

# Skeletal Structure

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## Goal (learning objective)

Youth will learn about livestock skeletal structures in beef, sheep, goat, and swine. In addition, learn about the similarities and differences between livestock and human skeletons.

## Supplies

- The skeletal parts poster in the Ohio Learning Lab Kit (either specific species or all species). Check with your local extension office on the availability of the kit and to check it out.
- Photocopies of the following handouts (enough for group):
  - Handout 1 “Human Skeleton”
  - Handout 2 “Beef Skeletal System”
  - Handout 3 “Sheep Skeletal System”
  - Handout 4 “Goat Skeletal System”
  - Handout 5 “Swine Skeletal System”
- Pens (enough for group)
- Paper (enough for group)

## Pre-lesson preparation

- Make copies of Handouts 1,2,3,4,and 5 assemble into a packet; one for each member
- Read/Review lesson
- Review the handouts and skeletal terminology

## Lesson directions and outline

Share the following information with the youth:

To be successful in raising and selecting livestock, you should know the various parts of your animal and the location of those parts on their body. This will help you know what to look for and accurately describe what you see. While it is not emphasized

as greatly as it is with breeding animals, structural correctness is an important selection criterion when selecting and evaluating market animals.

As a producer, good animal husbandry requires an understanding of many different sciences ranging from nutrition, economics, genetics and veterinary science. Every action you take as a livestock producer will reflect on the quality of the livestock products and the industry.

## Conducting the activity (DO)

1. Ask for a volunteer to distribute the handout packet.
2. Have youth break up into groups of 4 (ideally with one member from each species on each team).
3. Have the groups review the packet, the challenge for the groups is to identify, per species the similar bones shared with humans. Also have the groups record any different bones.
4. After groups have finished have groups share their findings.

## What did we learn? (REFLECT)

- Ask: Are there bones similar amongst all the species?
- Ask: Are your bones similar in size to your project animal?
- Ask: How many bones are in a beef (207), goat (189), sheep (110), pig (216), human (206) skeleton?

## Why is that important? (Apply)

- Ask: Why is it important to understanding the relationship of bones and their functions?
- Ask: How does this information help if your animal is injured?
- Ask: What is a body function that you can see but need to understand in animals? (Digestion)
- Ask: What over processes occur that you don't see but understanding is helpful? (Gas in a Car, Oil in an engine, yeast in bread, protein in wheat, gluten in wheat)

## Resources

Ohio State University Extension. (2011). Selection. Beef resource handbook (pages 2-2 through 2-15 and 12-5).

Ohio State University Extension. (2008). Choosing an Animal. Goat resource handbook (pages 17-30).

Ohio State University Extension. (2011). Selection: The First Step. Sheep resource handbook for market and breeding projects (pages 9-19).

Ohio State University Extension. (2000). Your Ver First Step - Selection. Swine resource handbook for market and breeding projects (page 3-1 through 3-15).

SELECTION: SKELETAL STRUCTURE – HANDOUT 1

HUMAN SKELETON

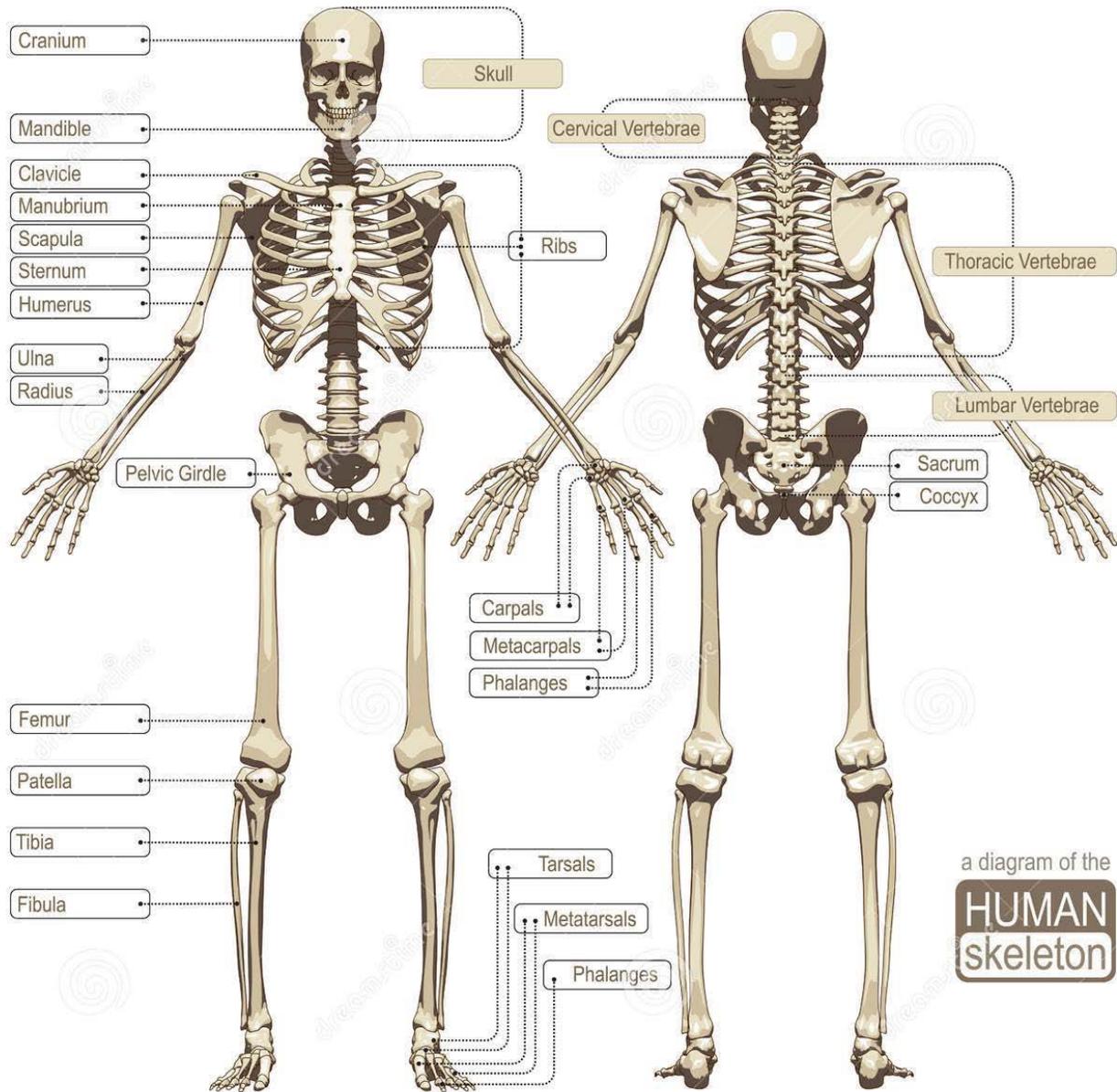


Image from: <https://thumbs.dreamstime.com/z/diagram-human-skeleton-titled-main-parts-skeletal-system-vector-illustration-47476531.jpg>

SELECTION: SKELETAL STRUCTURE – HANDOUT 2

BOVINE SKELETAL SYSTEM

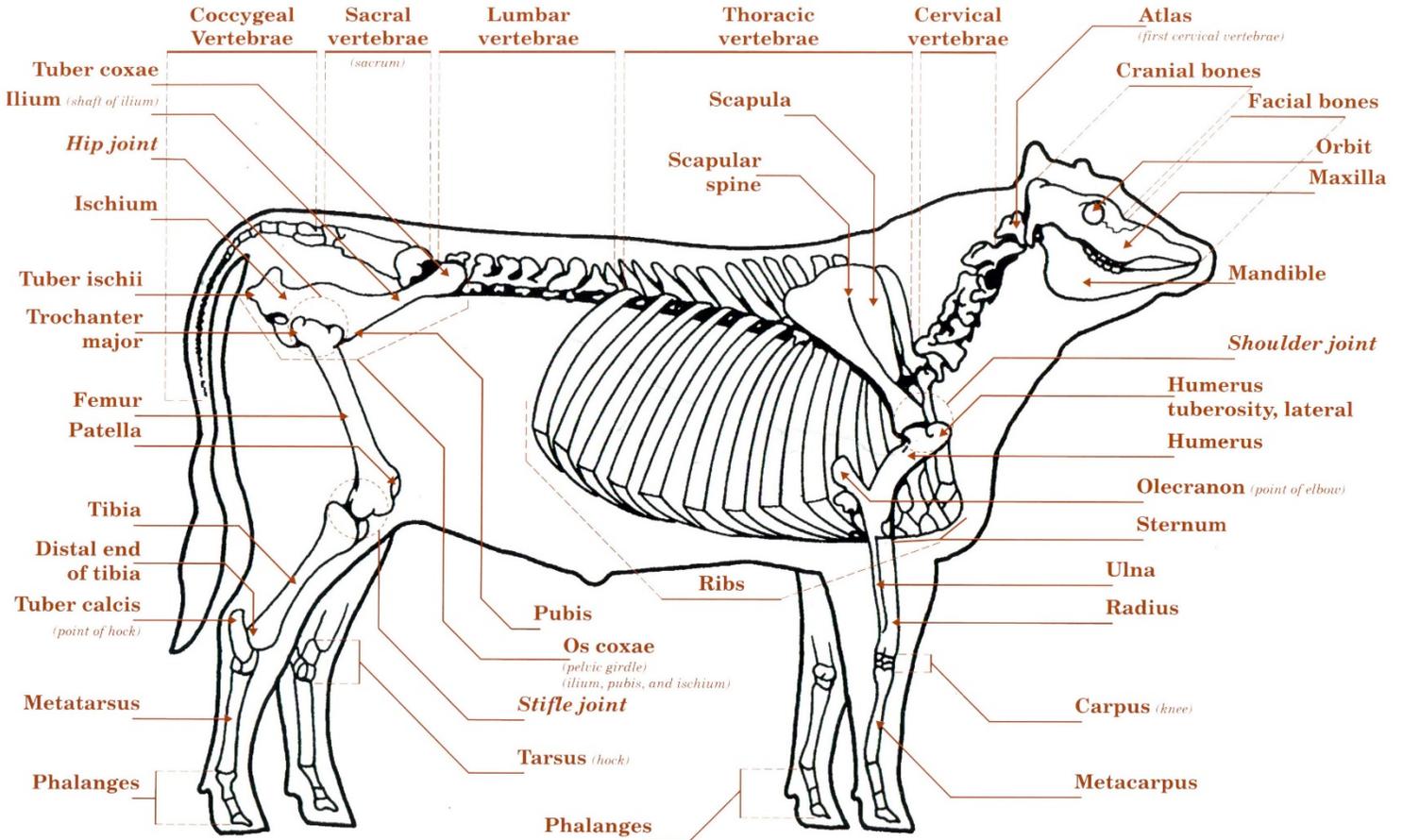


Image from: Beef Resource Handbook, page 2-3

SELECTION: SKELETAL STRUCTURE – HANDOUT 3

SHEEP SKELETAL SYSTEM

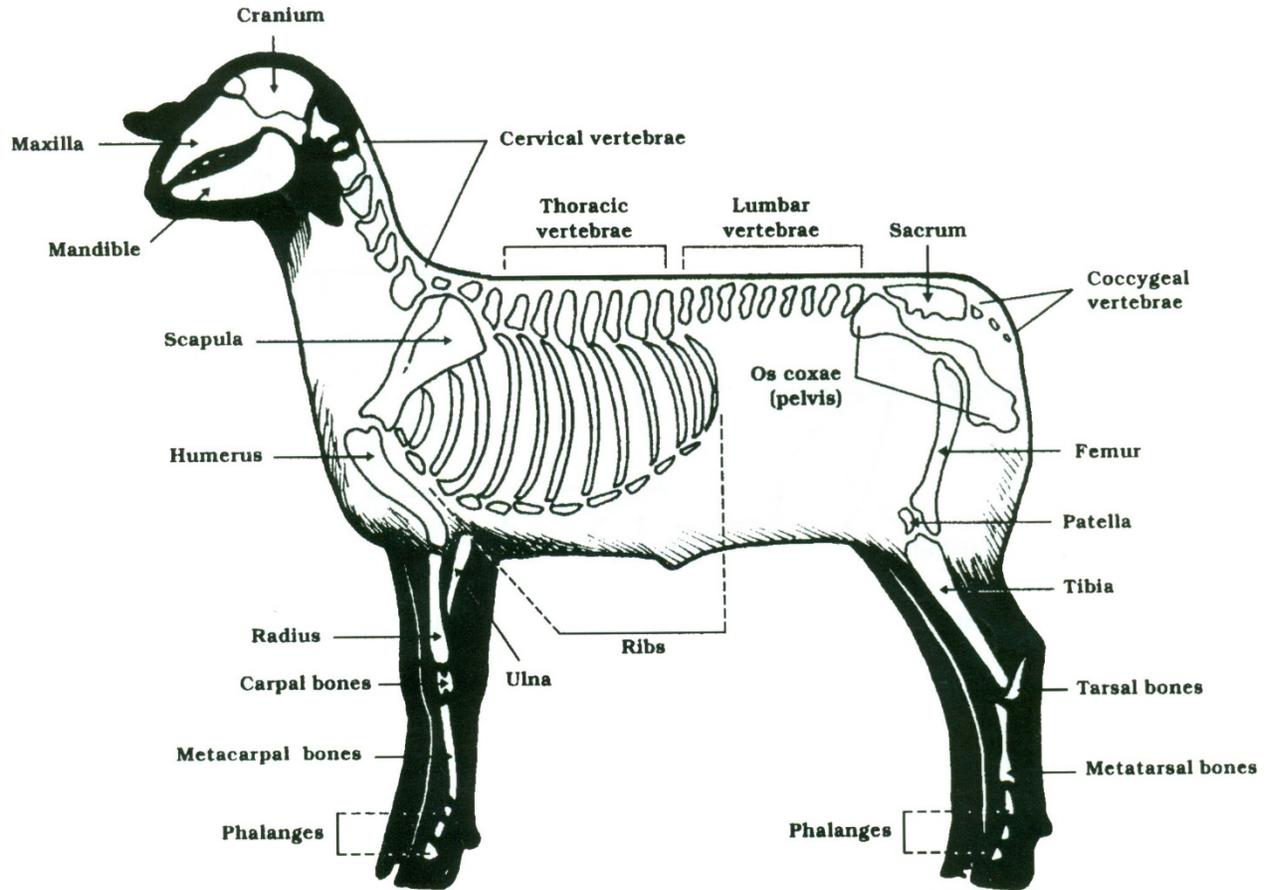
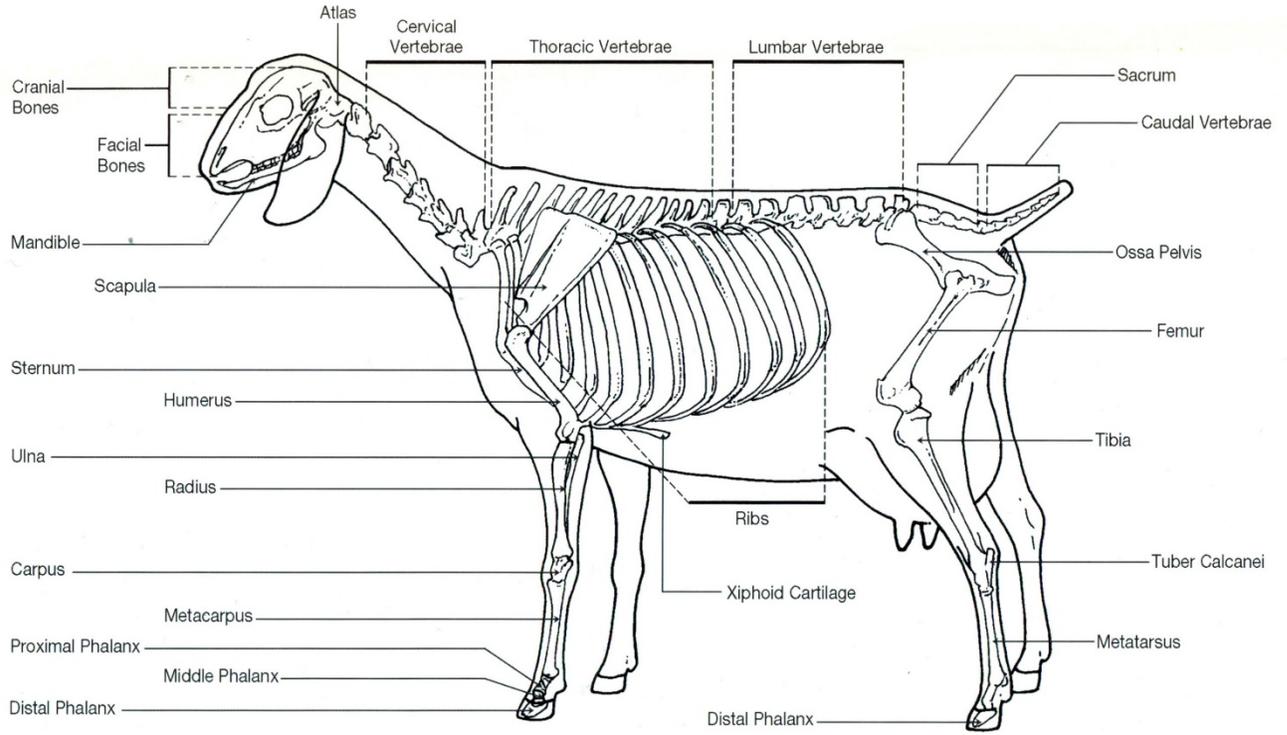


Image from: *Sheep Resource Handbook for Market and Breeding Projects*, page 12

**SELECTION: SKELETAL STRUCTURE – HANDOUT 4**

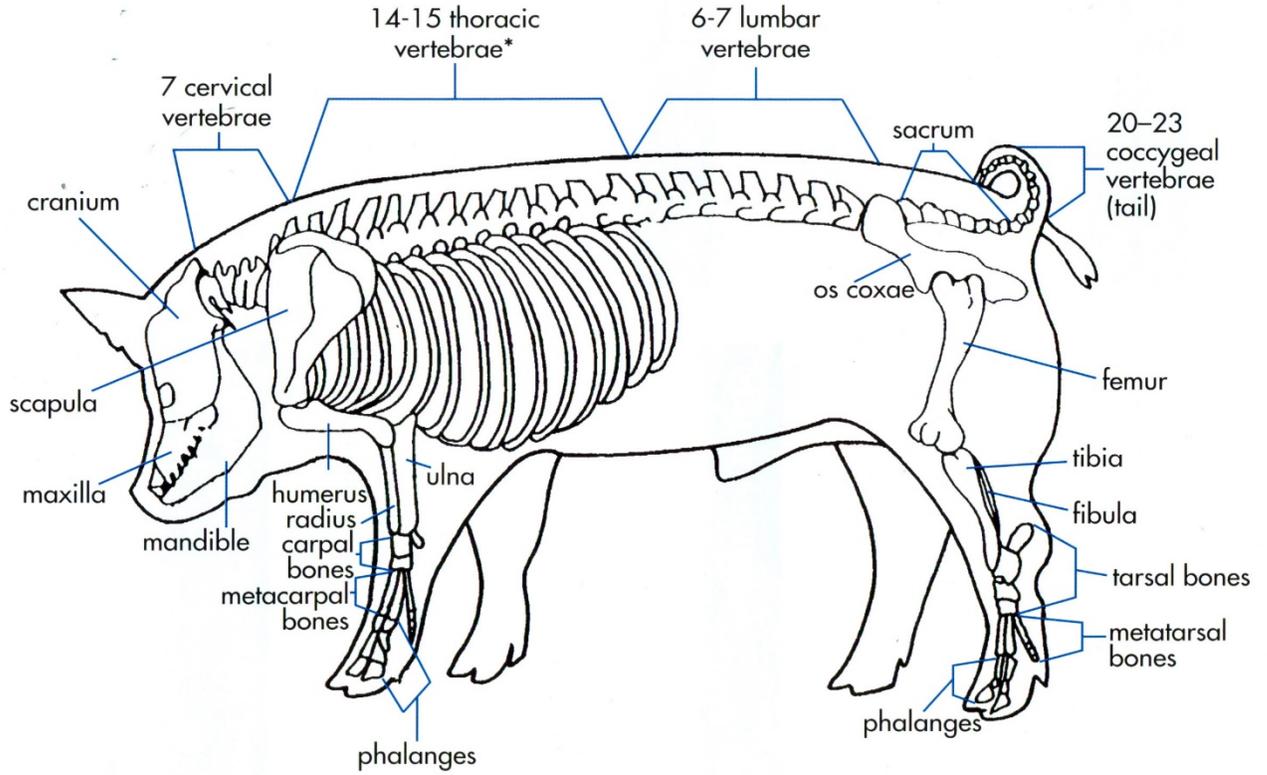
**GOAT SKELETAL SYSTEM**



*Image from: Goat Resource Handbook, page 23*

SELECTION: SKELETAL STRUCTURE – HANDOUT 5

SWINE SKELETAL SYSTEM



\*Some pigs may have up to 17 thoracic vertebrae.