FOLLOW UP 1 TO LESSON 03/ 19

Continue from Lesson 0320:

Life Science review sheet 7-1

1. In order to remain alive an organism must maintain INTERNAL BALANCE or HOMEOSTASIS
2. The movement of water and dissolved materials within a plant is called TRANSLOCATION
3. . The tiny openings in bark of woody plants that allow oxygen to pass are called LENTICELS

Life science review sheet 7-2A

1. Fertilizer supplies essential MINERALS to a plant

2. The exchange of Oxygen and Carbon dioxide by an organism RESPIRATION

LESSON 0328

READ 151 - 158

VIRTUAL LECTURE

CIRCULATION RESPIRATION AND EXCRETION IN VERTEBRATES

THE KEY FACTOR IN VERTEBRATE HOMEOSTASIS IS BLOOD

BLOOD IS PUMPED THROUGH THE CIRCULATORY SYSTEM BY THE MUSCULAR HEART.

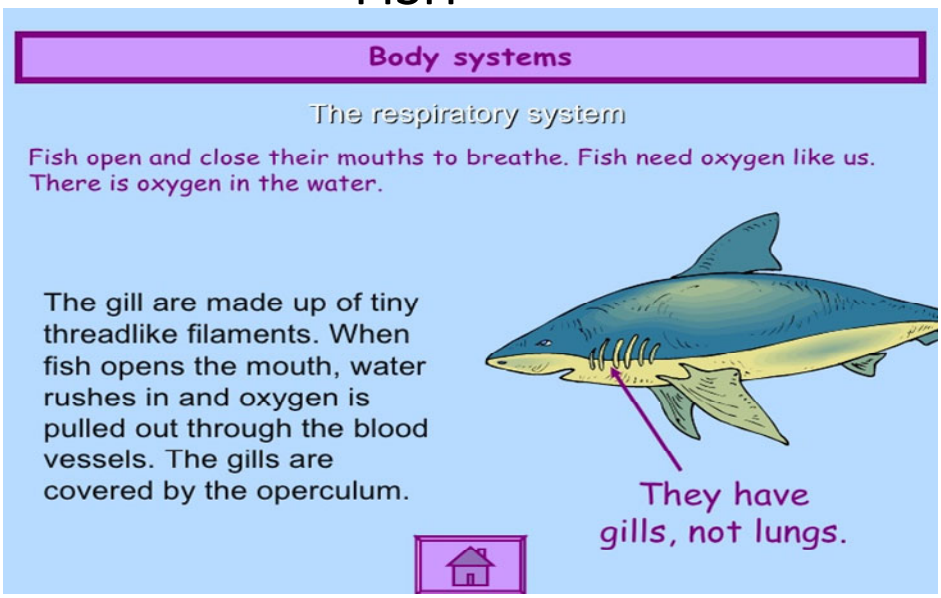
THE BLOOD IS USED IN GAS EXCHANGE O_2 ←---→ CO_2

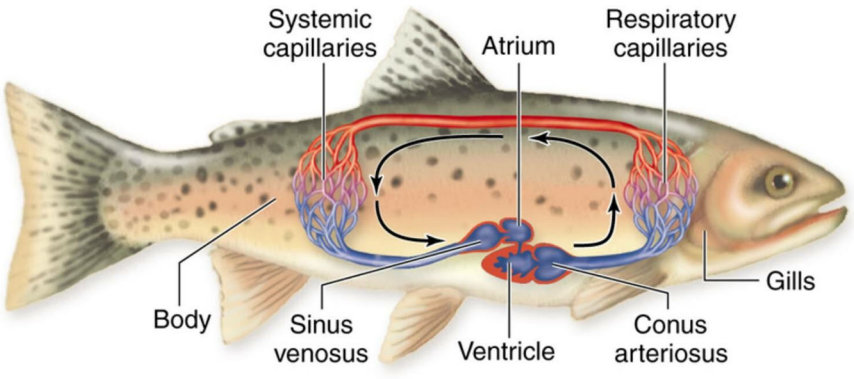
CARRIES NUTRIENTS FROM DIGESTIVE SYSTEM TO CELLS

WASTES, CONTROL SUBSTANCES (HORMONES) CARRIED AWAY FROM OR TO CELLS .

RESPIRATION OF AQUATIC VERTEBRATES - GILLS

FISH

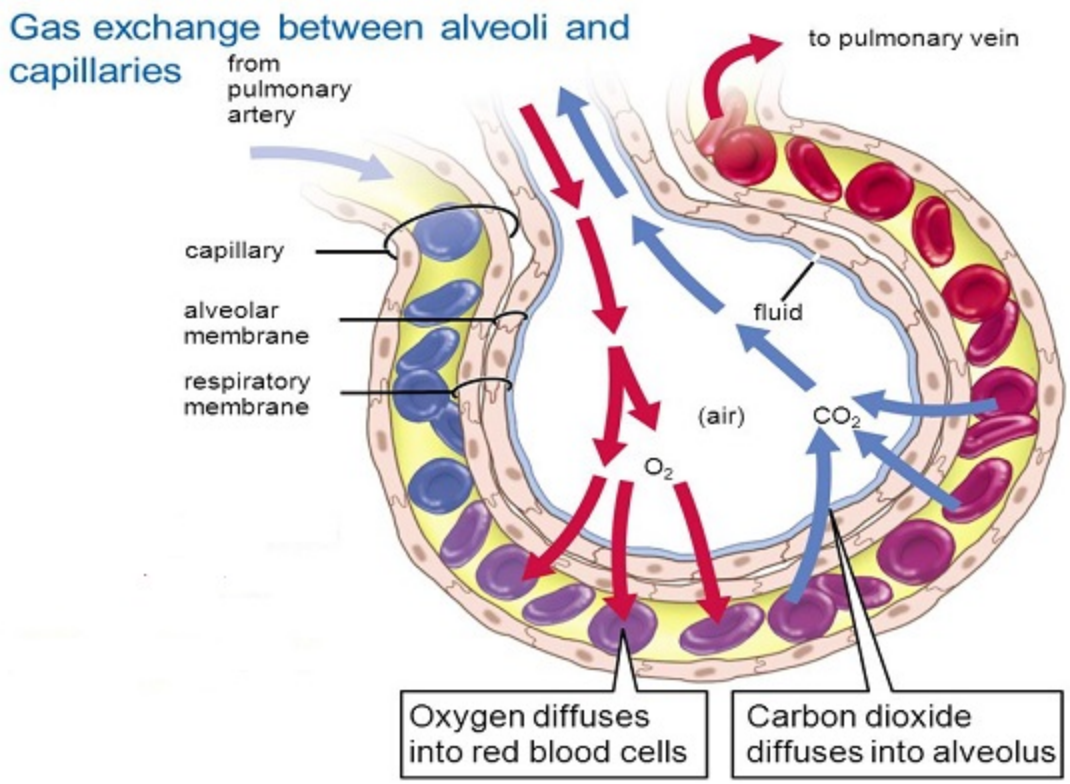




O2 DISSOLVED IN THE WATER DIFFUSES THROUGH WALLS OF CAPILLARIES AND ENTERS BLOODSTREAM.

DEOXYGENATED BLOOD FROM CELLS DIFFUSES FHROUGH CAPILLARY WALLS AND ENTERS ENVIRONMENT

AIR BREATHING VERTEBRATES – LUNGS



A THIN SKELETAL MUSCLE AT THE BASE OF THE CHEST, THE DIAPHRAGM, CONTRACTS CREATING A VACUUM THAT PULLS AIR INTO THE LUNGS

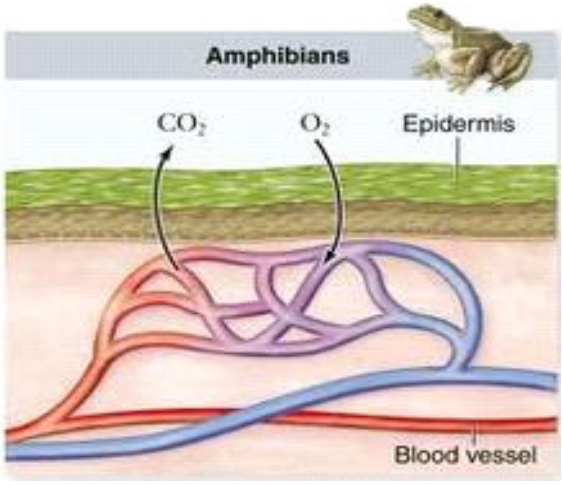
SMALL SACS IN THE LUNGS, ALVIOLI, THAT ARE RICHLY SUPPLIED WITH CAPILLARIES ARE THE SITES OF GAS EXCHANGE

VERTEBRATE BREATHING

- **Lungs- Postive Pressure Breathing**
  Many frogs use lungs to respire, bringing in air through their nares and mouth, into the trachea and then to the lungs for gas exchange and uptake of oxygen. However, frogs lack the diaphragm that is an anatomical structure present in many other species. The diaphragm is a muscle used to create a pressure gradient to draw air into the lungs. This is negative pressure breathing. Because they lack this feature, frogs use positive pressure breathing and must actively push air into their lungs.

FROGS CAN ALSO BREATH THROUGH THEIR SKIN

Cutaneous Respiration

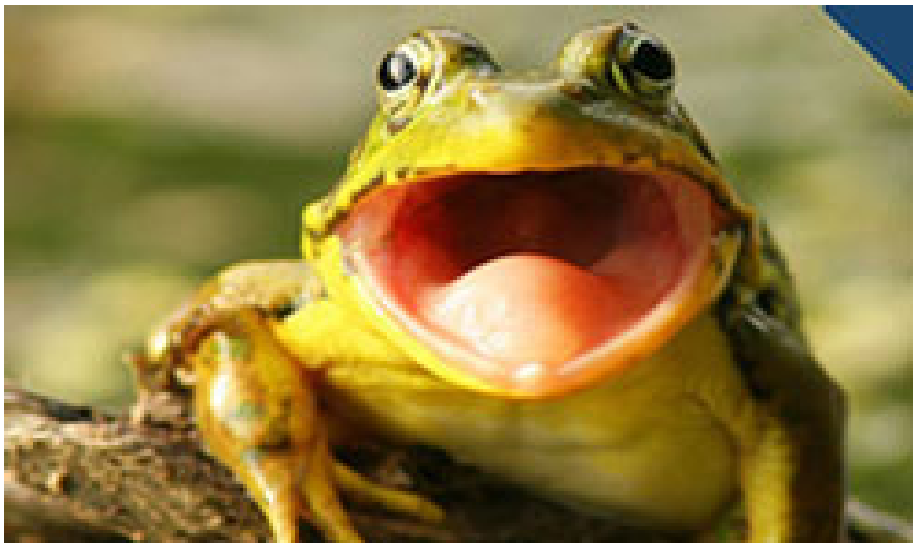


Cutaneous Respiration

The skin of many frogs is thin and highly vascular to allow for gas exchange. Because of their thin skin, frogs must live in moist environments and secrete mucous from their skin to avoid desiccation. Cutaneous respiration also allows for the frog to remain almost completely submerged under water for long periods of time, while still oxygenating their blood.

AND FROGS CAN BREATH THROUGH THE LINING OF THEIR MOUTH

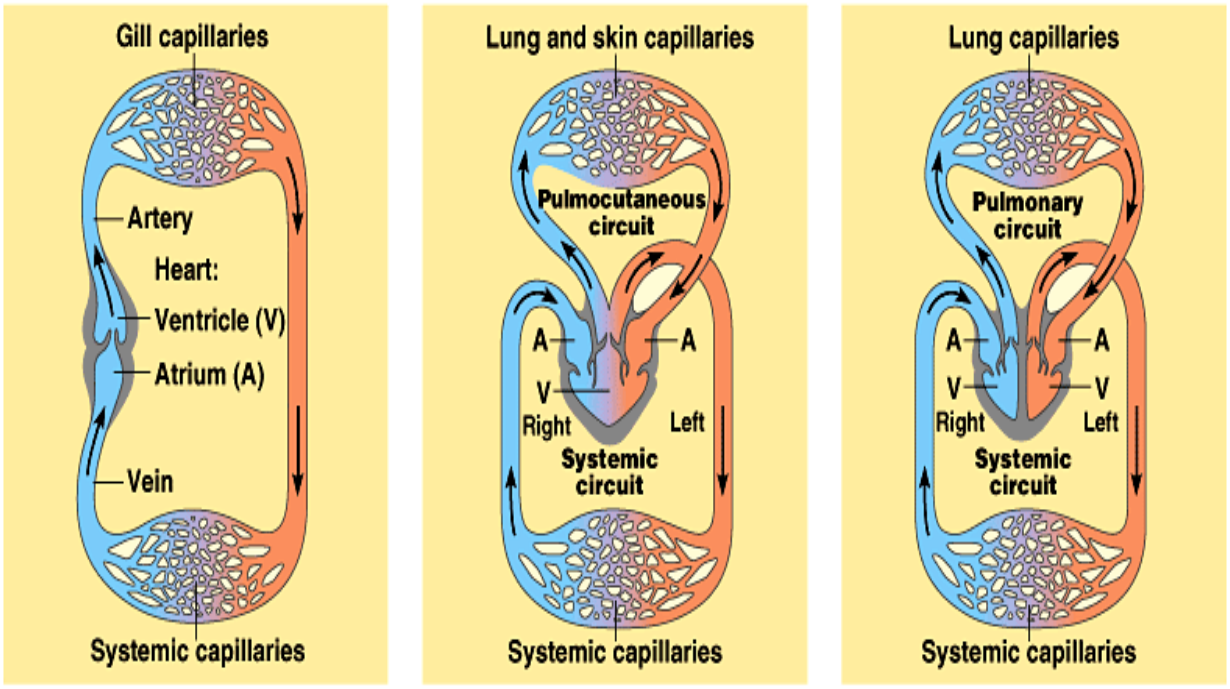
Buccopharyngeal Membrane



VERTEBRATE HEARTS

THERE ARE TWO TYPES HEART CHAMBERS IN VERTEBRATES

1. **ATRIUM – COLLECTS BLOOD FROM VEINS AND STORES FOR A BRIEF TIME.**
2. **VENTRICAL – RECIEVES BLOOD FROM THE ATRIUM AND PUMPS IT INTO THE ARTERIES WHICH EVENTUALLY DELIVER IT TO TINY CAPILLARIES THAT DISTRIBUTE IT TO INDIVIDUAL CELLS**



(a) Fish (b) Amphibian (c) Mammal

FISH HAVE A TWO CHAMBERED HEART

MOST REPTILES AND AMPHIBIANS HAVE A THREE CHAMBERED HEART

BIRDS AND MAMMALS HAVE A FOUR CHAMBERED HEART