

Biology

The study of living things

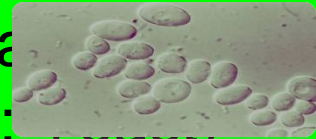
**CHARACTERISTICS OF
LIVING THINGS
(a.k.a. Organisms)**

CHARACTERISTIC NO. 1

- ALL LIVING THINGS ARE MADE UP OF CELLS.

- CELL: The smallest unit of life.

- UNICELLULAR ORGANISM: an organism that is made up of one cell. (Example: Amoeba)

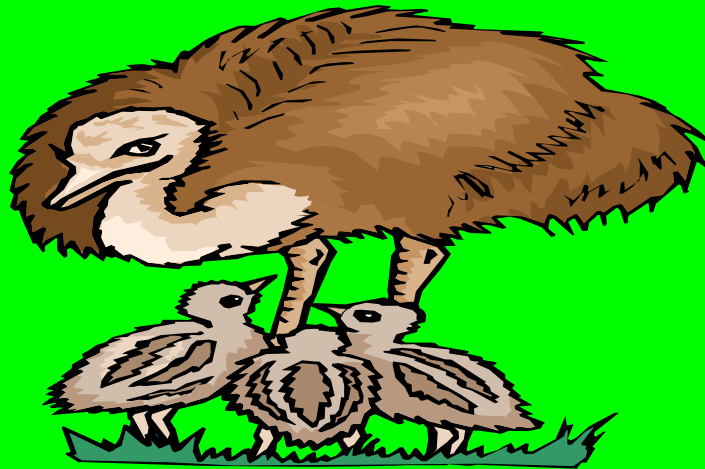


- MULTICELLULAR ORGANISM: an organism made up of more than one cell (many cells). (Example: Penguin)



CHARACTERISTIC NO. 2

- LIVING THINGS REPRODUCE.
 - REPRODUCTION: how new organisms are produced or created.



CHARACTERISTIC NO. 3

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



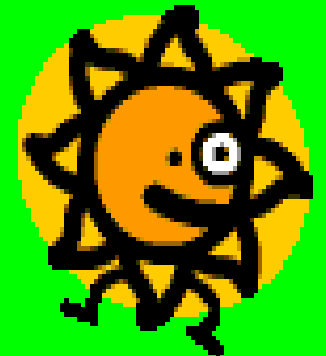
CHARACTERISTIC NO. 4

- **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)



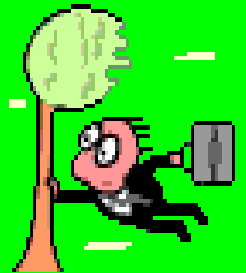
CHARACTERISTICS NO. 5

- 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



CHARACTERISTIC NO. 6

- 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



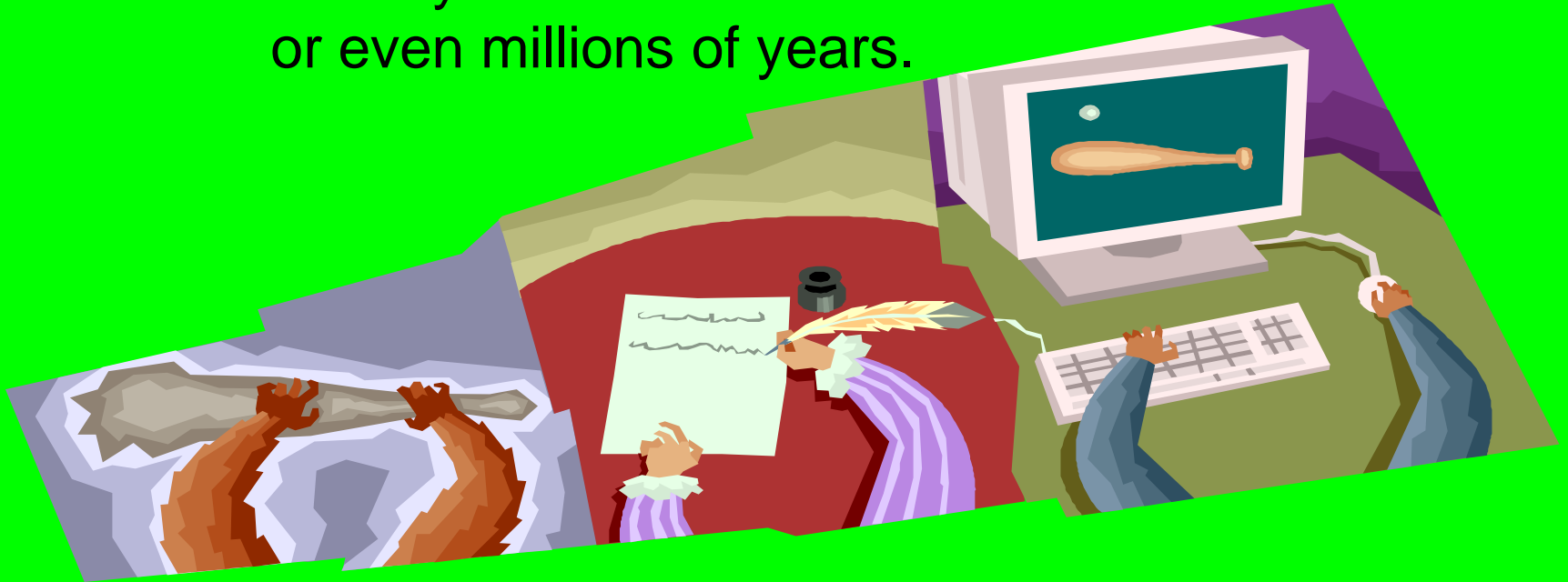
CHARACTERISTIC NO. 7

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



CHARACTERISTIC NO. 8

- **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 CELLS.
- REPRODUCE.
- ARE BASED ON A GENETIC CODE, DNA.
- GROW & DEVELOP.
- USE MATERIALS FOR ENERGY.
- RESPOND TO THE ENVIROMENT.
- MAINTAIN HOMEOSTASIS.
- EVOLVE.



LEVELS OF ORGANIZATION

CELLS



GROUPS OF CELLS



ORGANISM



POPULATION



COMMUNITY



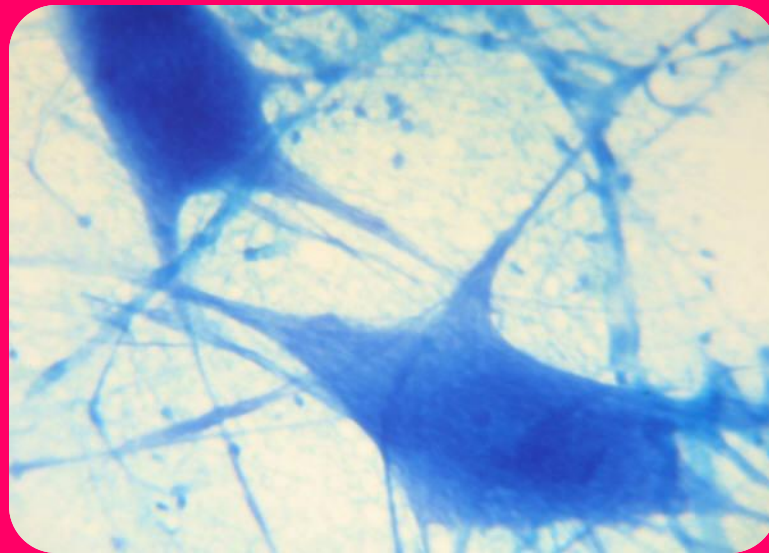
ECOSYSTEM



BIOSPHERE

CELLS

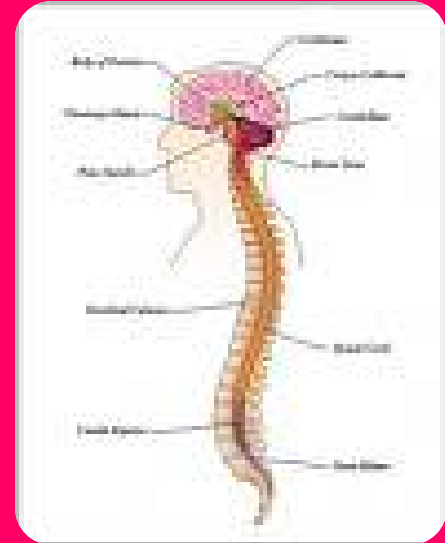
NERVE CELLS



GROUPS OF CELLS

- INCLUDES TISSUES, ORGANS, AND ORGAN SYSTEMS.

Nervous Tissue → Brain → Nervous System



ORGANISM

- AN INDIVIDUAL LIVING THING.

Bison



POPULATION

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

Bison Herd



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.



CELLS



GROUPS OF CELLS



ORGANISM



POPULATION



COMMUNITY



ECOSYSTEM

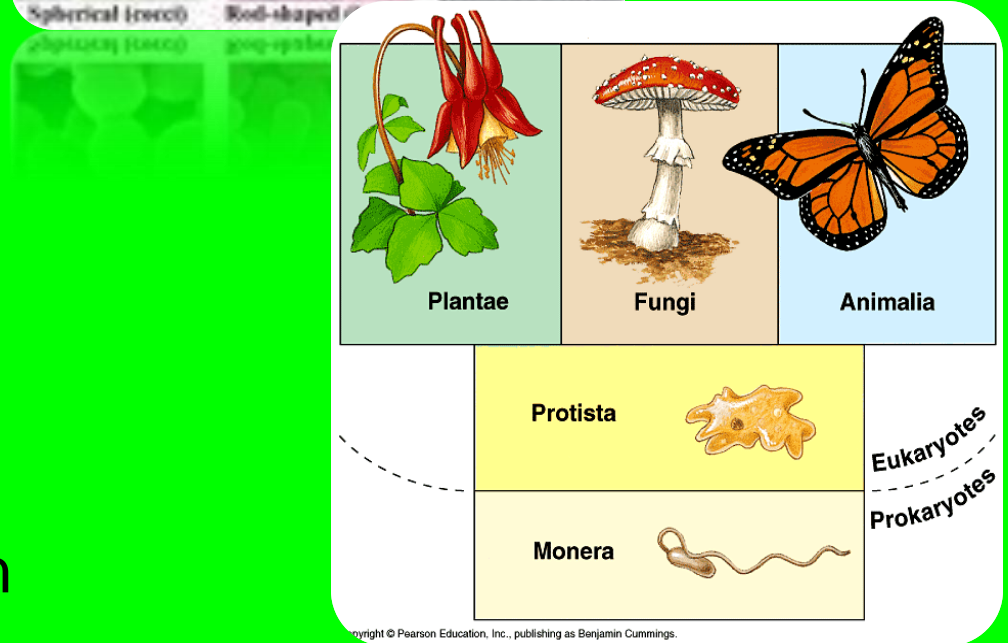


BIOSPHERE

KINGDOMS OF LIFE

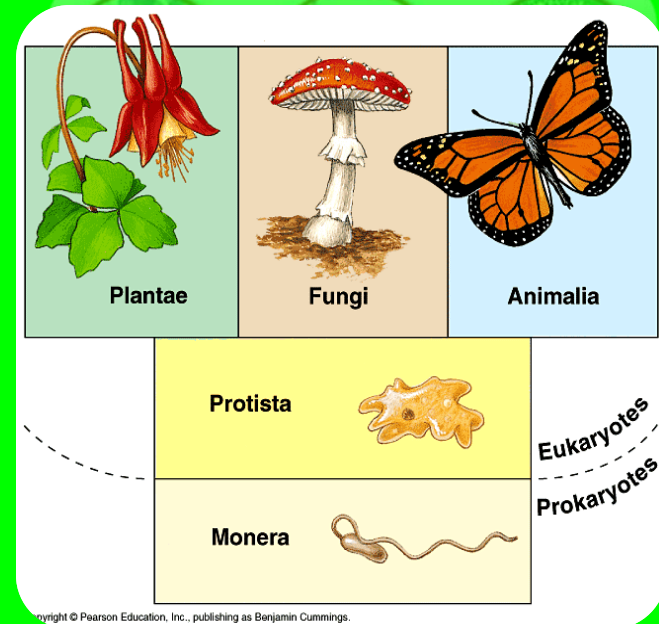
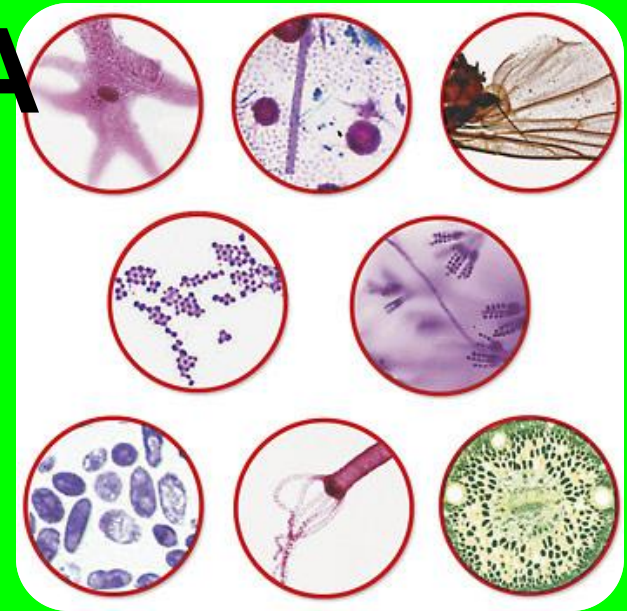
MONERA

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



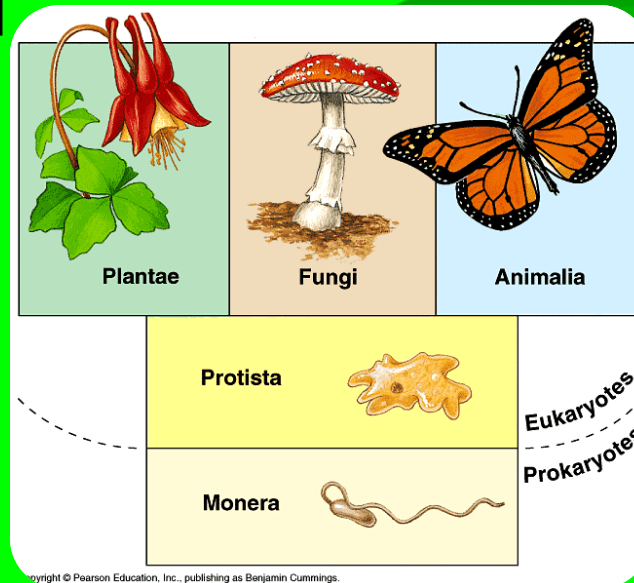
PROTISTA

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



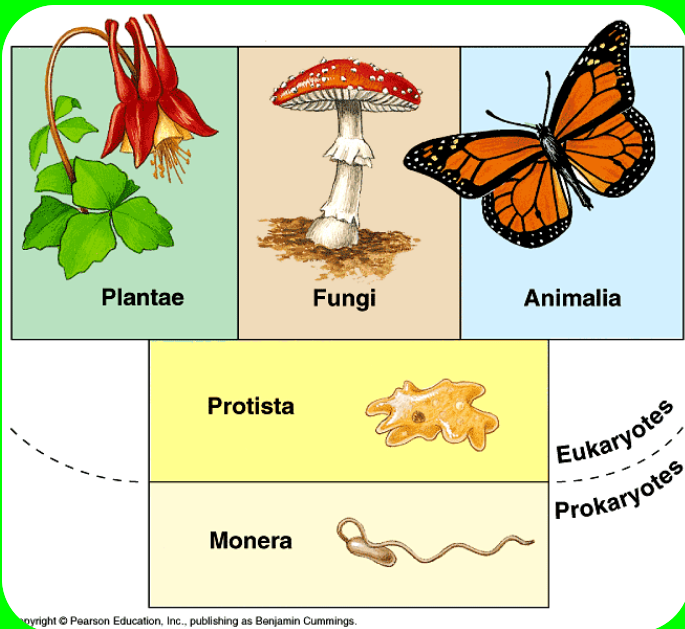
FUNGI

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



PLANTAE

- Eukaryotes
- Multicellular
- Autotrophic



ANIMALIA

- Eukaryotes
- Multicellular
- heterotrophic

