per participant). 2. Access the <i>Lesson One Quiz – Answer Key</i>.	10 minutes

Lesson One – Understanding Anatomy

FOCUS: Canine Anatomy of the Neck

15 minutes

Purpose:

Engage participants in the lesson and get them to think about canine neck anatomy.

Materials:

- *Anatomy of the Neck* worksheet
- *Anatomy of the Neck – Answer Key*
- *Understanding Anatomy* slide presentation

Facilitation Steps:

1. Let the participants know that today's lesson will cover canine neck anatomy and parts of the endotracheal tube.
2. Distribute the *Anatomy of the Neck* worksheet and give participants two to four minutes to try to label each part on the worksheet.
3. Make a list on the whiteboard of their ideas for each part.
4. Share the *Understanding Anatomy* slide presentation. Have participants complete or correct their *Anatomy of the Neck* worksheet from the information you share during the slide presentation.

Slide 1: Understanding Anatomy

Slide 2: Parts of the Neck

Slide 3: What Are the Parts?

- Soft palate
- Vocal folds
- Trachea
- Epiglottis
- Tongue
- Laryngoscope

Slide 4: Soft Palate

This is the top part of the oral cavity

Slide 5: Vocal Folds

- The vocal folds are on each side of the opening to the trachea
- This is also known as the vocal cords
- Vocal folds move in and out as we breathe

Slide 6: Trachea

- The trachea is a tube that carries air from outside to the lungs
- This is made of cartilage rings
- When intubating patients, the trachea is the opening that the endotracheal tube goes into

Slide 7: Epiglottis

- The epiglottis is a soft tissue structure that covers the trachea when patients swallow
- This prevents water and other food material from entering the trachea

Slide 8: Tongue

- The tongue is the large organ at the bottom of the mouth
- This is used to move food and water around in patients' mouths and helps them swallow

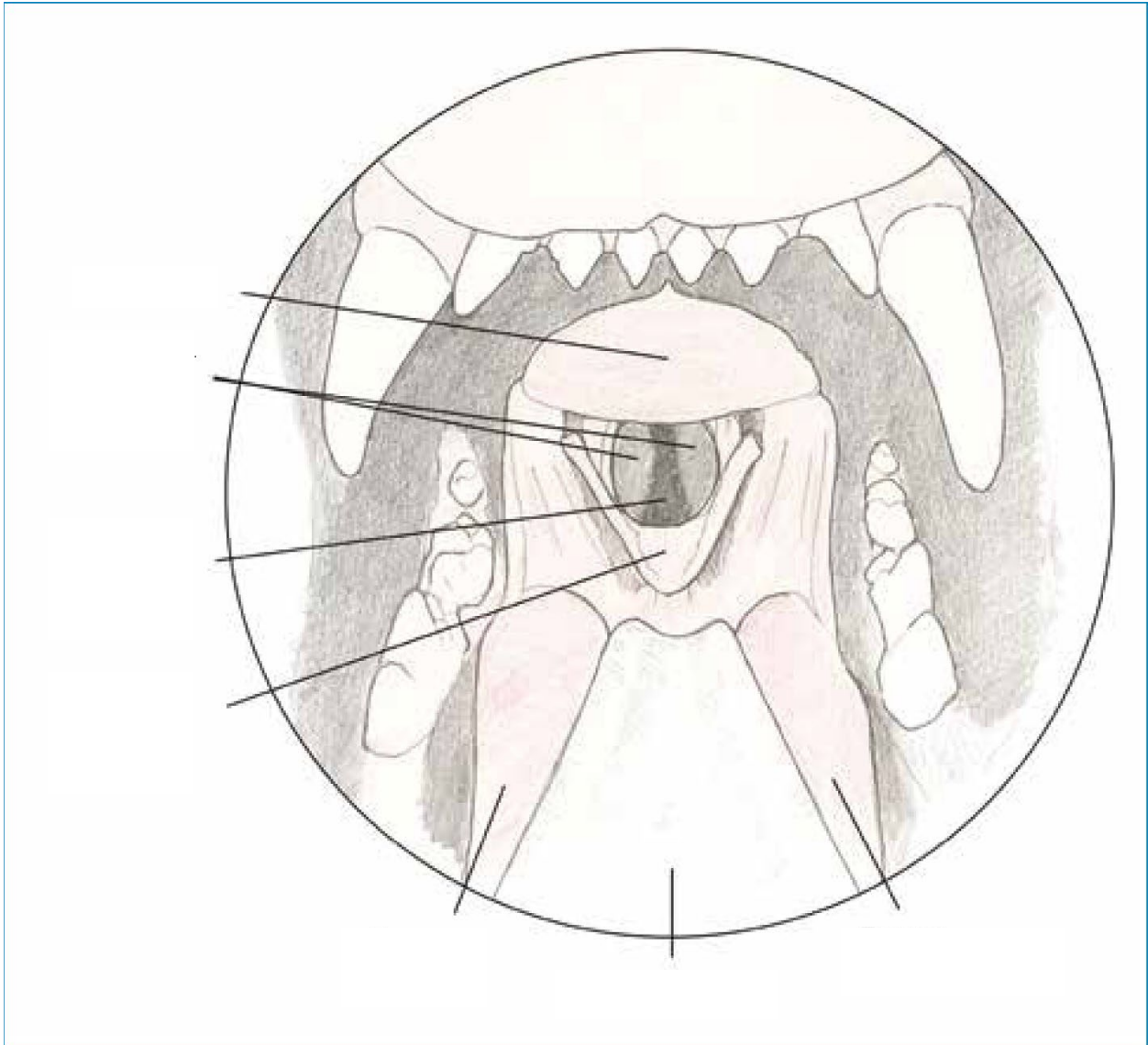
Slide 9: Laryngoscope

- The laryngoscope is a specialized piece of equipment that helps in the intubation process
- It has a flat metal speculum with a light on the end, making it useful for visualization

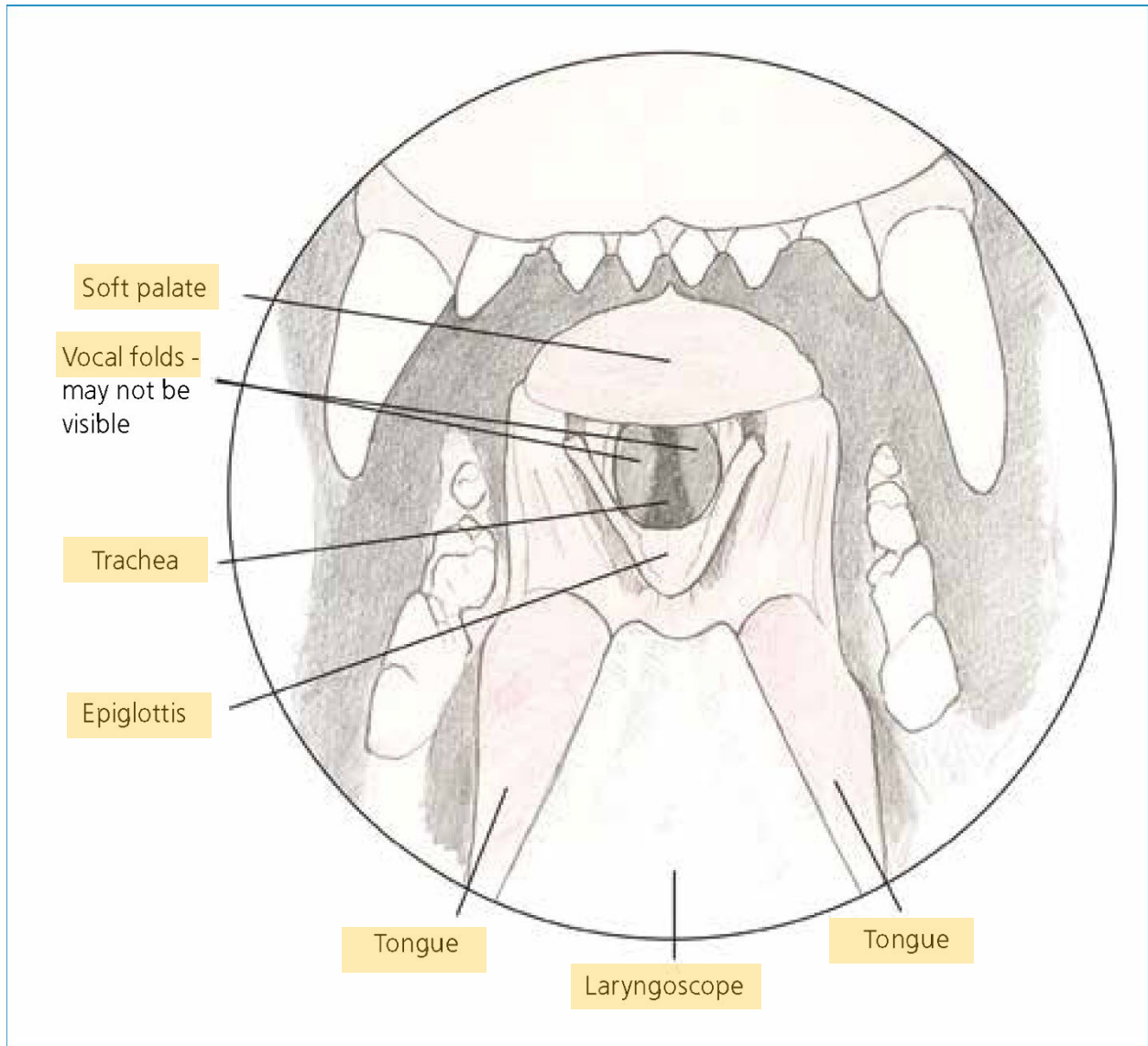
Name: _____ Class: _____

Anatomy of the Neck

Instructions: Label the drawing as you learn the parts of the neck.



Anatomy of the Neck – Answer Key



Lesson One – Understanding Anatomy

LEARN: Parts and Function of the Endotracheal Tube

15 minutes

Purpose:

This section will reveal the parts and function of the endotracheal tube. After this section is complete, the participants will be able to correctly identify each part and its function.

Materials:

- *Understanding Anatomy* slide presentation
- Endotracheal tube
- Visual guide or reference site:
<https://www.theveterinarynurse.com/content/practical/endotracheal-intubation-of-the-dog-and-cat/>
- *Anatomy of the Endotracheal Tube* worksheet
- *Anatomy of the Endotracheal Tube – Answer Key*

Facilitation Steps:

1. Distribute the *Anatomy of the Endotracheal Tube* worksheet and give participants two to four minutes to fill it out.
2. Make a list on the whiteboard of their ideas for each part.
3. Share the *Understanding Anatomy* slide presentation. Have participants complete or correct their *Anatomy of the Endotracheal Tube* worksheet from the information you share during the slide presentation.

While teaching from the slides, show each part of the endotracheal tube to the class.

Slide 10: Parts of the Endotracheal (ET) Tube

Slide 11: What Are the Parts?

- Beveled tip
- Murphy's eye
- Cuff
- Internal and outer diameters
- Radio opaque line
- 15 mm connector
- Pilot balloon
- Self-sealing valve

Slide 12: Beveled Tip

The beveled tip at the end of the tube allows for more accurate placement of the tube in the trachea

Slide 13: Murphy's Eye

This decreases the risk of the tube becoming blocked

Slide 14: Cuff

Cuffed ET tubes allow for the airway to be securely sealed and not allow fluid or other material into the trachea

Slide 15: Internal and Outer Diameters

- **Internal Diameter:** The inner diameter of the tracheal tube
- **Outer Diameter:** The diameter of the outside of the endotracheal tube

Slide 16: Radio Opaque Line

- A radio-opaque line allows for the ET tube to be seen when taking radiographs of the patient
- This allows you to correctly identify the ET tube and check for proper placement

Slide 17: 15 mm Connector

The ET tube is designed to connect the tube to an anesthetic machine or AMBU bag to help ventilate patients during surgery or a respiratory arrest event

Slide 18: Pilot Balloon

- The cuff is connected to a small tube that has a pilot balloon on the end past the end of the tracheal tube
- You inflate the cuff by injecting air into the balloon

Slide 19: Self-Sealing Valve

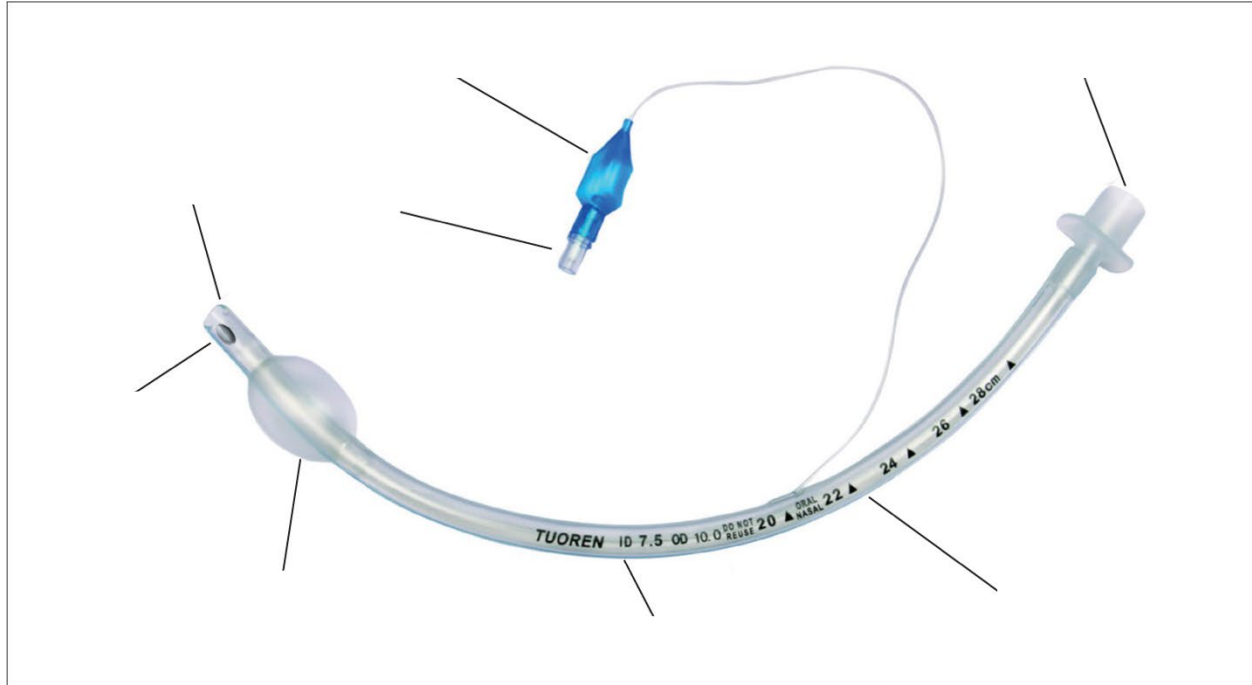
The self-sealing valve allows air to stay in the cuff without escaping

4. Review the answers to the worksheet as a class at the end of the presentation.
5. Have a real ET tube available that you can pass around and have participants take a closer look at.

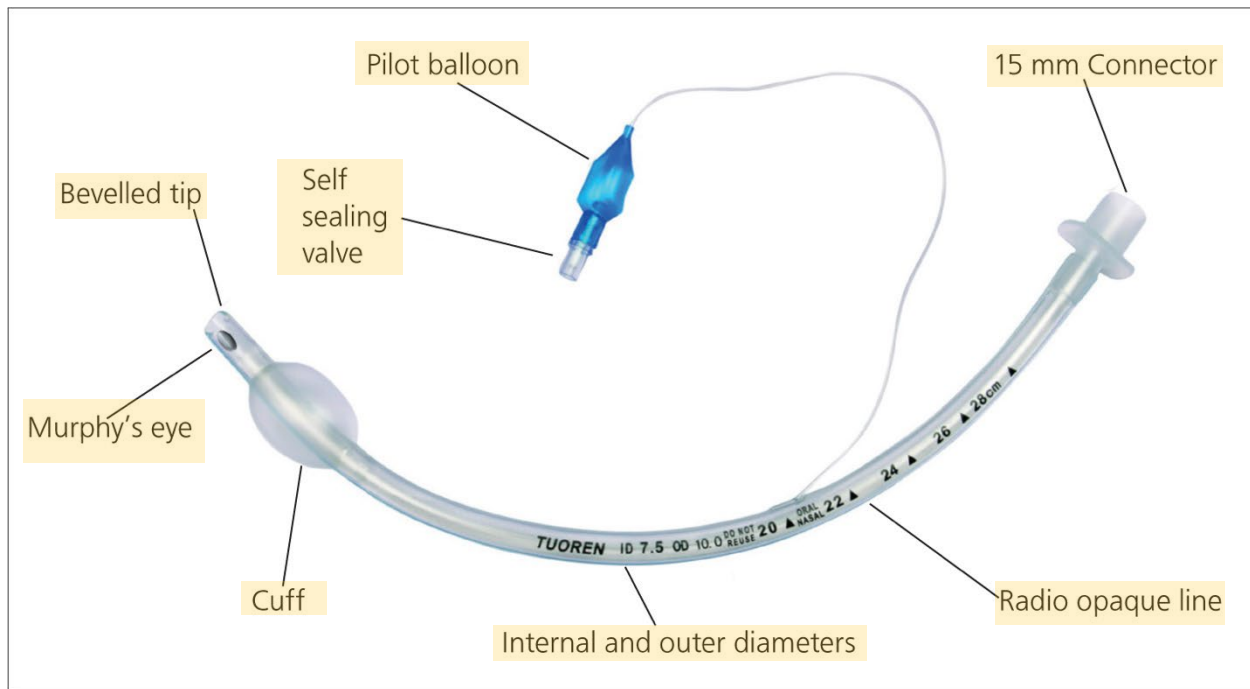
Name: _____ Class: _____

Anatomy of the Endotracheal Tube

Instructions: Label the image.



Anatomy of the Endotracheal Tube – Answer Key



Lesson One – Understanding Anatomy

REVIEW: What Do You Know?

10 minutes

Purpose:

This activity will allow participants to see what they have learned from this lesson.

Materials:

- *Lesson One Quiz*
- *Lesson One Quiz – Answer Key*

Facilitation Steps:

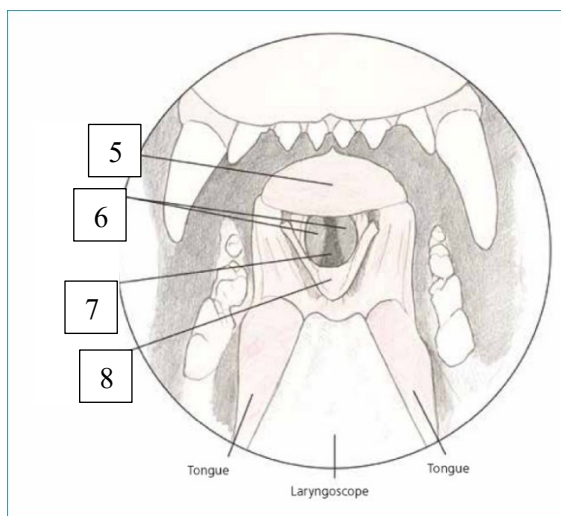
1. Distribute the *Lesson One Quiz* and give participants two to four minutes to complete it.
2. Collect the quizzes or go over the answers as a class.

Lesson One Quiz

Instructions: Select and write in the correct answer below.

1. What is the purpose of the Murphy's eye of an endotracheal tube?
 - a. To inflate the cuff
 - b. To prevent blockage of the tube
 - c. To allow you to ID on a radiograph
 - d. To connect to an anesthetic machine
2. When intubating a patient, what structure do you inflate?
 - a. Cuff
 - b. Beveled tip
 - c. Murphy's eye
 - d. Connector
3. What structure does the endotracheal tube go into?
 - a. Esophagus
 - b. Trachea
 - c. Epiglottis
 - d. Soft palate
4. What structure prevents food from entering the trachea when swallowing?
 - a. Tongue
 - b. Epiglottis
 - c. Soft palate
 - d. Vocal folds

Identify each numbered part.



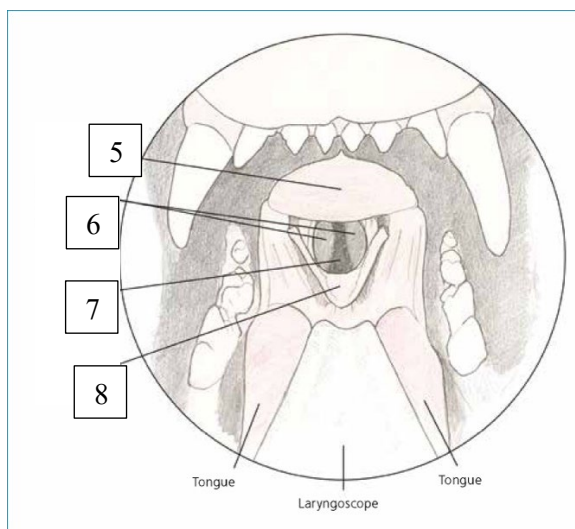
5: _____
6: _____
7: _____
8: _____

Lesson One Quiz – Answer Key

Instructions: Select and write in the correct answer below

1. What is the purpose of the Murphy's eye of an endotracheal tube?
 - a. To inflate the cuff
 - b. To prevent blockage of the tube**
 - c. To allow you to ID on a radiograph
 - d. To connect to anesthetic machine
2. When intubating a patient, what structure do you inflate?
 - a. Cuff**
 - b. Beveled tip
 - c. Murphy's eye
 - d. Connector
3. What structure does the endotracheal tube go into?
 - a. Esophagus
 - b. Trachea**
 - c. Epiglottis
 - d. Soft pallet
4. What structure prevents food from entering the trachea when swallowing.
 - a. Tongue
 - b. Epiglottis**
 - c. Soft palate
 - d. Vocal folds

Identify each numbered part.



5: Soft palate

6: Vocal folds

7: Trachea

8: Epiglottis

Lesson Two – How, Why, and When We Intubate

Lesson Overview

This lesson will demonstrate proper intubation steps. Participants will receive hands-on practice intubating with the Canine Intubation Simulator.

Lesson Objectives

After completing this lesson, participants will be able to:

- Understand the steps to intubation a canine
- Successfully intubate a canine through the use of a simulator

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Whiteboard • Dry erase markers • Computer	1. Have a whiteboard and computer available.	10 minutes
LEARN	• <i>How, Why, and When We Intubate</i> slide presentation • Canine Intubation Simulator	1. Prepare slide presentation for viewing and print out slides for participants (one set of slides per participant). 2. Prepare the simulator for use.	20 minutes
REVIEW	• Endotracheal tube • Canine Intubation Simulator • Laryngoscope	1. Prepare the simulator and intubation supplies.	15-30 minutes

Lesson Two – How, Why, and When We Intubate

FOCUS: Would the Dog Benefit?

10 minutes

Purpose:

Engage participants in the lesson and get them to think about why and when we would need to intubate a dog.

Materials:

- Whiteboard
- Dry erase markers
- Computer

Facilitation Steps:

1. Let the participants know that today's lesson will cover why we intubate a dog.
2. Ask participants "Why would you intubate a dog?" List all of their answers on a whiteboard.
3. Discuss if, in these scenarios, intubation would help the dog. If so, how would this procedure help?
4. After all participants have given input, share some videos of canine intubation with the class. Here are a couple to choose from:
<https://www.youtube.com/watch?v=cKz-FpeKvH8>
<https://www.youtube.com/watch?v=K2MxdKSK3cg>

Lesson Two – How, Why, and When We Intubate

LEARN: How, Why, and When to Intubate

20 minutes

Purpose:

This section will go over how, why, and when we intubate patients.

Materials:

- *How, Why, and When We Intubate* slide presentation
- Canine Intubation Simulator

Facilitation Steps:

1. Distribute copies of the slide presentation so participants will have it as a reference for intubating later.
2. Using the slide presentation, discuss each slide with the class. While teaching from the slides, show the class how to intubate a dog. Use the Canine Intubation Simulator to demonstrate the process to participants as you talk through the steps.

Slide 1: How, Why, and When We Intubate

Slide 2: How to Intubate a Dog

- An assistant should lift the patient's maxilla using the endotracheal tube (ETT) tie
- This prevents accidental injuries to the assistant's fingers should the patient suddenly clamp jaws
- For large dogs, the patient's dorsal neck may need to be lifted
- The head and neck should be straight, aligned with the spine

Slide 3: Intubating a Dog

- Hold the laryngoscope in your non-dominant hand
- Use the tip of the blade to push the tongue out of the mouth (to prevent accidents to fingers)
- Grasp the tongue between your first and second fingers on your non-dominant

hand, using your first finger and thumb to hold and position the laryngoscope

Slides 4-8: Intubating a Dog

- Using the tongue to pull downwards on the mandible, open the patient's mouth wide
- Position the tip of the laryngoscope on the base of the tongue, ventral to the epiglottis
- Push the tip of the laryngoscope down, which should move the epiglottis ventrally and make the glottis visible
- Do not press on the epiglottis as it is a fragile structure
- After visualizing the glottis, select a suitably sized ETT
 - Use the biggest size possible without having to use excessive force
- Hold the ETT in a "pencil grip" for maximum control over the beveled tip
- Apply some sterile lubrication to the body of the tube, avoiding the tip or Murphy's eye
- Insert the tube over the tongue and epiglottis towards the glottis
- Use the tip of the bevel to enter the glottis (requiring slight rotation of the tube)
- As the tube enters and advances, rotate the tube back to match the natural curve of the patient's neck
- Once advanced, the tip of the tube should sit approximately midway along the trachea
 - To avoid bronchial intubation, it should be no further than the thoracic inlet
- The tube should be secured as soon as it is placed to avoid it moving
 - Inflation of the cuff should follow accordingly

Slide 9: Why Intubate

Intubation is done to maintain the dog's airway

Slide 10: When Are Dogs Intubated

- **Anesthesia:** During anesthesia dogs are intubated to prevent fluids from entering the lungs since patients are not able to swallow. This also allows for anesthetic gas to enter the lungs
- **Cardiovascular Arrest:** During cardiovascular arrest, most patients are intubated in order to deliver oxygen straight to the lungs and to assist in breathing.
- **Respiratory Distress:** If a patient is having issues breathing, an endotracheal tube may be placed to secure the airway and assist with the patient's breathing.

Lesson Two – How, Why, and When We Intubate

REVIEW: Intubation Practice

15-30 minutes

Purpose:

This activity will allow participants to implement their newly acquired knowledge on intubation.

Materials:

- Endotracheal tube
- Canine Intubation Simulator
- Laryngoscope

Facilitation Steps:

1. This activity can be done by setting up a station or several if you have more than one Canine Intubation Simulator. At each station, have an endotracheal tube available for insertion.
2. Each participant should practice intubating the simulator and discuss the steps that they are taking to intubate.

Sources

1. <https://www.theveterinarynurse.com/content/practical/endotracheal-intubation-of-the-dog-and-cat/sxdzckl>;