

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 sys working together to make a complete living thing

Animal Organ Systems

1-integumentary system

outer body covering, protects animals from H₂O loss,
excess sunlight, bacterial invasion

integument: outer body covering

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

what does planaria have?

2-skeletal system

gives body a shape, protects internal organ

exoskeleton: outside body

movement is limited, must molt to grow

endoskeleton: inside body

muscles on top of skeleton, can protect bones

Which is more advanced? efficient?

does planaria have this?

3-muscular system

allows movement, works w/skeleton

longitudinal muscles: allow expansion & contraction

circular muscles: enlarge or decrease the diameter

diagonal muscles: allow twisting

what kind of movements can planaria make?

4-nervous system

allows organism to respond to environment
controls & coordinates all other body systems
brain, spinal cord, nerves, sense organs,
antennae, whiskers
what does planaria have?

5-endocrine sys

works with nervous system to control and coordinate
other body systems by making and secreting
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 system, many lower animals, insects
planaria?

6-respiratory system

brings in O₂, gets rid of CO₂
lungs, gills, skin, nose, mouth
does planaria have this?

7-circulatory or cardiovascular system

takes O₂ & nutrients to every cell in body, removes CO₂ & wastes

heart, blood vessels

open circulatory system: blood is not contained in blood vessels

heart (pump)---->blood vessels---->open body->
oozes back to heart

closed circulatory sys: blood is contained w/in vessels

which is most advanced? more efficient?

what does planaria have? why do they not need this nor respiratory system?

8-immune system

fights disease, keeps you healthy

WBC, lymph nodes, lymph fluid

planaria?

9-digestive system

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

incomplete digest system: only one body opening

2-way tract, mouth but no anus

complete digest system: one way tract

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

which is more efficient? advanced?

what does planaria have?

10-excretory system

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

liquid wastes

kidneys, sweat glands, urinary bladder

does planaria have this system?

11-reproductive system

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?

planaria?

external fertilization: sperm fertilizes eggs outside the
body

where does this need to occur?

internal fertilization: sperm are released inside the body

external development: the fertilized egg, embryo, fetus
develops outside the body

internal development: the fertilized egg, embryo, fetus
develops inside the body

which of these are more efficient? advanced?

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
this nervous tissue functions as a 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? where?

ectotherm: organism that cannot regulate its internal body temperature

endotherm: organism that regulates a steady internal body temperature regardless of the external temperature