

Characteristics of Life notes



Organism- is an individual living thing.
Organisms have characteristics that
make them different from the non-
living world.



The characteristics of life

Organization

Energy use (metabolism)

Growth and Development

Reproduction

Response to environment
(homeostasis)

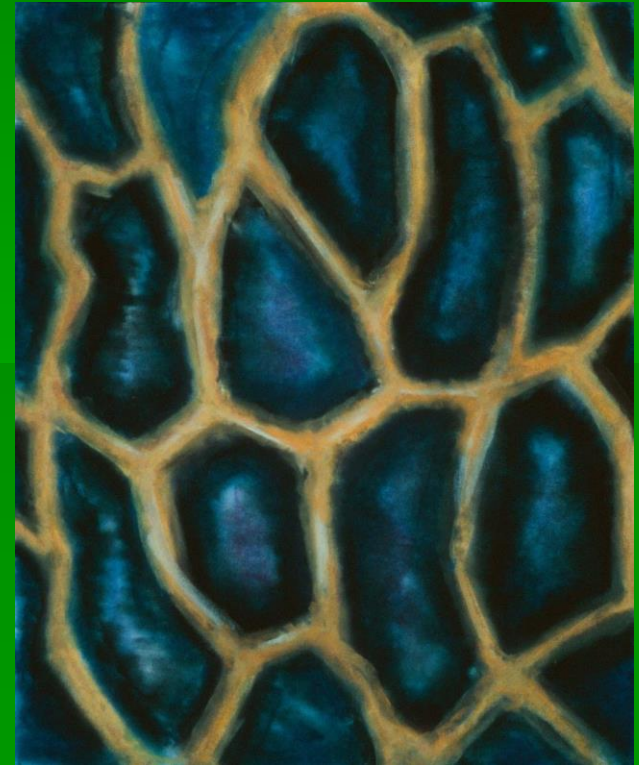
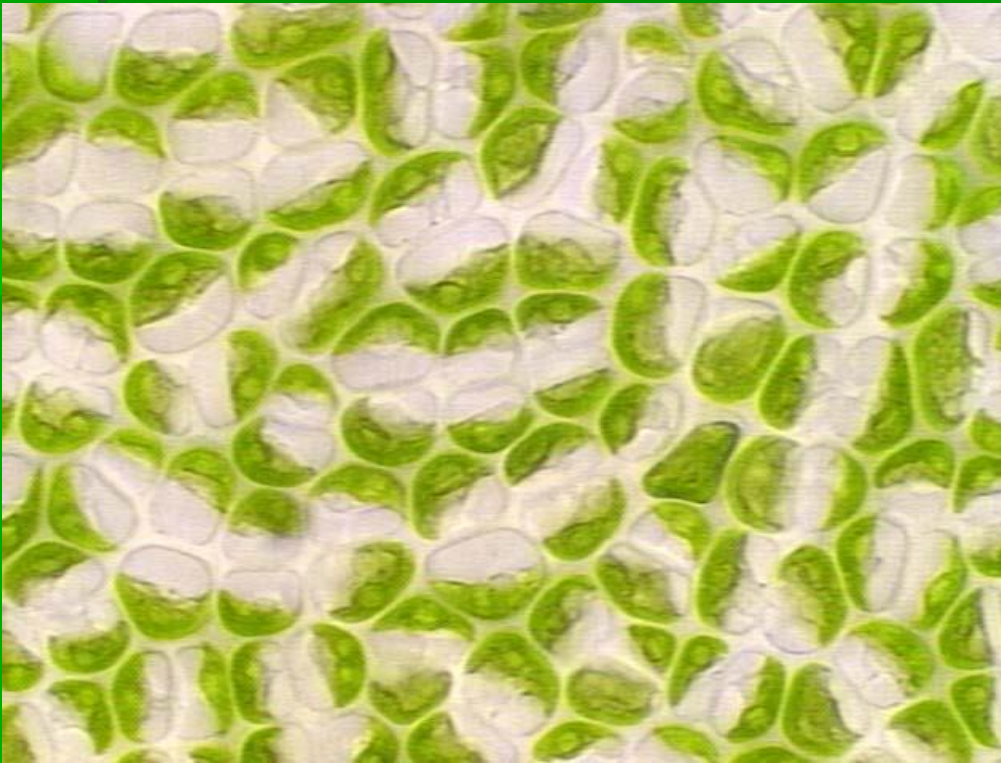
Adaptation

These characteristics are not limited to living organisms, they may be found in non-living objects as well. But in order to be considered a living organisms, **ALL** of these characteristics must be present.



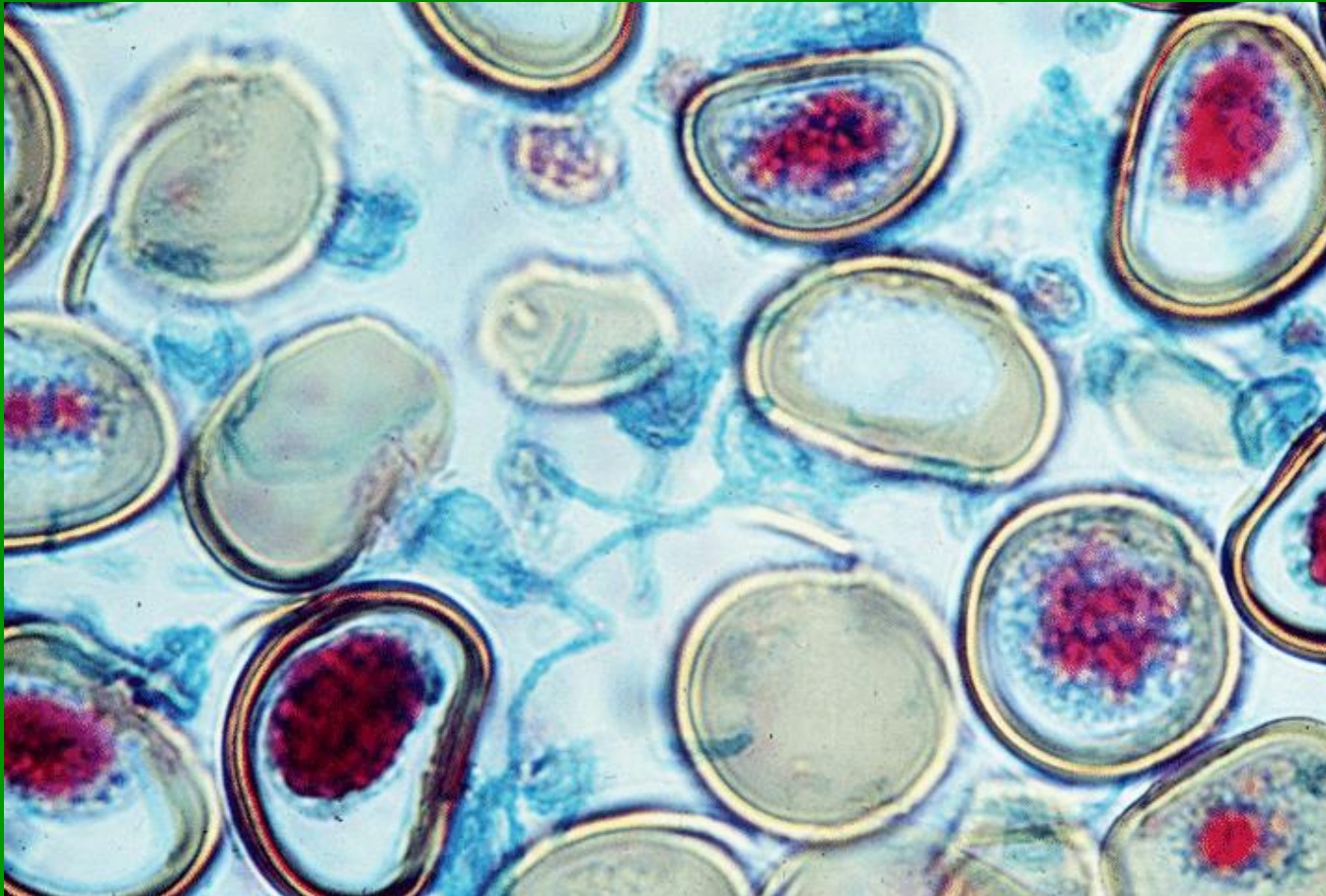
Organization

1. Living things are highly organized
2. *Specialized* structures that perform specific functions at every level of organization.



Organization

3. The basic unit of organization is the cell.



Organization:

4. All organisms are made of cells

Some are unicellular - they are made of only 1 cell.

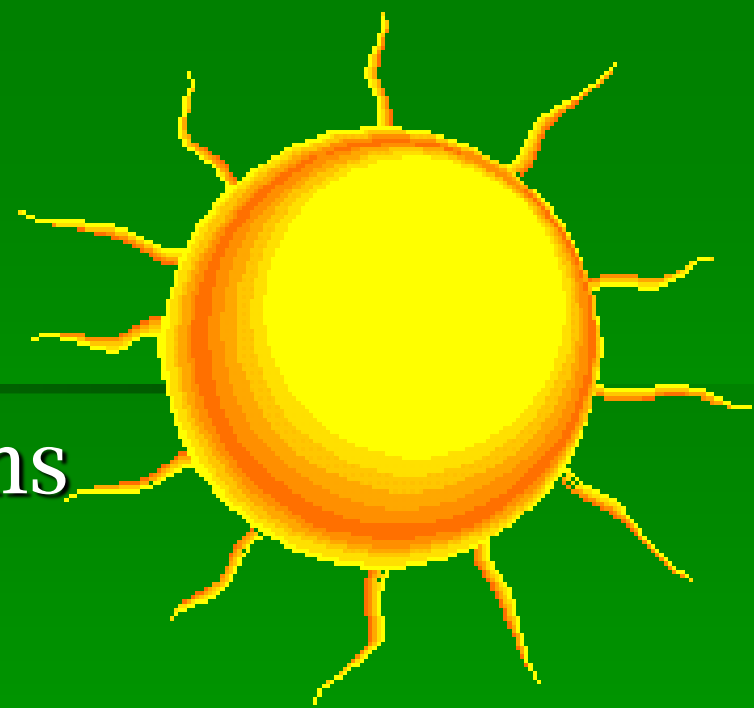


Some are multicellular - they are made of many cells that function together.



Energy

1. Energy exists in forms such as light and chemical energy. These forms are important to living organisms.



Energy and Metabolism



2. Living things use energy for life processes- Metabolism is all the chemical processes that build-up or break down materials and create waste.

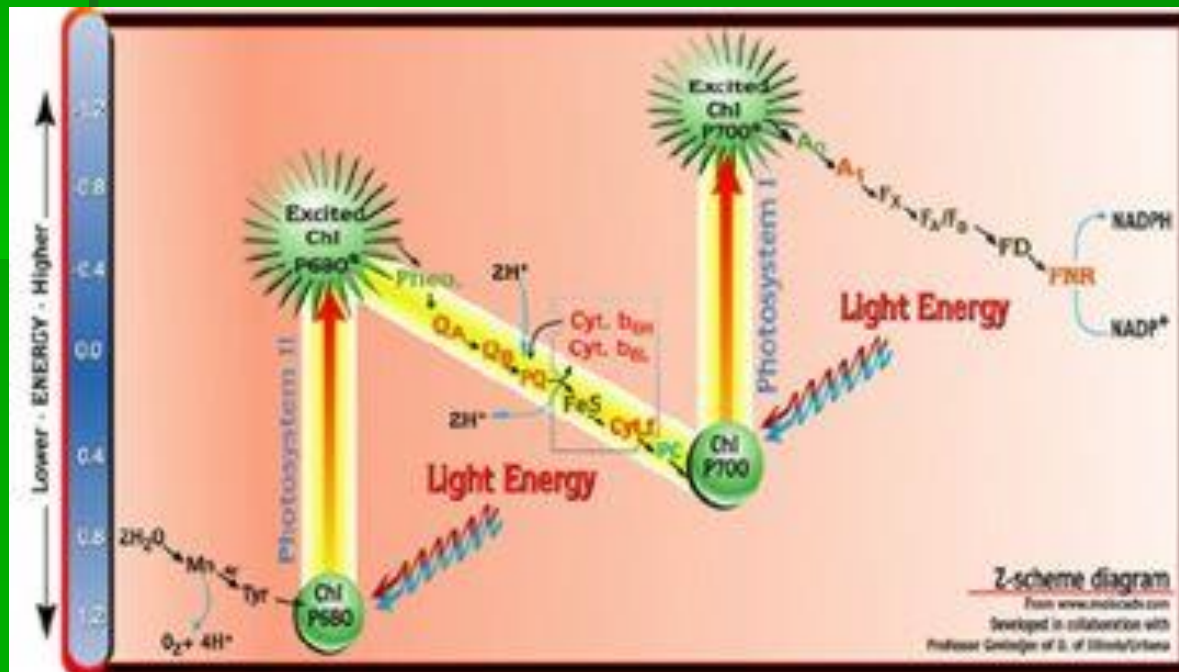
Energy and metabolism

3. All organisms are able to convert energy from the environment and use it for their life processes.



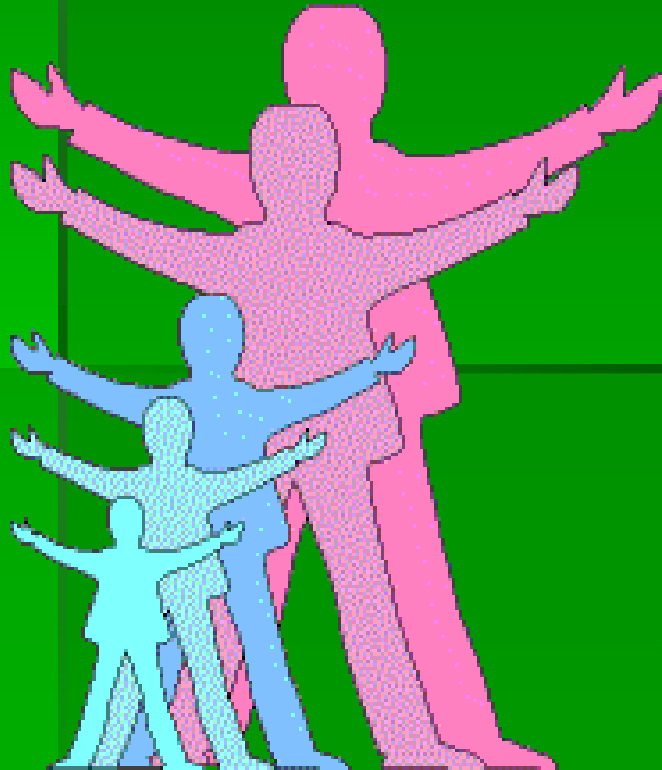
Energy and metabolism

(ex: light energy is transferred/converted to chemical energy that enables plants to make food from carbon dioxide and water.)



Growth and Development

1. Growth is an increase in size; development is a change in shape or form



Growth

2. The amount of growth varies among living things, and the nature of—
development varies from species to species.



Reproduction

1. The process through which new living things are formed is called reproduction

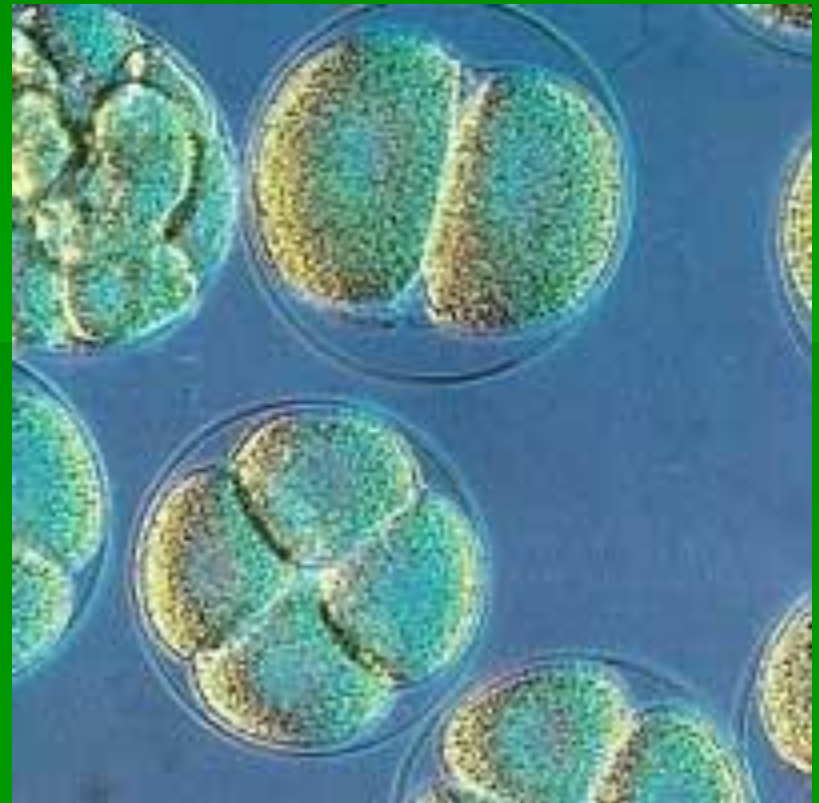
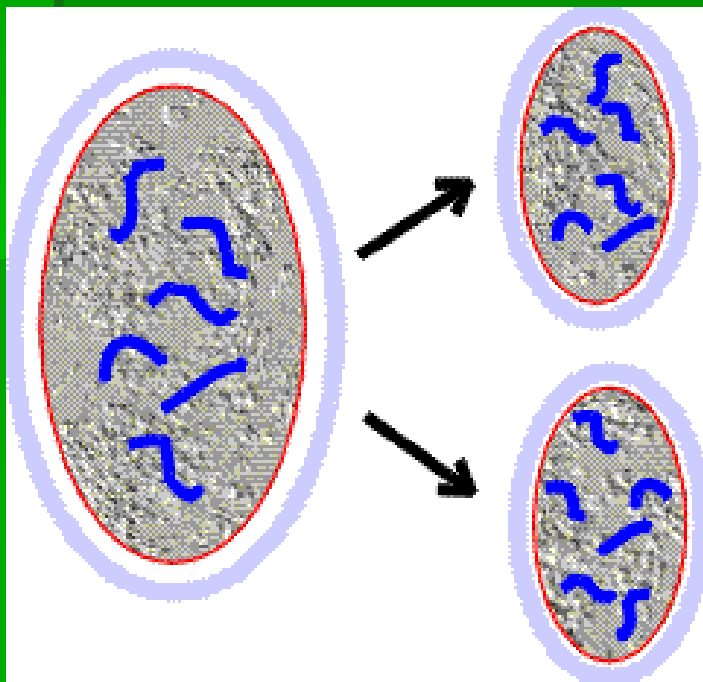


Reproduction

2. Reproduction involves making new cells

*Think: what would happen without reproduction of new cells?

Without reproduction, there would be no living things to replace those that die.



Reproduction

3. Reproduction is necessary for the survival of a species

4. Reproduction can result in an exact duplicate of the parent (asexual) or in duplication with variation (sexual)

*Think: Why do most organisms reproduce sexually? Why do some use both types of reproduction?



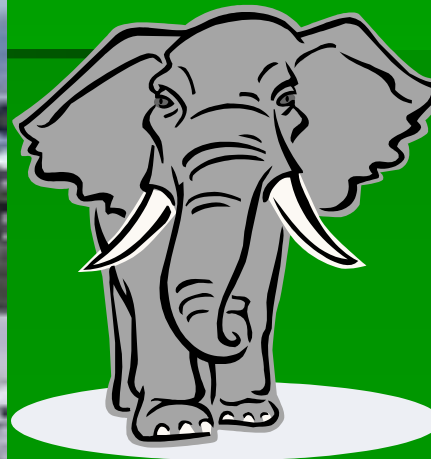
Homeostasis

Responding to stimulation is another characteristic shared by all living things.



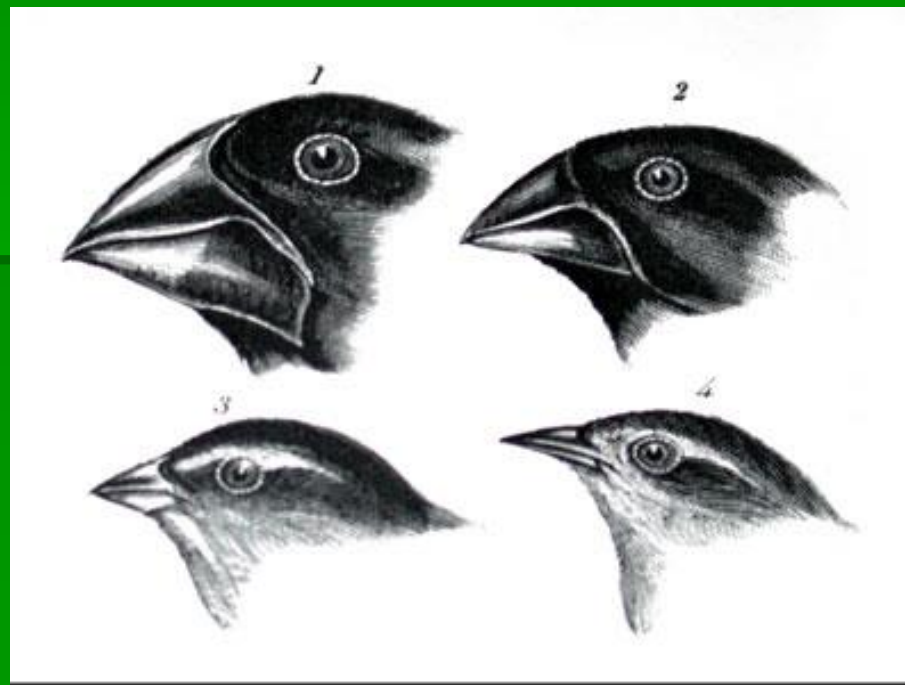
Homeostasis

Growth, migration, movement, and hibernation are a few examples of how living things respond to their environment to maintain homeostasis-constant internal conditions like body temperature or water balance.



Adaptation

Adaptation is a way for an entire population of organisms to respond to long-term changes in their surroundings *Think: Can one organism change its traits during its lifetime?



Adaptations are passed from generation to generation (generally, **just one individual does not develop new traits during its lifetime**)

Each species has unique adaptations that enable it to survive in its particular environment (e.g. the

both, I

