

Canine Auscultation Trainer Curriculum



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1070161-01

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Author



Jamie Whittenburg, DVM grew up with many family pets and always dreamed of being a veterinarian. With 18 years of clinical practice in both small and large animal medicine and surgery, Dr. Whittenburg loves to share her veterinary knowledge through teaching and writing.

This curriculum will teach proper stethoscope usage and placement for checking the health of canines, as well as what sounds may be heard during auscultation.

Curriculum Structure

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

Lesson	Title	Approximate Time
One	Proper Use of a Stethoscope	105 minutes
Two	Auscultation of the Heart, Lungs, and Bowels	105 minutes
	Total	3.5 hours

Lesson Structure

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

Lesson Sections

The actual lesson follows the Lesson at a Glance table, 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 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 – Proper Use of a Stethoscope

Lesson Overview

The stethoscope is a vital tool used in veterinary medicine. There is much information to be gained from a proper exam using a stethoscope. This information is especially vital when dealing with animal health, as the patients are unable to speak.

Lesson Objectives

After completing this lesson, participants will be able to:

- Know what a stethoscope is and its parts
- Learn how to properly use a stethoscope
- Understand what information you can learn with a stethoscope

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Whiteboard and dry erase markers	1. Draw a stethoscope on the whiteboard.	30 minutes
LEARN	• Stethoscopes • <i>Proper Use of a Stethoscope</i> slide presentation • <i>Stethoscope Diagram</i> worksheet • <i>Stethoscope Diagram – Answer Key</i> • Anatomy of a Stethoscope diagram	1. Print/photocopy <i>Proper Use of a Stethoscope</i> slides (one set per participant). 2. Prepare the <i>Proper Use of a Stethoscope</i> slide presentation for viewing. 3. Print/photocopy <i>Stethoscope Diagram</i> worksheet (one per participant).	45 minutes
REVIEW	• Stethoscopes • <i>Lesson One Quiz</i> • <i>Lesson One Quiz – Answer Key</i>	1. Divide participants into small groups (two to four participants each). 2. Print/photocopy the <i>Lesson One Quiz</i> (one per participant).	30 minutes

Lesson One – Proper Use of a Stethoscope

FOCUS: Learn to use a Stethoscope

30 minutes

Purpose:

To engage participants in the lesson and get them to think about stethoscopes as a medical tool.

Materials:

- Whiteboard and dry erase markers

Facilitation Steps:

1. Let the participants know that today's lesson will cover the proper use of a stethoscope.
2. Draw a diagram of a stethoscope on your whiteboard for labeling. Features should include:
 - a. Headset
 - b. Ear Tubes
 - c. Earpieces
 - d. Tubing
 - e. Stem
 - f. Diaphragm
 - g. Chest-piece
 - h. Bell
3. Have participants fill out their worksheets as they raise their hands and guess each part's name and function while you label what they think each part of the stethoscope does.
4. Tell participants the actual names and functions will be covered in the next section. Make a list on the whiteboard of their ideas for each part.
5. After all participants have given input, move on to the LEARN section to reveal the actual uses.

Lesson One – Proper Use of a Stethoscope

LEARN: Mastering the Stethoscope

45 minutes

Purpose:

This section will reveal the true function of each part of the stethoscope and teach participants how to use it. After this section is complete, participants should be able to identify each part and its function and correctly use this tool.

Materials:

- *Proper Use of a Stethoscope* slide presentation
- Stethoscopes
- [Anatomy of a Stethoscope diagram](#) can be used as a visual guide
- *Stethoscope Diagram* worksheet
- *Stethoscope Diagram – Answer Key*

Facilitation Steps:

1. Distribute copies of the slide presentation and *Stethoscope Diagram* worksheet.
2. Using the slide presentation, discuss each slide with the class. Notes are included on the slides and below.
3. While teaching from the slides, demonstrate each part of the stethoscope to the class.
4. Have participants fill in their diagram worksheet and review the answers as a class at the end of the presentation.

Slide 1: Introduction slide

Slide 2: Parts of a Stethoscope Video

Allow participants to watch [this video](#) for an introduction (4:45).

Slides 3-4: Recognize Parts of a Stethoscope

Slide 3 introduces the terms. Inform participants that these are the parts they will learn.

Starting with the earpieces, point out and discuss each part of the stethoscope and what it does.

Slide 5: Parts of a Spring Stethoscope

This slide shows a spring model with a simple bell for comparison.

Slide 6: Chest-pieces

Many stethoscopes have a separate bell and diaphragm. The bell is most effective at transmitting lower frequency sounds, while the diaphragm is most effective at transmitting higher frequency sounds.

Slide 7: Stethoscope Uses

This slide gives a brief introduction to the uses of a stethoscope. Ask participants what information they think might be collected from listening to these organs.

Slide 8: Auscultation

Briefly mention using a stethoscope to determine a heart rate, check for a heart murmur, hear fluid in the lungs, count respirations, and to assess bowel function.

Slide 9: Using a Stethoscope

This slide covers how to use a stethoscope.

Slide 10: Proper Stethoscope Care

Instruct participants in proper stethoscope care. Tubing, as well as the material of the bell, can easily be damaged by heat, harsh disinfectants, and repeated physical stress (such as hanging). Stethoscopes should NEVER be submerged in liquid of any kind.

Slide 11: Sources

Slide 12: Closing slide

Name: _____ Class: _____

Stethoscope Diagram

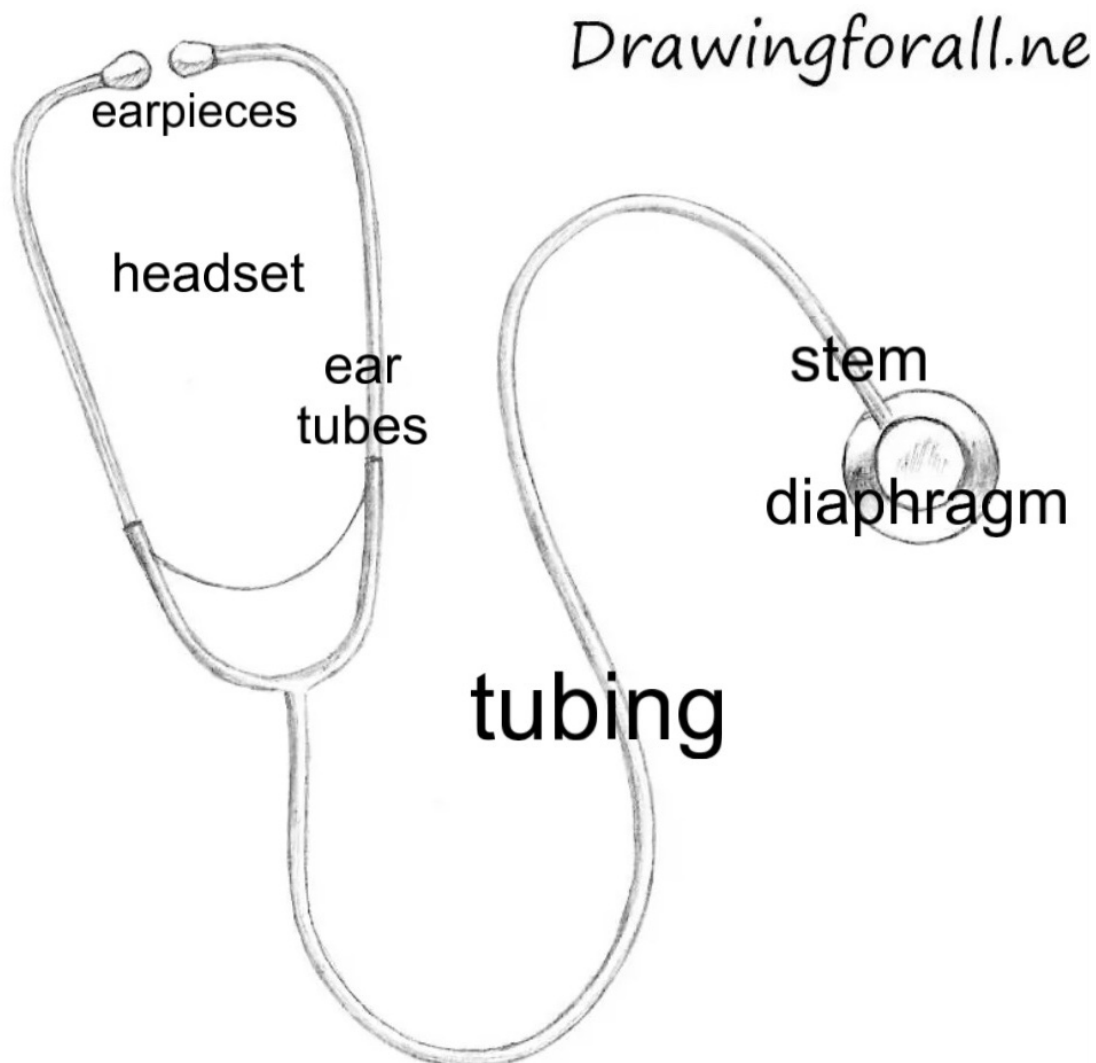
Instructions: Label the drawing as you learn the parts of a stethoscope.

Drawingforall.net



Stethoscope Diagram – Answer Key

Instructions: Identify and label the drawing as you learn the parts of a stethoscope.



Lesson One – Proper Use of a Stethoscope

REVIEW: Put It into Action

30 minutes

Purpose:

This review activity will allow participants to implement their newly acquired knowledge with a stethoscope.

Materials:

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

Facilitation Steps:

1. If every participant has their own stethoscope, this activity can be done by dividing participants into pairs. If participants are sharing stethoscopes, divide them into whatever groupings are necessary to allow for at least one instrument per group.
2. Each participant should identify the parts of their stethoscope. Then have participants practice placing the stethoscope into their ears correctly. Earpieces should face forward, towards the nose, if there is a curvature in the stethoscope. Earpieces should fit snugly into the outer ear canal, making a comfortable, but snug seal, to ensure proper auscultation.

The tubing of the stethoscope should hang freely from the front, and the bell should be held in the participant's dominant hand.

3. **Just For Fun:** As an added activity, have participants try to listen to their own hearts and/or those of their classmates' hearts (with classmate permission).
4. Distribute the *Lesson One Quiz* and give participants time to fill it out.
5. Collect the quizzes when participants are finished or go over the answers as a class.

Name: _____ Class: _____

Lesson One Quiz

Instructions: Answer all questions by circling the correct choice or filling in the information.

1. The part of the stethoscope that is in contact with the patient is called the:
 - a. Binaural
 - b. Earpieces
 - c. Chest-piece
 - d. Stem
2. The part of the stethoscope that is inserted into the listener's ears is/are:
 - a. Binaural
 - b. Earpieces
 - c. Chest-piece
 - d. Stem
3. The part of the stethoscope that enhances sounds from the patient into the stethoscope is:
 - a. Earpieces
 - b. Diaphragm
 - c. Stem
 - d. Headset
4. The part of the stethoscope that allows the enhanced sounds to travel the length from the patient to the listener is:
 - a. Tubing
 - b. Bell
 - c. Chest-piece
 - d. Binaural
5. The bell of a stethoscope is typically used to listen to _____ frequency sounds.

6. The diaphragm of a stethoscope is typically used to listen to _____ frequency sounds.
7. Auscultation is:
 - a. Using hands to palpate (feel) for abnormalities on a patient
 - b. Using a stethoscope to listen to a body organ
 - c. Using a stethoscope to feel for abnormalities on a patient
 - d. Using only an ear to listen to a body organ
8. If a stethoscope has curved earpieces, these should be inserted into the listener's ears facing _____.
9. True or False (circle one): Hanging your stethoscope over the rearview mirror in your car is a good way to store it and always keep it with you.
10. True or False (circle one): Because stethoscopes can transmit disease from one patient to another, they should also be cleaned by submerging them in a strong disinfectant.

Lesson One Quiz – Answer Key

Instructions: Answer all questions by circling the correct choice or filling in the information.

1. The part of the stethoscope that is in contact with the patient is called the:
 - a. Binaural
 - b. Earpiece
 - c. Chest-piece
 - d. Stem
2. The part of the stethoscope that is inserted into the listener's ears is/are the:
 - a. Binaural
 - b. Earpieces
 - c. Chest Piece
 - d. Stem
3. The part of the stethoscope that enhances and amplifies sounds from the patient into the stethoscope is the:
 - a. Earpieces
 - b. Diaphragm
 - c. Stem
 - d. Headset
4. The part of the stethoscope that allows the enhanced sounds to travel the length from the patient to the listener is the:
 - a. Tubing
 - b. Bell
 - c. Chest piece
 - d. Binaural
5. The bell of a stethoscope is typically used to listen to **lower** frequency sounds.
6. The diaphragm of a stethoscope is typically used to listen to **higher** frequency sounds.
7. Auscultation is:
 - a. Using hands to palpate (feel) for abnormalities on a patient
 - b. Using a stethoscope to listen to a body organ
 - c. Using a stethoscope to feel for abnormalities on a patient
 - d. Using an ear to listen to a body organ

8. If a stethoscope has curved earpieces, these should be inserted into the listener's ears facing **forward**.
9. True or **False** (circle one): Hanging your stethoscope over the rearview mirror in your car is a good way to store it and always keep it with you.
10. True or **False** (circle one): Because stethoscopes can transmit disease from one patient to another, they should also be cleaned by submerging them in a strong disinfectant.

Lesson Two – Auscultation of the Heart, Lungs, and Bowels

Lesson Overview

This lesson will cover routine uses of a stethoscope by a veterinary technician or assistant in a small animal clinic. Vitals and other information that can be obtained will be covered as well.

Lesson Objectives

After completing this lesson, participants will be able to:

- Define heart and respiratory rate
- Learn how to obtain heart and respiratory rates on a dog
- Understand what information can be obtained from a dog with a stethoscope

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Whiteboard and dry erase marker	1. Prepare to write participants' suggestions and thoughts on the whiteboard.	30 minutes
LEARN	• Stethoscopes • <i>Listening With a Stethoscope</i> slide presentation	1. Print/photocopy <i>Listening With a Stethoscope</i> slides (one set per participant). 2. Prepare the <i>Listening With a Stethoscope</i> slide presentation for viewing.	45 minutes
REVIEW	• 1 stethoscope per group • Canine Auscultation Trainer • <i>Canine Auscultation Scenarios</i> • <i>Canine Auscultation Scenarios</i> – Answer Key	1. Divide participants into small groups (two to four participants each). 2. Print/photocopy the <i>Canine Auscultation Scenarios</i> (one per group). 3. Prepare the Canine Auscultation Trainer.	30 minutes

Lesson Two – Auscultation of the Heart, Lungs, and Bowels

FOCUS: What Can We Hear?

30 minutes

Purpose:

This introduction lesson will serve to engage participants in the lesson and introduce the concepts of using a stethoscope in the medical setting.

Materials:

- Whiteboard and dry erase markers

Facilitation Steps:

1. Let the participants know that today's lesson will cover the actual use of the stethoscope and how to hear sounds of body organs.
2. Begin by asking participants to raise their hands and hypothesize which organs in the body a stethoscope may be useful in evaluating. Take the participants' suggestions and write them on the board.
3. Encourage participants to discuss what sounds they expect to hear with their stethoscopes and why those sounds might tell them useful information about their patient.
4. After all participants have given input, move on to the LEARN section.

Lesson Two – Auscultation of the Heart, Lungs, and Bowels

LEARN: Proper Auscultation

45 minutes

Purpose:

This section will teach participants what sounds they can use a stethoscope to hear and why they will do this. After this section is complete, participants should be able to describe the sounds they will be listening to on their patients as well as what they may mean.

Materials:

- *Listening With a Stethoscope* slide presentation
- Stethoscopes
- Canine Auscultation Trainer

Facilitation Steps:

1. Distribute copies of the slide presentation to participants.
2. Discuss each slide with the class as you go through the presentation. Notes have been included on the slides and below.
3. While teaching from the slides, use the Canine Auscultation Trainer to demonstrate proper auscultation technique, including proper placement of the stethoscope.
4. Encourage participants to think about and discuss with the class the information that may be gathered from the patient with a stethoscope. Have participants hypothesize about why this information might be important to patient care.

Slide 1: Introduction slide

Slide 2: Listening With a Stethoscope

Explain that, as veterinary technicians, participants will use a stethoscope every day, likely on every patient.

Slides 3-5: Auscultation of the Heart

The attending veterinarian will write orders about how often vitals should be taken on each patient. Refer to Lesson One for instructions on how to properly use the stethoscope. See a visual of heart auscultation on slide 4.

This position (image on slide 4) is the best place to take a heart rate. The olecranon is the point of the elbow.

Have participants tell you why the 15 x 4 method gets the bpm (4-15 second intervals in a minute). They may also count for 30 seconds and double or count for 60 seconds total, but squirmy animal patients make 15 x 4 easier.

Slide 6: Heart Rate

Inform participants that being nervous or excited will elevate the heart rate. This is normal but should be recorded as they count it.

Slide 7: Diagnostic Uses of Stethoscopes for the Heart

Diagnosis of heart issues can only be made by a licensed veterinarian, but technicians should always report any abnormal sounds to the attending vet.

Slide 8: Examples of Abnormalities

These issues are covered individually in the next slides.

Slide 9: Arrhythmias

An arrhythmia is any variation from normal in terms of rhythm. This includes too rapid, too slow, or not steady/uniform.

Slide 10: Murmurs

A murmur is an abnormal sound heard when listening to the heart. It indicates blood flowing in an abnormal manner, such as backwards (against the flow) when the valve closes.

Mitral valve insufficiency is the most common canine heart murmur, and it can be pathologic or benign. However, classifying heart murmurs is outside of the purview of a technician/assistant.

Slide 11: Heart Abnormalities

Only licensed vets may diagnose patients, so any abnormality heard should be reported to the attending veterinarian.

Slides 12-14: Respiratory Auscultation

The lungs should be listened to on both sides and a rate should be counted. Panting should be recorded as panting (not counted).

Only inspirations are counted as breaths to obtain a respiratory rate.

Slide 15: Listening With a Stethoscope

All diagnosis must be made by a licensed veterinarian, but if any of these issues are heard, the technician should tell the attending vet.

Slide 16: Abnormal Respirations

Describe each sound to participants. Assure them the sounds will be easier to decipher with time and experience. Sounds will be heard in the REVIEW section on the trainer.

Slide 17: Bowel Auscultation

Slide 18: Listening With a Stethoscope

How active a normal dog's bowels are is subjective. However, no bowel sounds at all, or very loud, noisy bowels can be easily recognized.

Slide 19: Sources

Slide 20: Closing slide

Lesson Two – Auscultation of the Heart, Lungs, and Bowels

REVIEW: Put It Into Action

30 minutes

Purpose:

This review activity will allow participants to implement their newly acquired knowledge with a stethoscope.

Note: Use the *Canine Auscultation Trainer Sounds* slide presentation sounds as needed to help instruct with sounds you would hear on the Canine Auscultation Trainer app.

Materials:

- 1 stethoscope per group
- Canine Auscultation Trainer
- *Canine Auscultation Scenarios* printed for participants
- Optional: *Canine Auscultation Trainer Sounds* slide presentation

Facilitation Steps:

1. Have participants get into groups of 2-4 (depending on class size). Each group will need at least one stethoscope.
2. Distribute one of the provided scenarios. Tell participants that you will role play a situation that they may encounter in a job as an assistant in a veterinary practice.
3. Have participants reverse their roles (pet owners versus vet assistants) so that each participant gets to be in both roles.

Each participant should practice placing their stethoscope on the Canine Auscultation Trainer and should obtain the heart and respiratory rate for the patient.

The instructor should set the trainer (in the app) to the listed respiratory and heartbeat types for each scenario. See the Quick Start Guide for detailed instructions.

4. If time allows, participants can trade scenarios with the other groups and act those out as well.

Canine Auscultation Scenarios

Scenario 1: The Smith family brings in their 12-year-old dog, Ray, for an annual exam and any necessary vaccines. Ray is a neutered male Lhasa Apso. Mr. Smith tells you that lately he has noticed that Ray is panting a lot and often wakes up coughing. What vitals will you need to obtain for the veterinarian? Which sounds will you need to pay special attention to with Ray and why?

Scenario 2: The Rodriguez family comes into the clinic ecstatic and wanting a new puppy exam. The puppy, Benny, is a 6-week-old Doberman Pinscher that the family just picked up from the breeder this morning. The family has no medical history on the puppy, but report that he seems to be in good health. What vitals should you first obtain for the veterinarian before they see the puppy? What organs should you pay special attention to and why?

Scenario 3: Ms. Jenkins brings in her 2-year-old female spayed Labrador Retriever, Miso, because Miso has been having diarrhea and vomiting all night. Ms. Jenkins suspects Miso either got into the trash and ate it or ingested one of her fluffy dog toys. Before presenting the appointment to the attending veterinarian, what vitals should you obtain from Miso? What organs should you pay special attention to in this dog?

Scenario 4: Louie is a 5-year-old Chihuahua whose owners have been out of town on vacation for a week. Louie stayed at a pet hotel while his parents were gone. He is a neutered male with a history of allergic asthma. Since picking Louie up from the pet hotel, his owner noticed him coughing. He is also lethargic and unwilling to eat. What vitals should you obtain from Louie before alerting the veterinarian? What body organs should you pay special attention to in this dog?

Canine Auscultation Scenarios – Answer Key

Scenario 1: The assistant should first obtain a heart rate, respiratory rate, and a temperature. It will be important to pay special attention to the heart and lungs in this patient. The assistant may hear a heart murmur, wheezing lungs, and an abnormally fast heartbeat.

- Set to the Canine Auscultation Trainer to have “continuous murmur.” Once the students hear those sounds, set the trainer to have “wheezing lungs.”

Scenario 2: The assistant should first obtain a heart rate, respiratory rate, and a temperature. It will be important to pay special attention to the heart in this patient. Heart murmur or an arrhythmia are the most common abnormalities the assistant may hear.

- Set the Canine Auscultation Trainer to have “patent ductus arteriosus murmur” and “normal respirations.”

Scenario 3: The assistant should first obtain a heart rate, respiratory rate, and a temperature. It will be important to pay special attention to the gut sounds in this patient. The assistant may hear hyperactive or under-active bowel sounds.

- Set the Canine Auscultation Trainer to have “hyperactive bowels.”

Scenario 4: The assistant should first obtain a heart rate, respiratory rate, and a temperature. It will be important to pay special attention to the lungs in this patient. The assistant may hear crackles, wheezes, faint breath sounds, and increased respiratory effort.

- Set the Canine Auscultation Trainer to have “heavy breathing” or “crackles.”

Name: _____ Class: _____

Lesson Two Quiz

Instructions: Answer all questions by circling the correct choice or filling in the information.

1. Which of the following is the most common use of a stethoscope for veterinary assistants and technicians:
 - a. Taking a heart rate
 - b. Diagnosing pneumonia
 - c. Taking arterial pressures
 - d. Listening for blood pressure
2. True or False: To obtain a heart rate in a dog, the stethoscope should be placed on the right side of the chest, at the level of the elbow.
3. To make taking a heart rate less stressful for veterinary patients, the beats heard should be counted for a period of _____ seconds and then multiplied by _____ to get the bpm.
 - a. 60, 3
 - b. 15, 4
 - c. 30, 4
 - d. 25, 2
4. The smaller the dog, the higher or lower the heart rate. (circle one)
5. An arrhythmia is a/an:
 - a. Irregular pattern of heart beats
 - b. Swishing sound heard when the heart is contracting
 - c. Swishing sound heard when the heart is relaxed
 - d. Absence of heart sounds
6. If a heart murmur is suspected when auscultating the heart, technicians/assistants should:
 - a. Classify the heart murmur by type and record it in the patient medical record
 - b. Grade the intensity of the murmur and record it in the patient medical record

- c. Alert the attending veterinarian that a murmur may be present
 - d. Inform the pet owner of the murmur and refer them to a cardiologist
7. To auscultate a dog's lungs, the stethoscope should be placed:
- a. Over the scapula on the right side of the dog
 - b. Just behind the ribs on both sides of the dog
 - c. Over the third rib on the left side of the dog
 - d. Along the lateral chest wall on both sides of the dog
8. Which of the following is correct regarding the taking of a respiratory rate in a dog:
- a. The number of inhalations should be counted for 15 seconds and then multiplied by 4
 - b. The number of inhalations and exhalations should be counted for 15 seconds and then multiplied by 2
 - c. Every other breath should be counted and multiplied by 3
 - d. Every breath should be counted, including panting, and multiplied by 2
9. How many seconds should you count breaths for during respiratory auscultation?
- a. 12
 - b. 15
 - c. 19
 - d. 21
10. True or False: Bowel sounds cannot be detected with a regular medical stethoscope.

Lesson Two Quiz – Answer Key

Instructions: Answer all questions by circling the correct choice or filling in the information.

1. Which of the following is the most common use of a stethoscope for veterinary assistants and technicians:
 - a. **Taking a heart rate**
 - b. Diagnosing pneumonia
 - c. Taking arterial pressures
 - d. Listening for blood pressure

2. True or **False**: To obtain a heart rate in a dog, the stethoscope should be placed on the right side of the chest, at the level of the elbow.

3. To make taking a heart rate less stressful for veterinary patients, the beats heard should be counted for a period of _____ seconds and then multiplied by _____ to get the bpm.
 - a. 60, 3
 - b. **15, 4**
 - c. 30, 4
 - d. 25, 2

4. The smaller the dog, the **higher** or lower the heart rate. (circle one)

5. An arrhythmia is a/an:
 - a. **Irregular pattern of heart beats**
 - b. Swishing sound heard when the heart is contracting
 - c. Swishing sound heard when the heart is relaxed
 - d. Absence of heart sounds

6. If a heart murmur is suspected when auscultating the heart, technicians/assistants should:
 - a. Classify the heart murmur by type and record it in the patient medical record
 - b. Grade the intensity of the murmur and record it in the patient medical record
 - c. Alert the attending veterinarian that a murmur may be present**
 - d. Inform the pet owner of the murmur and refer them to a cardiologist
7. To auscultate a dog's lungs, the stethoscope should be placed:
 - a. Over the scapula on the right side of the dog
 - b. Just behind the ribs on both sides of the dog
 - c. Over the third rib on the left side of the dog
 - d. Along the lateral chest wall on both sides of the dog**
8. Which of the following is correct regarding the taking of a respiratory rate in a dog:
 - a. The number of inhalations should be counted for 15 seconds and then multiplied by 4**
 - b. The number of inhalations and exhalations should be counted for 15 seconds and then multiplied by 2
 - c. Every other breath should be counted and multiplied by 3
 - d. Every breath should be counted, including panting, and multiplied by 2
9. How many seconds should you count breaths for during respiratory auscultation?
 - a. 12
 - b. 15**
 - c. 19
 - d. 21
10. True or **False**: Bowel sounds cannot be detected with a regular medical stethoscope.

Sources

1. (n.d.). *Stethoscope*. Stethoscope Labeled Diagram Photo. Retrieved September 1, 2023, from <https://pitribe.com/posts/stethoscope-labeled-diagram-photo-74331706591554>.