



# **Artificial Insemination**

## **Level-I**

### **Learning Guide #10**

<b>Unit of Competence</b>	<b>Identify the Reproductive Anatomy and Physiology of Dairy Cattle</b>
<b>Module Title</b>	<b>Identifying the Reproductive Anatomy and Physiology of Dairy Cattle</b>
<b>LG Code:</b>	<b>AGR ATI1 M03 0919 LO1-LG-10</b>
<b>TTLM Code:</b>	<b>AGR ATI1 M03TTLM 0919 v1</b>

**LO 01: Describe reference planes and directional terms of animal body**



<b>Instruction Sheet</b>	<b>Learning Guide # 10</b>
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This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- ✓ Identifying body planes of References
- ✓ Using appropriate directional terms of body parts description
- ✓ Using Equipment's and materials to demonstrate different locations of organs

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- ✓ Identify body planes of References
- ✓ Use appropriate directional terms of body parts description
- ✓ Use Equipment's and materials to demonstrate different locations of organs

#### **Learning Instructions:**

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information "Sheet 1, Sheet 2 and Sheet 3,
4. Accomplish the "Self-check 1, Self-check 2 and Self-check 3" **in page -3, 6, 8**, respectively.
5. If you earned a satisfactory evaluation from the "Self-check" proceed to "Operation Sheet 1," **in page -9.**
6. Do the "LAP test" **in page – 10** (if you are ready)



## Information Sheet-1

## Identifying body planes of References

### 1.1. Definition of anatomy and physiology

**ANATOMY:** is a branch of science that deals with form and structure of tissues, organs that composes the body and the relation of its part. Literally the word anatomy comes from Greek word *ana-* apart and *tomy-*cut, hence means to cut apart.

**PHYSIOLOGY:** comes from Greek word *physis* nature and *logy-*study, so it is the study of nature or normal functioning of the body and its constituents.

In the study of any field of science it is necessary to understand the language, or specialized terminology that is used. This is especially true in anatomy, where terms of direction, position, and movement are used to describe both the position of organs in relation to one another and the actions of muscles. In veterinary medicine, anatomical terminology varies significantly from that of human medicine because we are concerned with quadruped animals (animals with four legs) rather than biped humans.

### 1.2. Identifying body planes of References

#### Planes of reference

- ❖ **Dorsal plane:** Divides the body dorsally and ventrally, not necessarily in equal divisions
- ❖ **Median plane:** Divides the body into left and right halves, equally.
- ❖ **Paramedian plane:** Parallel to the median plane and also divides the body into left and right parts, but not equally.
- ❖ **Sagittal plane:** The same as a paramedian plane.
- ❖ A *midsagittal plane* is the same as the median plane.
- ❖ **Transverse plane:** Divides the body cranially and caudally, not necessarily in equal divisions. It also divides the leg into upper and lower parts, not necessarily in equal divisions.

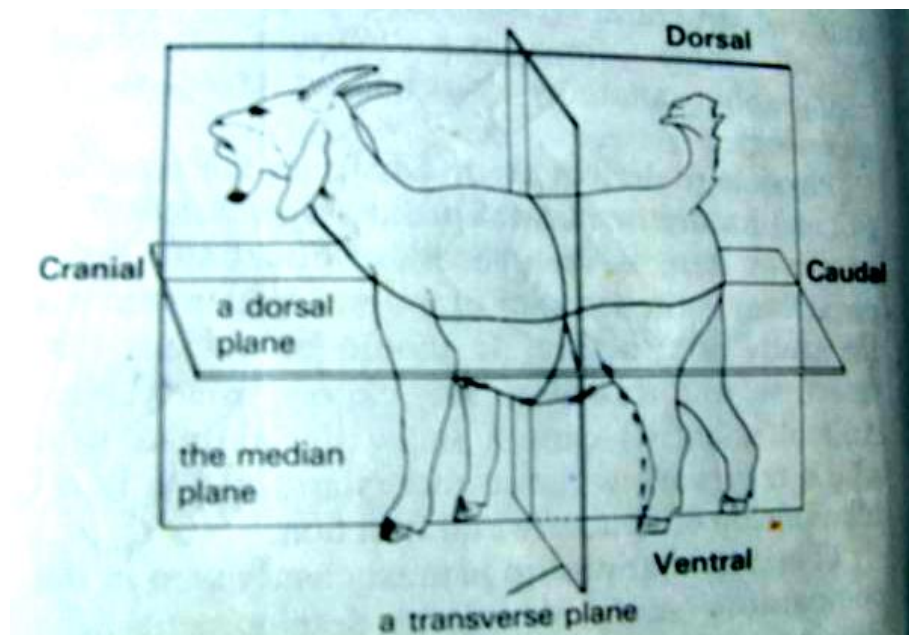


Fig1- for planes of body

### 1.3. Body Cavities

A medial view of the body shows two cavities; dorsal and ventral cavities.

- ❖ **Dorsal Cavity-** contains the brain and spinal cord.
- ❖ **Ventral Cavity-** Containing most of the viscera (soft structures) of the body. It is subdivided by the diaphragm into the thoracic cavity cranially and the abdomino-pelvic cavity (contains the abdominal and pelvic cavities) caudally.
- **The thoracic cavity-**contains the pericardial sac, which surrounds the heart, and two pleural sacs, which surround the two lungs. These sacs are formed by serous membranes.
- **The abdominal Cavity-** contains the kidneys, most of the digestive organs, and a variable amount of the internal reproductive organs in both sexes.
- **The pelvic Cavity-** Contains the terminal part of the digestive system (rectum) and all of the internal portions of the uro-genital system not found in the abdominal cavity. The serous membrane that surrounds the abdominal viscera and part of the pelvic viscera is called peritoneum.



Self-Check -1	Written Test
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define Anatomy and physiology. (4 points)
2. Describe body planes of animals. (4 points)

**Note: Satisfactory rating – 5 points**

**Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

### Answer Sheet

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions



Information sheet 2	Using appropriate directional terms of body parts description
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## 2.1. Directional Terms

- ❖ **Adjacent:** Next to, adjoining, or close to. For example, the tongue is adjacent to the teeth.
- ❖ **Cranial:** Pertaining to the **cranium** or head end of the body or denoting a position more toward the cranium or head end of the body than some other reference point (body part). For example, the head is cranial to the tail. **Craniad** or **cranially** means in the direction of the cranium or head end of the body.
- ❖ **Caudal:** Pertaining to the tail end of the body or denoting a position more toward the tail or rear of the body than some other reference point (body part). For example, the tail is caudal to the head. **Caudad** or **caudally** means in the direction of the caudal or tail end of the body (Figure 1.1).
- ❖ **Cephalic:** Pertaining to the head. This term is not used as frequently in veterinary medicine as *cranial*. For example, the top of the head is cephalic to the neck.
- ❖ **Rostral:** Pertaining to the nose end of the head or toward the nose. For example, the nose is rostral to the eyes.
- ❖ **dorsal:** Pertaining to the back area of the quadruped or denoting a position more toward the back (upward) than some other reference point (body part). For example, the backbone is dorsal to the belly. **Dorsum** is a noun that refers to the back area of the body.
- ❖ **ventral:** Pertaining to the belly or underside of a quadruped or denoting a position more toward the belly (downward) than some other reference point (body part). For example, the kidneys are ventral the backbone. **Ventrum** is a noun that refers to the belly area of the body.
- ❖ **Lateral:** Denoting a position farther away from the *median plane* of the body or of a structure, on the side or toward the side away from the median plane, or pertaining to the side of the body or of a structure. For example, the lateral surface of the leg is the outside surface.
- ❖ **Medial:** Denoting a position closer to the median plane of the body or of a structure, toward the middle or median plane, or pertaining to the middle or a position closer to the median plane of the body or of a structure. For example, the medial surface of the leg is the inside surface.
- ❖ **Oblique:** At an angle or pertaining to an angle. For example, the vein crossed obliquely from the upper left side down to the lower right side.



- ❖ **Superficial:** Near the surface; not deep. For example, the skin is superficial to the underlying muscle.
- ❖ **Proximal** □ means relatively close to a given part, usually the vertebral column, body, or center of gravity. Proximal is generally used in reference to an extremity or limb. The carpus or knee is proximal to the foot.
- ❖ **Distal** □ means farther from the vertebral column, and like proximal, it is generally used in reference to portions of an extremity. The hoof is distal to the carpus or knee.



<b>Self-Check -2</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Describe the difference between Dorsal and Ventral. (2 points)
2. Define the term Distal. (2 points)

**Note: Satisfactory rating – 3 points**

**Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**





<b>Information sheet 3</b>	<b>Using Equipment's and materials to demonstrate different locations of organs</b>
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### **3. Using Equipment's and materials to demonstrate different locations of organs**

Different Materials, equipment and Models including charts are considered to represent the body planes of the animals in laboratory and different demonstration sites. Before attempting any of the service or maintenance tasks, the machine or component should be cleaned. Dirt and dust particles are one of the major causes of wear and break down in the equipment in the work site. The importance of keeping every particle of dirt and dust out of machinery components when caring out servicing, maintenance or repairs cannot be over emphasized. Dirt or dust between any moving parts will cause that component to wear much quicker than it would otherwise. The best way to stop dust becoming a problem during service or maintenance is to remove it before any parts have removed or dismantled.

In general different materials, equipment and models are used in demonstration area. Among that few of them are Animal Models, Pictures, Charts, Animal skeleton, Visceral organs, Muscles tissues and Physical restraining materials

Refrigerator and bottles are used to keep the visceral organs of the animals and to avoid rapid Decomposition. To avoid the contact of the body with different disease causing organisms and transmission of disease different types of PPE like Apron, Glove, Gown, Boot and Overall are highly recommended for safety.

#### **Cleaning Materials**

Cleaning methods will vary with the machine or part being maintained or repaired. After operating, the machine, equipment or component should be cleaned. Dirt and dust particles are one of the major causes of breakdown in any machine. The importance of keeping every particle of dirt and dust out of machinery and equipment when carrying out servicing, maintenance or repairs can not be overemphasized.



## Self-Check -3

## Written Test

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List some of the equipment and tools used in demonstrating Planes of references.  
(3points)

**Note: Satisfactory rating - 3 points**

**Unsatisfactory - below 3 points**

### Answer Sheet

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions



## Operation Sheet 1

## Demonstrating Body planes of the animals

### Method of Demonstrating Body planes of the animals

#### Required Materials

- Full equipped demonstration room
- Models and charts to demonstrate the task.

Step 1 Identify the equipment, tools and models to demonstrate the body planes

Step 2 show the use of each and ever materials

Step 3 clearly matches the body planes with available tools and materials.

Step 4 finally summarize the steps and return backs all the materials after completion of task.

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LAP Test	Practical Demonstration
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Name: \_\_\_\_\_ Date: \_\_\_\_\_

Time started: \_\_\_\_\_ Time finished: \_\_\_\_\_

**Instructions:** Given necessary templates, tools and materials you are required to perform the following tasks within 2 hours.

**Task 1. Identify the materials used in demonstration of Body planes of cattle and clearly determine it**



## References

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