Homeostasis and Transport Study Guide

MULTIPLE CHOICE

1. What three things are regulated by homeostasis
   Body Chemistry, Temperature, Water Levels

2. A cycle is best described as _____
   Pathway where material moves through the environment

3. A system is best described as _____
   Groups of things working together to perform a function

4. What structure controls the movement of material into and out of the cell?
   Plasma Membrane

5. The major difference between passive and active transport is _____
   Active transport requires the cell to expend energy and passive transport does not

6. Diffusion, a type of passive transport, always moves material from an area of _____ concentration to an area of _____ concentration.
   Higher, Lower

7. What are the three end results of osmosis?
   Hypertonic, hypotonic, isotonic

8. If your blood is exposed to pure distilled water, the cells will begin to rupture because fresh water is a(n) _____ environment compared to the blood.
   Hypotonic

9. A plant cell is placed in salt water and begins to shrivel up. This is because the salt water is a(n) _____ environment compared to the plant cell.
   Hypertonic

10. _____ body temperatures are generally more stable than _____ body temperatures.
    Endotherm, Ectotherm

11. Most mammals and birds are _____.
    Endothermic

12. Most other animals are _____.
    Ectothermic

13. The movement of materials is important because
    It allows the cell to move resources into the cell and waste out of the cell
    It allows the organism to move resources into the body and waste out of the body
    It allows ecosystems to recycle material

14. Aquatic ecosystems become anoxic when
    The levels of oxygen dissolved in the water get too low

15. Over time, systems in living things have become
    More complex

MATCHING

Examples of Active Transport: Endocytosis, Exocytosis, Molecular transport
Examples of Passive Transport: Diffusion, Facilitated Diffusion, Osmosis

VOCABULARY

Anoxia	Aquatic ecosystem devoid of oxygen
Circulatory System	Moves blood throughout the body
Digestive System	Brings food into the body
Ectotherm	Get body heat from environment
Endocytosis	Large particles enter the cell
Endotherm	Generate heat internally
Eutrophication	Over-enrichment of aquatic ecosystems
Excretory System	Moves waste out of the body
Exocytosis	Large particles exit the cell
Facilitated Diffusion	Passive diffusion through transport proteins
Hypoxia	Aquatic ecosystem with low oxygen level
Lipid Bilayer	Structure of plasma membrane
Metabolism	Sum total of chemical reactions in a living thing
Molecular Transport	Active pumping through transport proteins
Osmosis	Diffusion of water
Plasma Membrane	Barrier between cell and environment
Phloem	Plant tissue that carries food
Respiratory System	Moves oxygen and carbon dioxide throughout the body
Xylem	Plant tissue that carries water

Every water molecule contains an oxygen atom. Explain why aquatic ecosystems can be anoxic.

Living things cannot "breath" the oxygen atom in a water molecule. They need oxygen dissolved in the water. When that oxygen has been used up the water is anoxic.

Provide an example of why each is important to life on Earth (2 points each)

a. Water Cycle – maintains climate, ensures freshwater available for life, carries other material in other cycles

b. Carbon Cycle – important for climate, provides building blocks for living things

c. Nitrogen Cycle – removes nitrogen from the atmosphere and converts it into a form usable by living things, processes dangerous waste nitrites to make them safe for the environment

d. Phosphorus Cycle – removes phosphorous from the soil and converts it into a form usable by living things

16. Provide two specific adaptations found in each type of organism for maintaining body temperature

a. Ectotherm – moving into and out of sun, hibernation

b. Endotherm – fur, fat layers, sweating, shivering

17. Compare the types of material transported by roots, stems, and leaves in plants

Phloem moves food, Xylem moves water
Roots bring nutrients and water in from the soil through diffusion
Stem moves water and food between leaves and roots
Leaves move water vapor, CO_2, and O_2 in and out of the plant

18. <u>List</u> at least four different ways that oxygen is consumed in aquatic ecosystems (2 points each)
Decomposition of dead animals
Decomposition of garbage
Fish swimming
Plants respiring at night

19. We live in a region with many man-made lakes. These lakes often become overgrown with algae and weeds in the summer, resulting in eutrophic conditions. The result is often that when the ice melts, many of the fish in the lake have died. In a 5-sentence paragraph, explain some of the reasons our lakes become eutrophic and what could be done to prevent those conditions.