

- b. Overproduction: reproduction can cause the population to increase geometrically (or even exponentially) over time
 - c. Limit on Pop growth: there are only so many resources
 - i. Tied to the notion of a carrying capacity of the env.
 - ii. Leads to increased competition
 - d. Differential reproductive success: those individuals that are best adapted to their env. are more likely to survive and reproduce.
7. Differences b/w homologous & analogous features
- a. Homologous features: derive from same structure in common ancestor
 - b. Analogous features:
 - c. Convergent evolution: similar forms from similar environmental pressures
 - i. Mammals who eat ants & termites

Biology & the study of life

1. What are the characteristics of life?
 - a. living organisms are composed of cells
 - i. Unicellular & multicellular
 - b. Biological growth: increase in the size of cells, number of cells, or both
 - c. Development: includes all changes that take place during an organism's life; structures and body form are adapted to an organism's functions
 - d. Regulate metabolism processes
 - i. Chemical reactions and energy transformations
 - ii. Essential to nutrition, growth and repair of cells, and conversion of energy
 - iii. Homeostasis: maintenance and regulation of metabolic processes
 1. Homeostasis (internal regulation) would be very costly to an organism if their biological processes were unregulated (energy would be lost and wasted)
 - e. response to stimuli: physical or chemical changes in the internal or external env. (respond to changes in light, temp, pressure, sound, chemicals, etc)
 - f. locomotion: movement
 - g. Reproduction: nature of life on earth employs asexual reproduction, often via binary fission (also can use fragmentation, cloning, etc)
 - h. Adaptation: populations evolve to better survive
2. How are biological systems organized?
 - a. The cell (atoms, molecules; basic unit of life; multicellular organisms form tissues)
 - b. Tissues: aggregation of cells w/ a common function
 - c. Organs
 - d. Organ systems
 - e. Population: members of a species that live in the same area at the same time.
 - f. Community: populations that live together and interact
 - g. Ecosystem: a community and the env.
3. how is information transferred in an organism?
 - a. Info is coded and delivered by chemical substances and electric impulses.
 - b. DNA are large molecules that makes up genes. Genes specify instructions for making every living organism
 - i. DNA contains the "recipe" for proteins
 - c. Cell-to-cell communication is a complex process called cell signaling
 - d. Info is transmitted by hormones and neurotransmitters and their receptors
4. What is the basic unifying theory in biology?
 - a. Evolution
5. What is the scientific method?
 - a. Hypothesis: idea or concept that can be tested by experimentation
 - b. Experiment
 - c. Analyze info

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