Sustainable Resources 11

Poultry Unit:
Chicken Anatomy

The Chicken

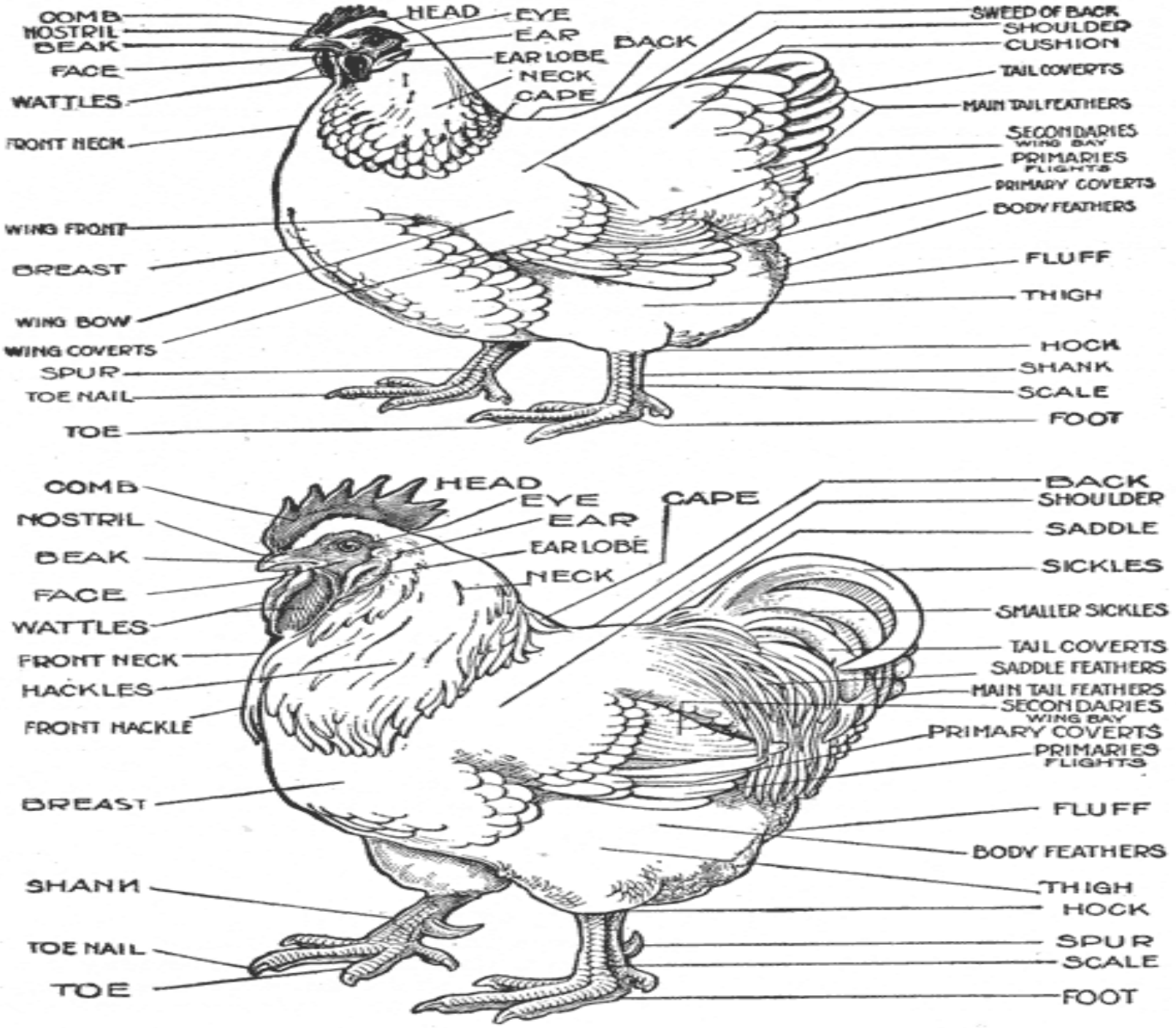
- **Birds**: Class AVES are winged, bipedal, endothermic (warm-blooded), egg-laying, vertebrates.
- **Chicken**: *Gallus gallus* are a domesticated fowl. They are the most wide spread and they make up the largest population of bird on Earth.

Determining the Sex

Roosters or Cocks (male) :

- striking plumage of long flowing tails and shiny
- pointed feathers on their necks (*hackles*) and backs (*saddle*) which are typically of brighter, bolder colors than those of females of the same species.
- Males are identified by the comb on their head or the development of spurs on the their legs.
- Vent sexing occurs at an early age. (checking their parts)

Hen (Female)

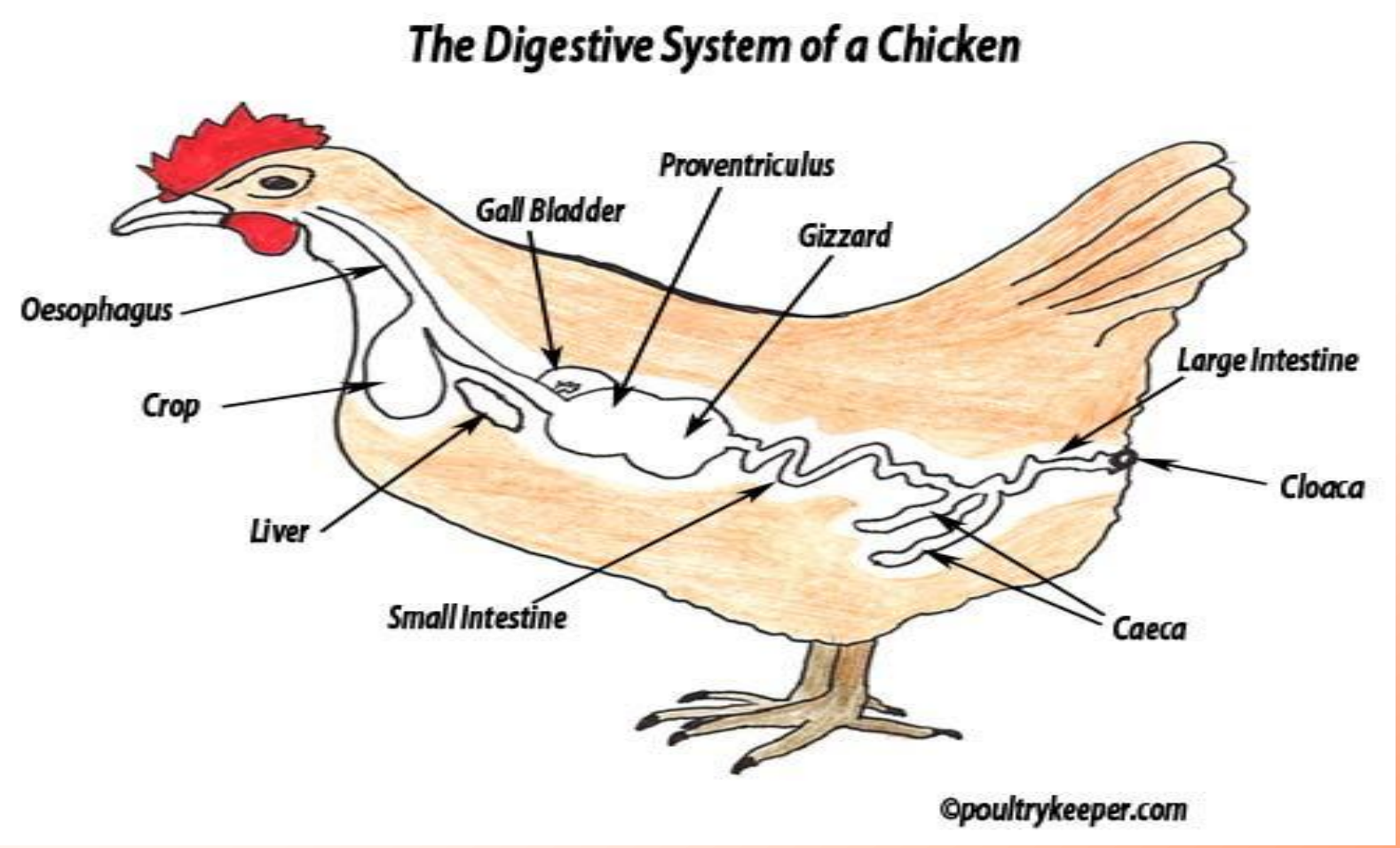

COMB
NOSTRIL
BEAK
FACE
WATTLES
FRONT NECK
WING FRONT
BREAST
WING BOW
WING COVERTS
SPUR
TOE NAIL
TOE
HEAD
EYE
EAR
EAR LOBE
NECK
CAPE
BACK
SWEED OF BACK
SHOULDER
CUSHION
TAIL COVERTS
MAIN TAIL FEATHERS
SECONDARIES
WING BAY
PRIMARIES
FLIGHTS
PRIMARY COVERTS
BODY FEATHERS
FLUFF
THIGH
HOCK
SHANK
SCALE
FOOT
COMB
NOSTRIL
BEAK
FACE
WATTLES
FRONT NECK
HACKLES
FRONT HACKLE
BREAST
SHANK
TOE NAIL
TOE
HEAD
EYE
EAR
EAR LOBE
NECK
CAPE
BACK
SHOULDER
SADDLE
SICKLES
SMALLER SICKLES
TAIL COVERTS
SADDLE FEATHERS
MAIN TAIL FEATHERS
SECONDARIES
WING BAY
PRIMARY COVERTS
PRIMARIES
FLIGHTS
FLUFF
BODY FEATHERS
THIGH
HOCK
SPUR
SCALE
FOOT

Chicken Anatomy

Chickens like all birds have specialized organ systems. We will cover the following systems:

- Digestive system
- Reproductive system
- Skeletal system

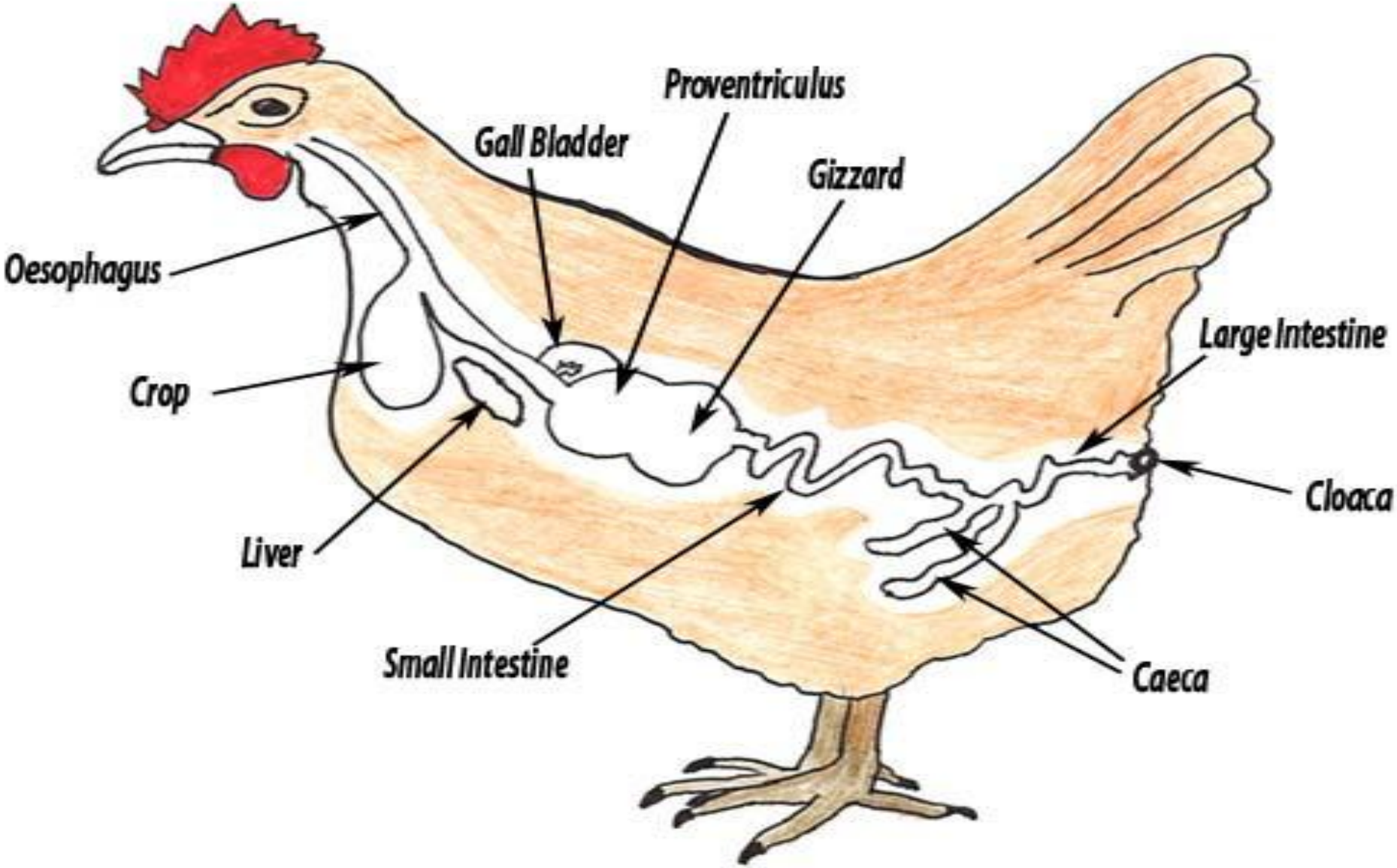
Digestive system



Chemical and Mechanical Digestion

- Chickens do not have teeth.
- Digestion begins in the **beak** where saliva moistens the food and adds a starch-reducing enzyme. (chemical)
- Food moves down the **esophagus** to the **crop** where it is stored.
- Food then moves down the **esophagus** to the **proventriculus**. Food is mixed with acids and digestive enzymes. The proventriculus is a muscular glandular sac. (chemical)
- Food then moves to the **gizzard** which is a strong muscle that contracts. The **gizzard** contains rocks/gravel/stones that assist in the grinding of the food. (mechanical)

The Digestive System of a Chicken



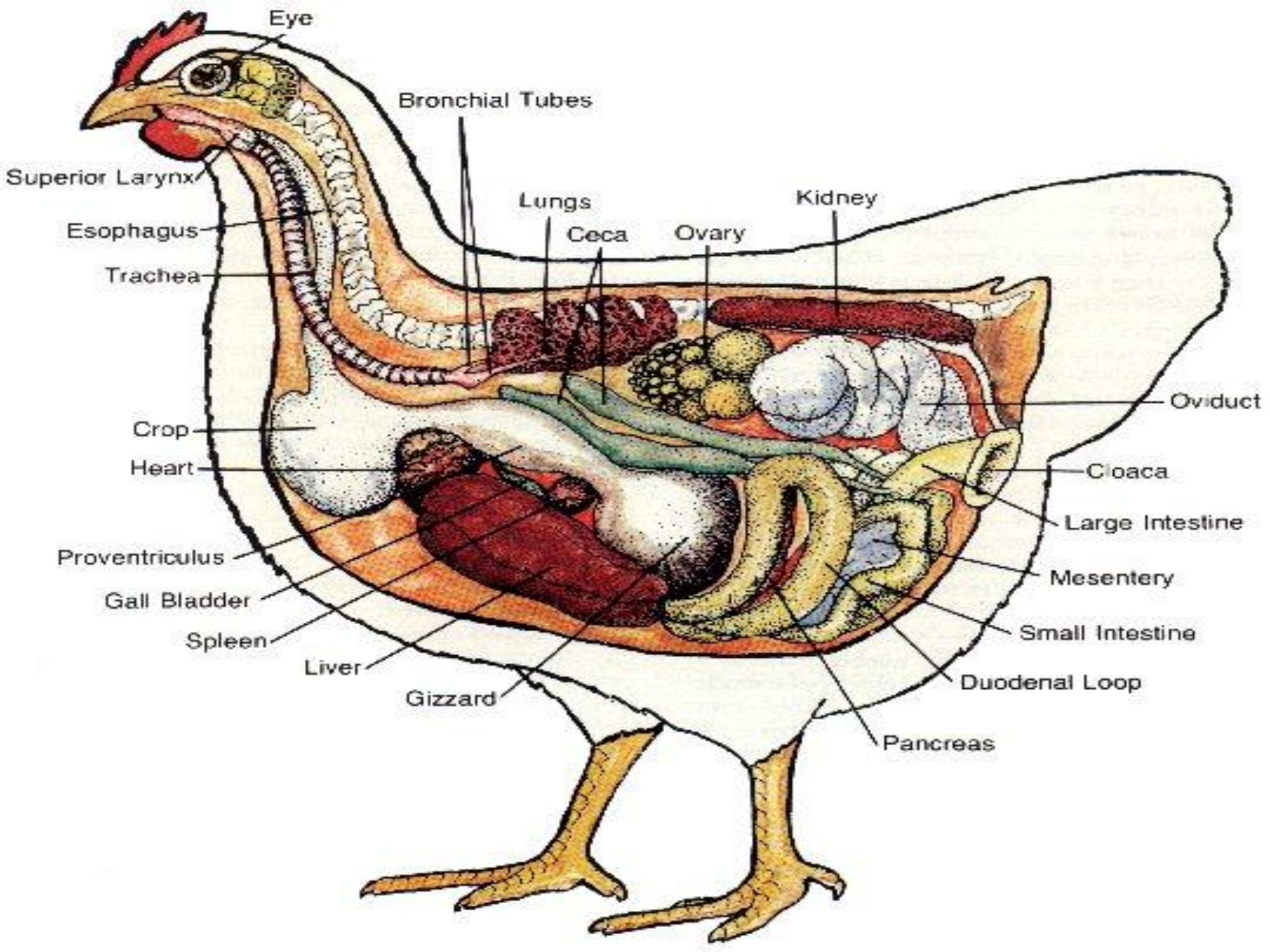
Digestion and Absorption

- Food is further digested chemically in the small intestine by enzymes secreted by the pancreas. Here proteins are broken down. **Bile** is added to the small intestine to aid in fat digestion. (digestion and absorption)

- The **caeca** are a pair of tubes that allow fermentation of undigested food to take place. This looks like a dark mustard colour froth that is expelled once a day.

- The **large intestine** is short in chickens. This is where a chicken absorbs most of its water as well as a few remaining nutrients. (absorption)

- The **cloaca**, also commonly called the **vent** is where faeces, urine and eggs pass through. (excretion)

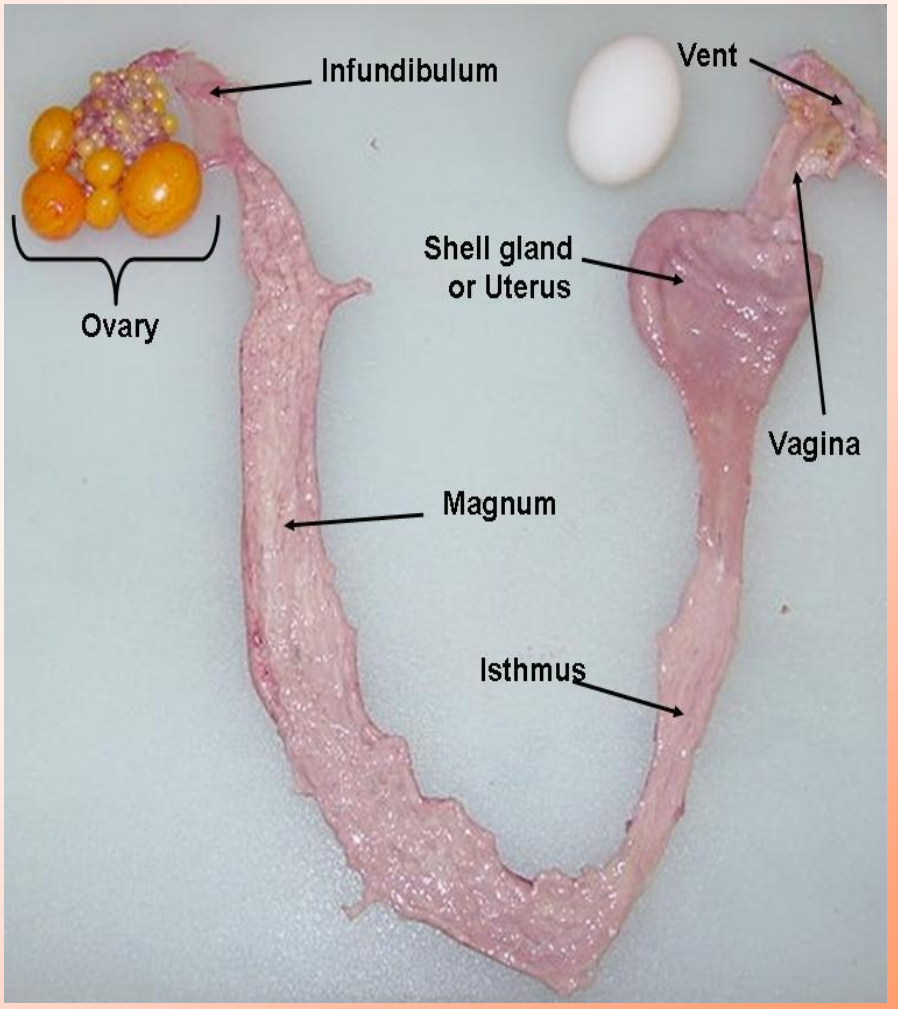

Eye
Bronchial Tubes
Superior Larynx
Esophagus
Trachea
Lungs
Ceca
Ovary
Kidney
Oviduct
Crop
Heart
Cloaca
Large Intestine
Proventriculus
Mesentery
Gall Bladder
Small Intestine
Spleen
Liver
Duodenal Loop
Gizzard
Pancreas

Reproductive System

- Male and female birds have a cloaca, an opening through which eggs, sperm, and wastes pass.
- Intercourse is performed by pressing the lips of the cloacae together, which is sometimes known as the "*cloacal kiss*", during which time the male transfers his sperm to the female in seconds.

The Female Reproductive System

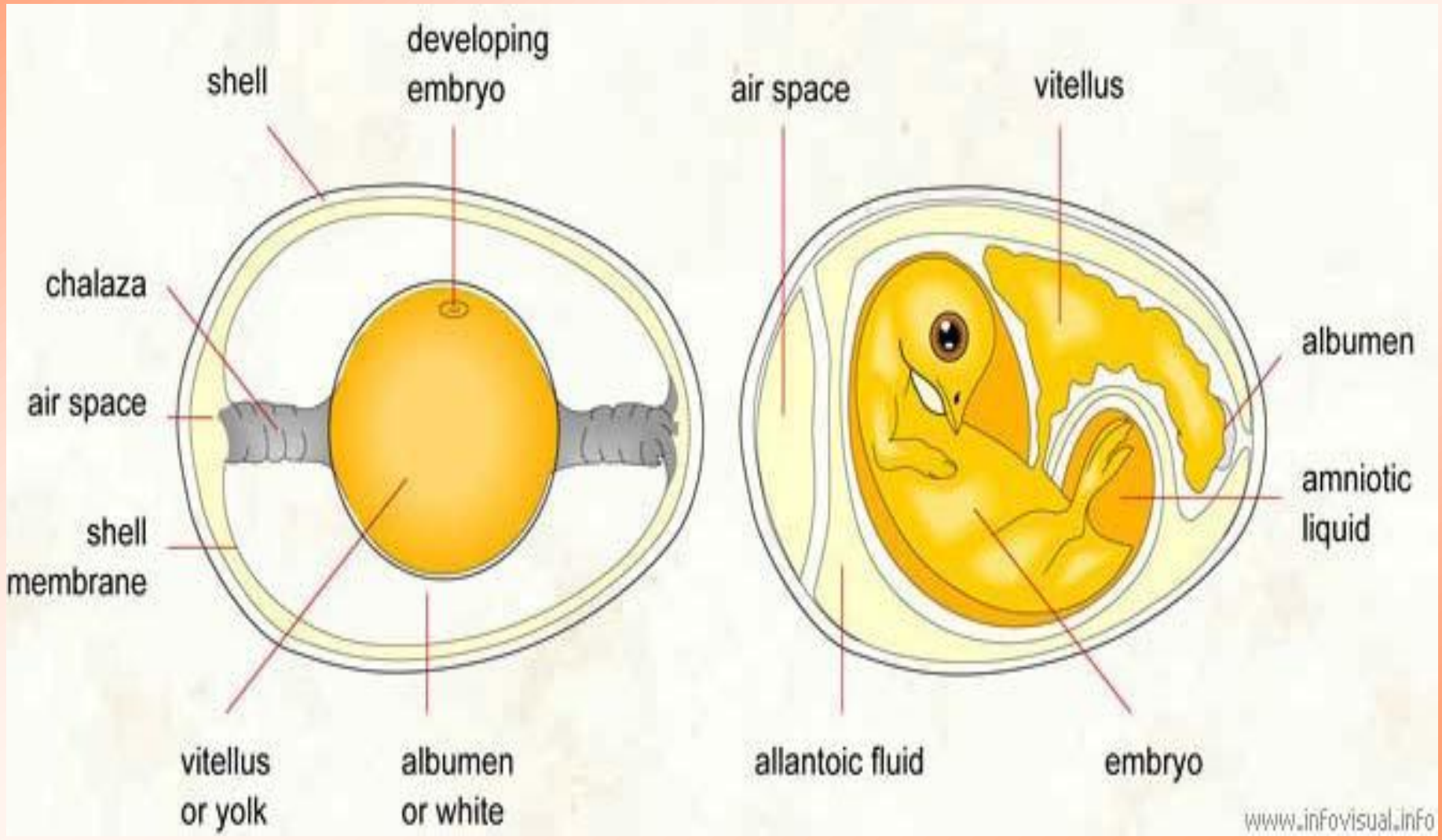
- The **ovary**: only the left ovary is functioning in chickens.
- The Ovary is a cluster of ova (eggs).
- Ovulation occurs and the egg enters the **oviduct**.



The Oviduct

- The oviduct is long and made up of many parts. Here are some important locations along the oviduct:
- INFUNDIBULUM: where fertilization occurs
- MAGNUM: where the albumin develops
- ISTHMUS: where the shell membrane develops
- UTERUS: the shell is developed here

THE EGG!!


shell
developing embryo
chalaza
air space
shell membrane
vitellus or yolk
albumen or white
air space
vitellus
albumen
amniotic liquid
allantoic fluid
embryo
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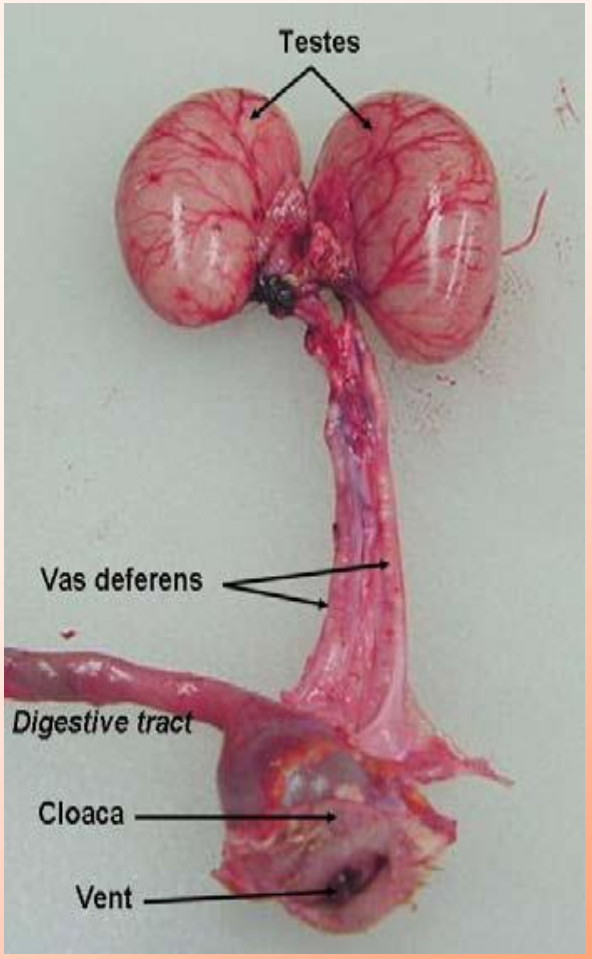
Did You Know?

The females reproductive system is sensitive to light exposure, especially the number of hours of light in a day. The release of the next ova typically occurs 30-75 minutes after the previous egg has been laid. If the eggs was laid too late in the day the next ovulation will wait till the next day and the hen will have a day when she doesn’t lay an egg.

THE MALE Reproductive System

Roosters have a pair of **testicles** located inside the body.



Did You Know?

Near the junction of the vagina and the shell gland, there are deep glands known as **sperm host glands**. They get their name from that fact that they can store sperm for long periods of time (10 days to 2 weeks). When an egg is laid, some of these sperm can be squeezed out of the glands into the oviduct so that they can migrate farther up the oviduct to fertilize an egg. This is one of the really remarkable things about birds;

the sperm remain viable at body temperature.

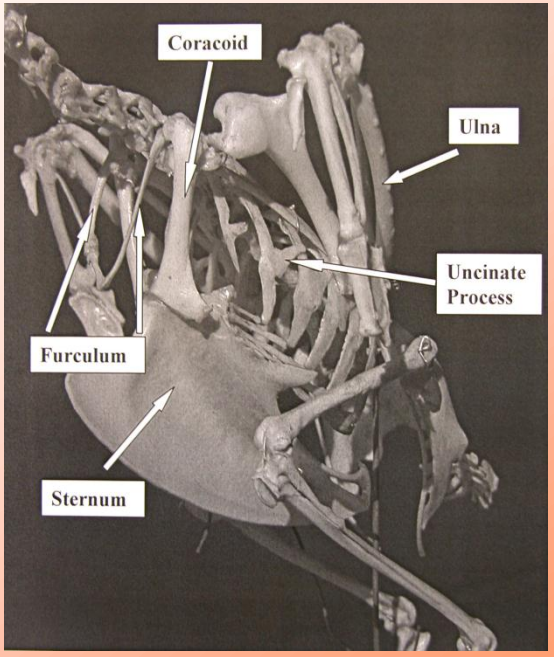
Skeletal System

- Provide support
- Aid in respiration
- Provide Calcium for egg

Pneumatic Bones

- The **pneumatic bones** are important to the chicken for respiration. They are hollow bones which are connected to the chicken's respiratory system and are important for the chicken to be able to breath.

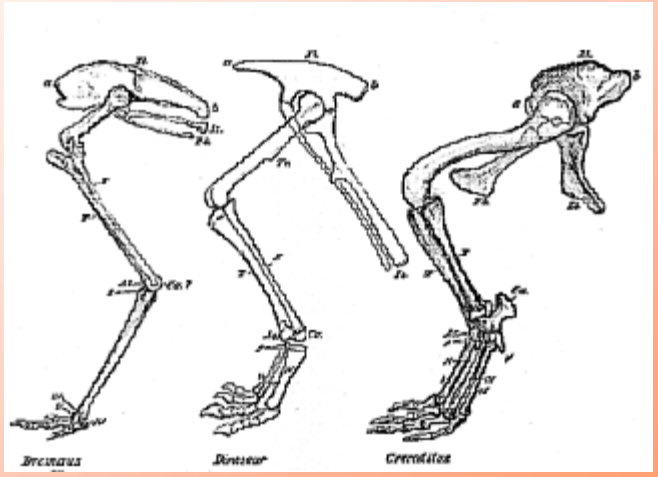
Examples of pneumatic bones are:
the skull, humerus,
clavicle, keel (sternum),
pelvic girdle, and the lumbar
and sacral vertebrae.



Medullary Bones

- The **medullary bones** are an important source of calcium for the laying hen. Calcium is the primary component of egg shells and a hen mobilizes 47% of her body calcium to make an egg shell.

Examples of medullary bones are:
the tibia, femur, pubic bones, ribs, ulna, toes, and scapula

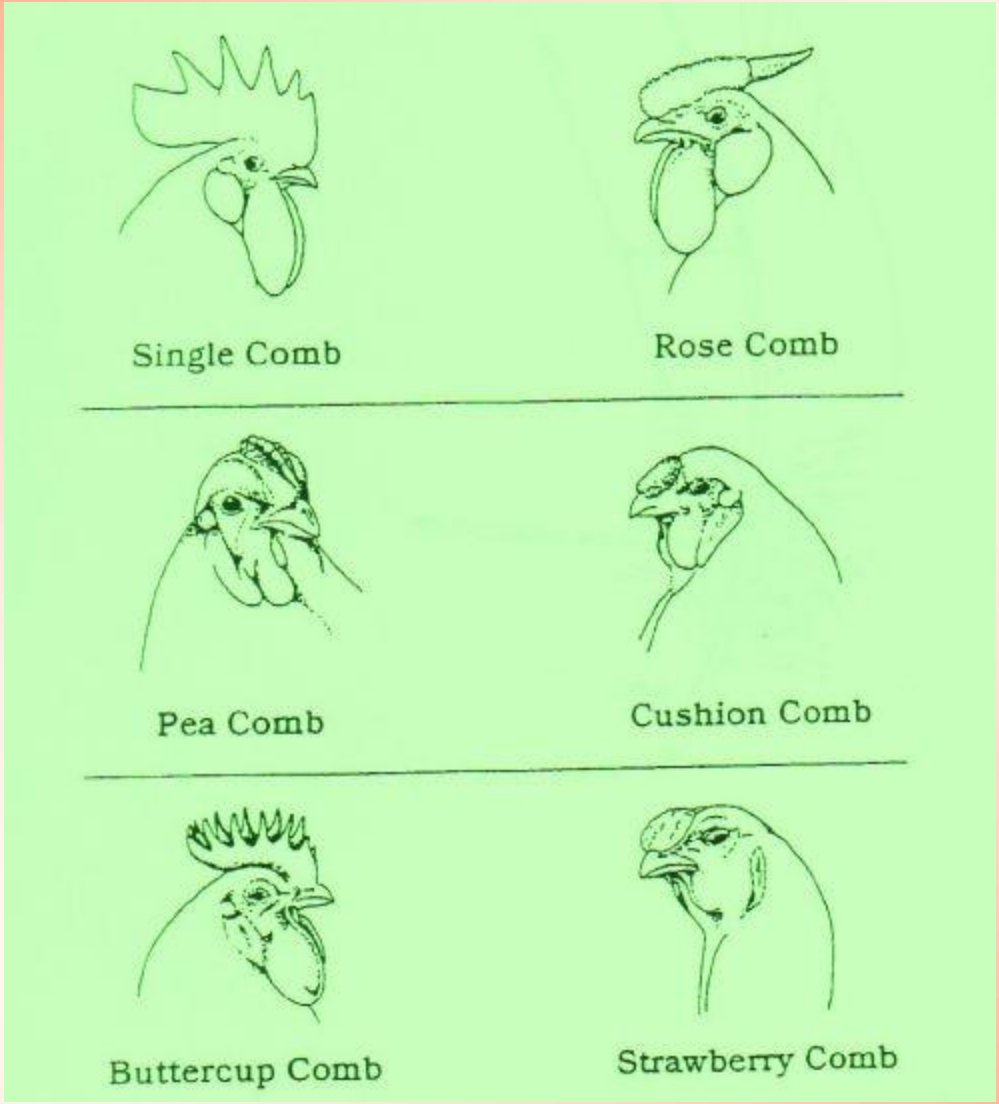


Assignment/30

1. Tell a story about a piece of food that is being eaten by Pirate the one-eyed chicken. Be sure to include the parts of the digestive system and describe what is happening to food in each part. /20
2. Pirate the one-eyed chicken has met the rooster of her life. Discuss how Pirate's eggs are fertilized and how they mature in the oviduct. /10

Reproductive System

- Female Reproductive System
- Male Reproductive System


Single Comb
Rose Comb
Pea Comb
Cushion Comb
Buttercup Comb
Strawberry Comb