Biology

The study of living things

CHARACTERISTICS OF LIVING THINGS (a.k.a. Organisms)

- ALL LIVING THINGS ARE MADE UP OF CELLS.
 - CELL: The smallest unit of life.
 - UNICELLULAR ORGANISM: an made up of one cell. (Example: \



• MULTICELLULAR ORGANISM: an organism made up of more than one cell (many cells).

(Example: Penguin)



• LIVING THINGS REPRODUCE.

• REPRODUCTION: how new organisms are produced or created.



- LIVING THINGS ARE BASED ON A GENETIC CODE CALLED DNA.
 - DNA: Deoxyribonucleic Acid
 - Determines the genetic traits for all organisms on Earth.



- LIVING THINGS GROW AND DEVELOP.
 - GROWTH: An increase in size.
 - DEVELOPMENT: When a fertilized egg cell divides to produce many different kinds of cells needed to become mature organisms.
 - Differentiation: formation of cells that perform different tasks. (Example: Red & White Blood cells)



- LIVING THINGS USE MATERIALS FOR ENERGY.
 - Organisms need energy to grow and develop.
 - METABOLISM: chemical reactions in which an organism builds up or breaks down materials.
 - Ultimate Energy Source: The SUN



- LIVING THINGS RESPOND TO THE ENVIRONMENT.
 - STIMULUS: a signal that an organism will respond to.
 - EXTERNAL STIMULUS: outside the organism.
 - Example: the weather
 - INTERNAL STIMULUS: inside the organism.
 - Example: blood sugar



- LIVING THINGS MAINTAIN HOMEOSTASIS.
 - HOMEOSTASIS: an internal balance
 - Examples: Shivering or Sweating to control body temperature.





• LIVING THINGS EVOLVE.

- EVOLVE: Change over time.
 - Usually not noticeable until hundreds of thousands or even millions of years.



LIVING THINGS...

- ARE MADE UP OF CEL
- REPRODUCE.





- GROW & DEVELOP.
- USE MATERIALS FOR ENERGY.
- RESPOND TO THE ENVIROMENT.
- MAINTAIN HOMEOSTASIS.
- EVOLVE.







LEVELS OF ORGANIZATION

CELLS GROUPS OF CELLS ORGANISM POPULATION COMMUNITY ECOSYSTEM BIOSPHERE

CELLS



GROUPS OF CELLS

 INCLUDES TISSUES, ORGANS, AND ORGAN SYSTEMS.

Nervous Tissue \rightarrow Brain \rightarrow Nervous System







ORGANISM

• AN INDIVIDUAL LIVING THING.



POPULATION

GROUP OF THE SAME ORGANISMS THAT LIVE IN THE SAME AREA.



COMMUNITY

- POPULATIONS OF DIFFERENT ORGANISMS THAT LIVE IN THE SAME AREA.
- For Example: Hawks, snakes, bison, grass, and prairie dogs.

ECOSYSTEM

• A COMMUNITY AND ITS NON-LIVING SURROUNDINGS.



BIOSPHERE

• THE PART OF EARTH THAT CONTAINS ALL ECOSYSTEMS.





KINGDOMS OF LIFE

MONERA

- Bacteria
- Unicellular
- Prokaryotes
 - Cells do NOT have a nucleus
- Two Types:
 - Archaebacteria ancient bacteria that live in extreme environments.
 - Eubacteria modern bacteria



PROTISTA

- Eukaryote
 - Have a nucleus
- Marine (live in water)
- unicellular or multicellular
- some autotrophic (make their own food)
- some heterotrophic (consume other organisms for food)



FUNGI

- Eukaryotes
- Multicellular
- Heterotrophic
- Decomposers (breakdown dead organisms)





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PLANTAE

- Eukaryotes
- Multicellular
- Autotrophic





ANIMALIA

- Eukaryotes
- Multicellular
- heterotrophic



