

## Organization of Living Organisms

cell: basic unit of life

all living things are made up of cells

unicellular organism: life at this level

For multicellular organisms, life is further organized

tissue: groups of similar cells working together to do a job  
muscle tissue, nervous tissue

organ: groups of different tissues working together to do a job  
stomach made of lining tissue, muscle tissue, nervous tissue, and outside connective tissue

organ system: groups of organs working together to do a job  
digestive system: mouth, esophagus, stomach, small intestine, large intestine, anus

multicellular organism: groups of organ systems working together to make a complete living thing

## Animal Organ Systems

### 1-integumentary sys

outer body covering, protects anims from H<sub>2</sub>O loss,  
excess sunlight, bacterial invasion

integument: outer body covering

skin, nails, hair, scaly skin, fur, feathers

### 2-skeletal sys

gives body a shape, protects internal organ

exoskeleton: outside body

movement is limited, must molt to grow

endoskeleton: inside body

musc on top of skel, can protect bones

Which is more advanced? efficient?

### 3-muscular sys

allows movemt, works w/skeleton

longitudinal musc: expand & contract

circular musc: enlarge diameter, thin

diagonal musc: twisting

### 4-nervous sys

allows organism to respond to environmt

controls & coordinates all other body sys

brain, spinal cord, nerves, sense organs,  
antennae, whiskers

### 5-respiratory sys

brings in O<sub>2</sub>, gets rid of CO<sub>2</sub>

lungs, gills, skin, nose, mouth

## 6-circulatory sys

takes O<sub>2</sub> & nutr to every cell in body, remove  
CO<sub>2</sub> & wastes  
heart, bl vessels

open circ sys: blood is not contained in bl ves  
heart (pump)---->bl vess---->open body->  
oozes back to heart

closed circ sys: blood is contained w/in vess

which is most advanced? more efficient?

## 7-digestive sys

brings in food, breaks down into form body can use, gets rid of solid wastes

incomplete digest sys: only one body opening

2-way tract, mouth but no anus

complete digest sys: one way tract

mouth--->organs---->anus

which is more efficient? advanced?

## 8-excretory sys

gets rid of metabolic, nitrogenous wastes, regulates water balance in body

liquid wastes

kidneys, sweat glands, urinary bladder

## 9-reproductive sys

produces new individuals

asexual: cloning, one parent, cell division

sexual: 2 parents, make special cells,

recombination of genes, gives variety in population

hermaphroditic: 2 sexes in one body

ovaries, testes, penis, vagina, uterus

for organisms that can do both, when is it best

to do one over the other?

## 10-immune sys

fights disease

WBC, lymph nodes, lymph fluid

## 11-endocrine sys

works with nerv sys to control and coordinate  
other body systems

makes and secretes hormones

hormones are chemical messengers that are  
made in one place, taken by blood to target  
organ where they have effect

pituitary gland: master endocrine gland in  
brain, controls all other endocrine glands  
thyroid, thymus, ovaries, testes

all vertebrates have sys, many lower anims,  
insects

Which organ system can you live without?

Final terms to know

cephalization: a concentration of nervous tissue at the anterior end of an organism resulting in a definite head  
a concentration of nervous tissue (brain), and usually other senses are found there

the most complex organisms show this

regeneration: the ability to regrow body parts

this is different than healing, characteristic of lower animals

segmentation: a repetition of body parts

a characteristic of more complex organisms

do we have this?

examples?

ectotherm: organism that cannot regulate its internal body temp

endotherm: organism that regulates a steady internal body temp