

Chapter 1

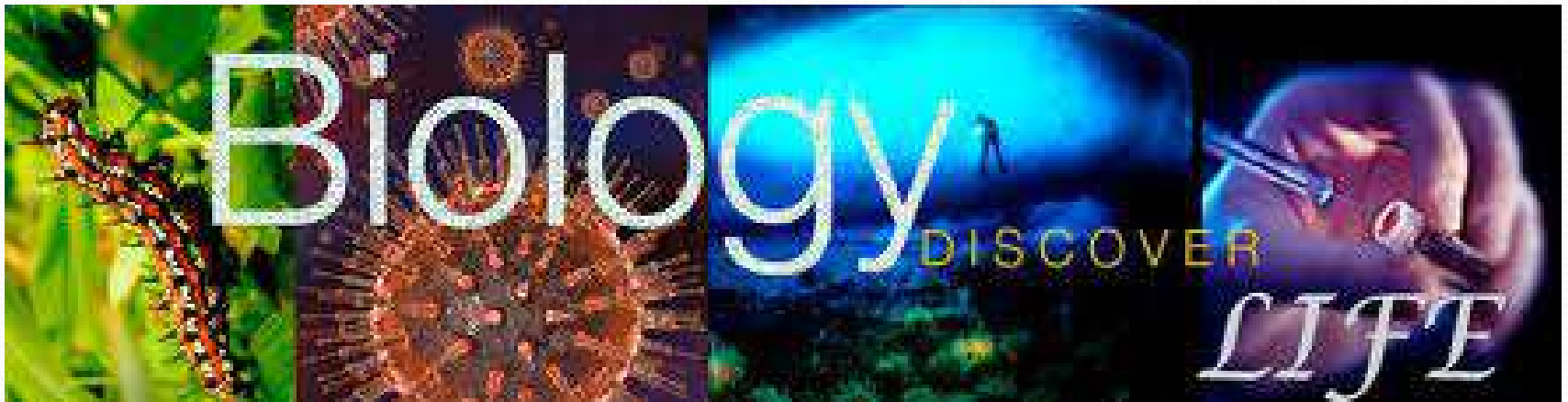
The Science of Life

Course:
Concepts in Biology

Section 1-1

Themes of Biology

- Unifying themes in biology allow biologists to study _____.
- Biology – _____ (organisms).
 - ▢ Includes the study of single cells to the global interactions of millions of organisms!



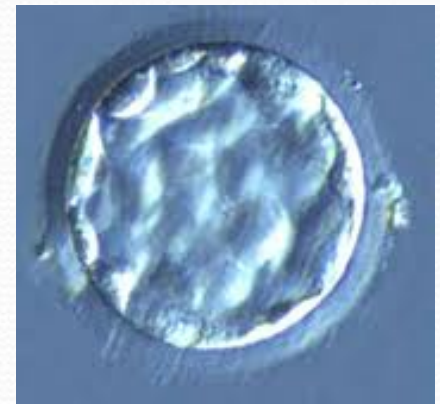
6 Unifying Themes in Biology

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

6 Unifying Themes in Biology

1. Cell Structure and Function:

- The cell is the _____.
- All organisms are made of _____.
- All cells come from _____ cells.
- Organisms can be _____ or _____.
- Cells have the ability to start out identical in early stages of development (pre-embryo stages).
As an embryo develops, cells have the ability to change into different types (muscle, skin, etc.).
This process is known as:
_____ - cells become
“different”.



6 Unifying Themes in Biology

2. Stability and Homeostasis:

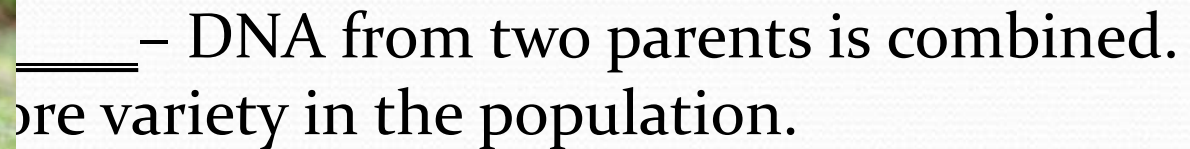
- Homeostasis (equilibrium) refers to the stable internal conditions all organisms strive to maintain _____.
- Examples of items humans want to keep stable – blood pressure, blood sugar levels, body temperature, heart rate.....

HOMEOSTASIS

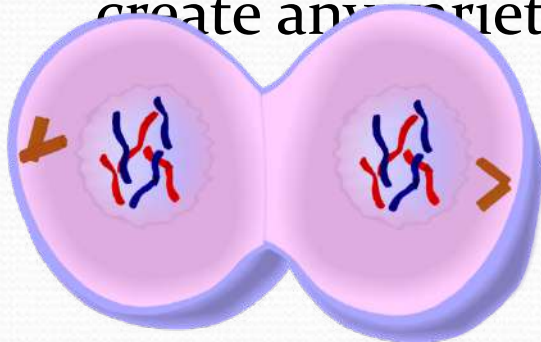


3. Reproduction and Inheritance:

= REPRODUCTION.



- each new cell is an exact copy of the original. Does not create any variety in population.



6 Unifying Themes in Biology

3. (Continued) Reproduction and Inheritance:

Hereditary information is contained
in _____ = Deoxyribonucleic Acid.

- Gene = _____

_____.

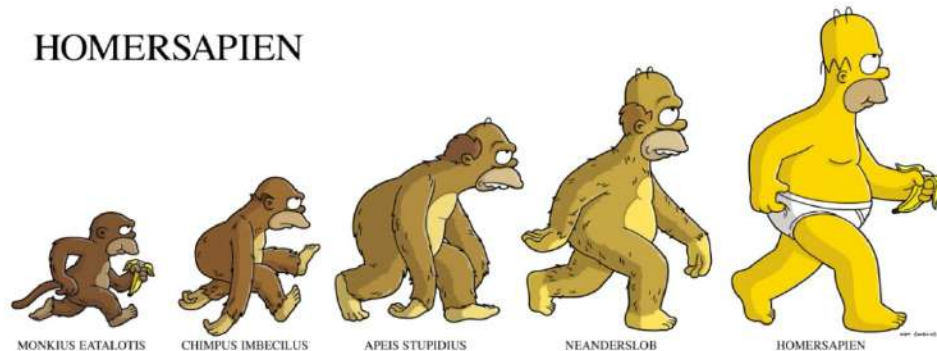


6 Unifying Themes in Biology

4. Evolution:

- Theory of Evolution = _____.
_____. This explains why organisms look and behave the way they do.

- Natural Selection – Organisms with _____ are better able to _____. This leads to the idea of “Survival of the Fittest”. This can lead to changes in a population over time = Evolution.

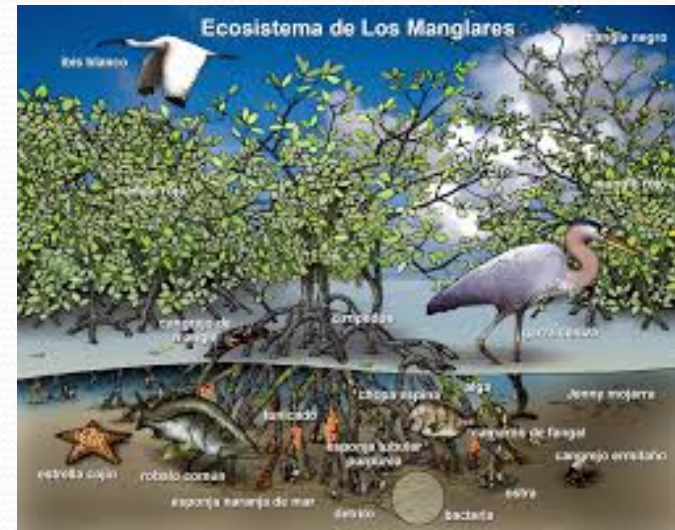


6 Unifying Themes in Biology

5. Interdependence of Organisms:

- Ecology = The study of _____

- Ecosystem = An environmental community in which its boundaries are set.
- Human impact (i.e.. Global warming, pollution, etc.) must be considered in the ecosystem.



6 Unifying Themes in Biology

6. Matter, Energy, Organization:

- A constant supply of energy is needed to maintain the highly organized structure of organisms.
- Photosynthesis supplies almost all of the energy for life on earth.
- Autotrophs - _____
_____. Exs.) green plants, cyanobacteria.
- Heterotrophs - _____
_____. Exs.) animals, humans.



Section 1-2: Characteristics of Life

1. Cells – all living things are made of cells.
2. Organization – all organisms take natural materials and organize them in a complex way.
3. Energy Use – all living things use energy = Metabolism.
4. Homeostasis - all living things maintain stable internal conditions.
5. Growth – all living things grow from cell division and cell enlargement.
6. Reproduction – essential for the continuation of the species.



Scientific Method

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

