Comparative Skeletal Systems & External Anatomy of Livestock and Poultry

**Skeleton**

**Bone** – Hard Tissue, mostly calcium, provides support and makes Red Blood Cells

**Cartilage** – Shiny, white, hard tissue, found at end of long bones and prevents bones from grinding against each other

**Ligament** – Strong, white bands of tissue that connect two bones together at a joint

**Marrow** – Soft tissue filling the spongy interiors of bones

**Tendon** – Shiny, white bands of tissue that connect muscles to bone

**More Skeleton**

- Framework of Hard Tissue
- Gives Support
- Protects Soft Tissue
- Serves as Levers in Movement

**Bones**

Number of Bones Varies with Age and Species

Bones May be described as.

- Long
- Flat
- Short
- Irregular

**Bone Structure**

- Compact
- Contains Vessels, Nerves and Marrow
- Can Repair Itself
Organic Material Gives Elasticity
Inorganic Matter Gives Rigidity

**Axial Skeleton**

**Skull**
- Nasal Cavity
- Mandible
- Sinuses
- Temporal bone
- Turbinate (cartilaginous bone) ex: Nose

**Spinal Column- Vertebrae**
- Protects Spinal Cord
- Contains:
  - Cervical or Neck Area
  - Involved with Head and Neck Movement
  - Most flexible part of the Axial Skeleton

**Spinal Column**
**Vertebrae**

**Thoracic Area- “Shoulders”**
- Upper Wall of Chest Cavity
- Ribs are Attached
- Peaks at Summit of Wither
- Limited Movement and Flexibility

**Lumbar group- “Lower Back”**
- Usually includes vertebra
- Framework for loin area
- More flexibility than thoracic but less than cervical

**Sacral Group- “Rump”**
- Several Vertebrae fused into one bone- Sacrum
- Highest point of the group
- Connected by a firm joint with the hip (pelvis) bones on each side of sacrum
Coccygeal- “Tail”
- 15-20 Vertebrae
- Essentially no Spinal Cord

**Appendicular Skeleton**
- Locomotion
- Eating
- Defense
- Connected to Axial Skeleton by Muscles &/or Bony Joints
  - Contains:

**Foreleg**
- Scapula- Shoulder Blade
- Humerus
- Radius and Ulna
  - Fused Together
  - Connected with Humerus to Make Elbow Joint
- Carpal Bones- the knee bones
  - Absorbs and Dissipates Concussive Actions
- Metacarpal Bones
- Phalanges
- Sesamoids
- Distal or Navicular Bones

**Hind Leg**
- Femur- thigh bone
- Patella- bone in front of stifle joint
- Tibia & Fibula
  - Contains Tarsus- “Hock”
- Metatarsus
- Phalanges
- Sesamoids
Parts of a Horse
Parts of a Horse Skeleton

1. Skull
2. Orbit (eye)
3. Forehead
4. Poll (nuchal crest)
5. Mandible (lower jaw)
6. Cervical vertebrae (neck region)
7. Atlas (C1)
8. Axis (C2)
9. Thoracic vertebrae (chest region)
10. Lumbar vertebrae (loin region)
11. Sacral vertebrae (crewp region)
12. Caudal vertebrae (tail)
13. Sternum (xiphoid cartilage)
14. Ribs
15. Costal arch
16. Scapula (shoulders withers region)
17. Humerus (arm)
18. Radius (forearm)
19. Ulna (knee)
20. Carpus (knee)
21. III metacarpal (cannon bone)
22. IV metatarsal (splint)
23. Proximal sesamoids (feetlock region)
24. Proximal phalanx
25. Intermediate phalanx (pattren region)
26. Distal phalanx (hoof region)
27. Distal sesamoid (navicular bone)
28. Pelvis (rump region)
29. Femur (thigh region)
30. Patella (stifle region)
31. Tibia
32. Fibula (gaskin region)
33. Tarsus (hock region)
34. Fibular tarsal (point of the hock)
35. III metatarsal
Parts of a Beef Animal
Parts of a Dairy Cow
Parts of a Bovine Skeleton

VERTEBRAL COLUMN

SKULL

VERTEBRAE (neck)

VERTEBRAE (spinal)

ILIUM AND ISCHIUM (pelvic or hip bone)

FEMUR

TIBIA

METATARSUS

SCAPULA (shoulder blade)

HUMERUS (arm)

STERNUM

RADIUS (fore arm)

METACARPUS (cannon bone)

PHALANGES (pastern and foot bones)

RIBS (stifle)

(bones of the hock)

(bones of the knee)

AXIAL — vertebral column, ribs, sternum, skull
APPENDICULAR — bones of the limbs
SPLANCHNIC — bones of the soft organs
Parts of a Hog
Parts of a Hog Skeleton

VERTEBRAE

COCYGEAL (20-23) SACRAL (4) LUMBAR (6) THORACIC (14-15) CERVICAL (7)

FEMUR
FIBULA
TIBIA
TARSUS
METATARSUS
PHALANGES

SCAPULA
HUMERUS
RADIUS
ULNA
CARPUS
METACARPUS
Parts of a Chicken

- Beak
- Wattle
- Neck
- Breast
- Wing
- Thigh
- Toes
- Webb
- Foot
- Comb
- Head
- Eye
- Ear
- Ear lobe
- Cape
- Back
- Tail
- Hock
- Shank
Parts of a Chicken Skeleton

1. Premaxilla
2. Nasal bone
3. Mandible
4. Orbit
5. Frontal
6. Parietal
7. Temporal
8. Tympanic cavity
9. Atlas
10. Axis
11. Cervical vertebrae
12. Transverse process
13. Clavicle (Furcula)
14. Coracoid
15. Scapula
16. Humerus
17. Radius
18. Ulna
19. Radial carpal
20. Ulnar carpal
21. III carpometacarpal
22. Proximal phalanges
23. Intermediate phalanx II digit
24. Distal phalanges
25. Thoracic vertebrae
26. Sacral vertebrae (synsacrum)
27. Caudal vertebrae
28. Pygostyle (urostyle)
29. Ilium
30. Ischium
31. Pubis
32. Atrial (floating) ribs
33. Vertebral rib
34. Sterna
35. Uncinate process
36. Femur
37. Patella
38. Lateral external (oblique) process
39. Posterior lateral (xiphoid) process
40. Sternum
41. Anterior lateral (costal) process
42. Keel
43. Fibula
44. Tibia
45. Hypotarsal sesamoid
46. Hypotarsal ridge
47. Tarsometatarsals (I, II, III)
48. Proximal phalanx
49. Second phalanx
50. Third phalanx
51. Fourth phalanx
52. Distal phalanx

Skeleton of the chicken.