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Living Organisms Unit Overview

LIFE ON EARTH:

Objective: The 7th grade student will be able to understand the processes, structures, and functions of living organisms that enable them to survive, reproduce, and carry out the basic functions of life.

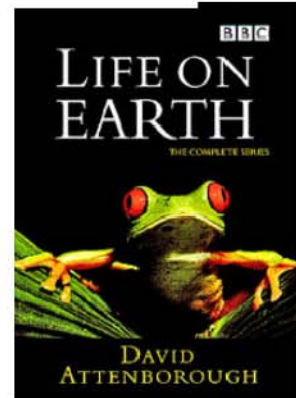
Sounds simple, right? But in reality, this topic is

HUGE!

We will break this gargantuan task down into 4 units:

- Unit 4: Structures & Functions of Single-celled Organisms
- Unit 5: Cellular Biology
- Unit 6: Structures & Functions of Multicellular Organisms
- Unit 7: Genetics

Before we can start any of them, though, we need to know what it means for something to be ALIVE!



The 7 Characteristics of Life:

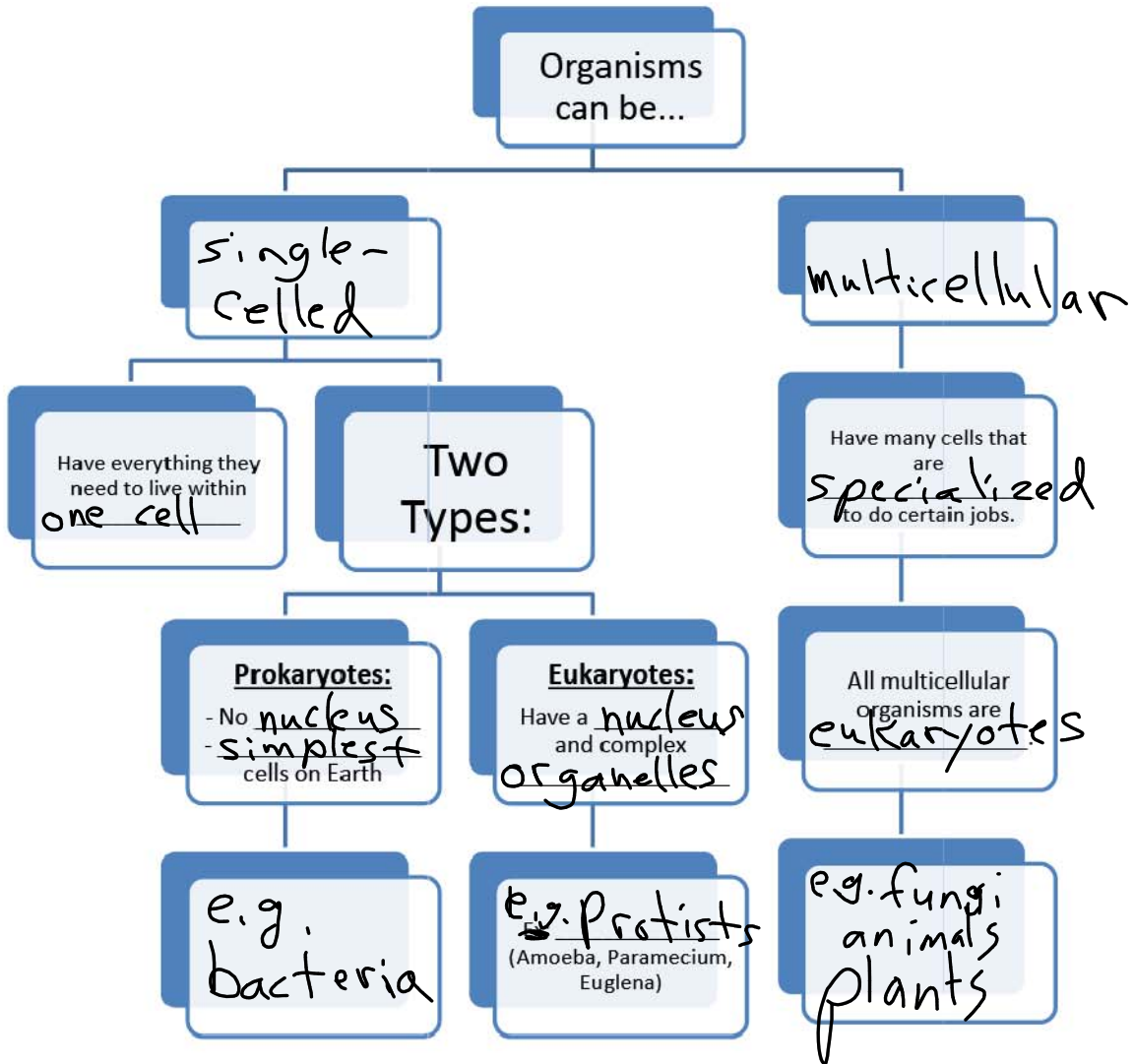
1. Living Things are composed of cells.
2. Living Things Have Different levels of organization.
3. Living Things use energy.
4. Living Things respond to their environment
5. Living Things grow.
6. Living Things reproduce.
7. Living Things adapt to their environment

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1. Living Things are Composed of Cells

- Cells are

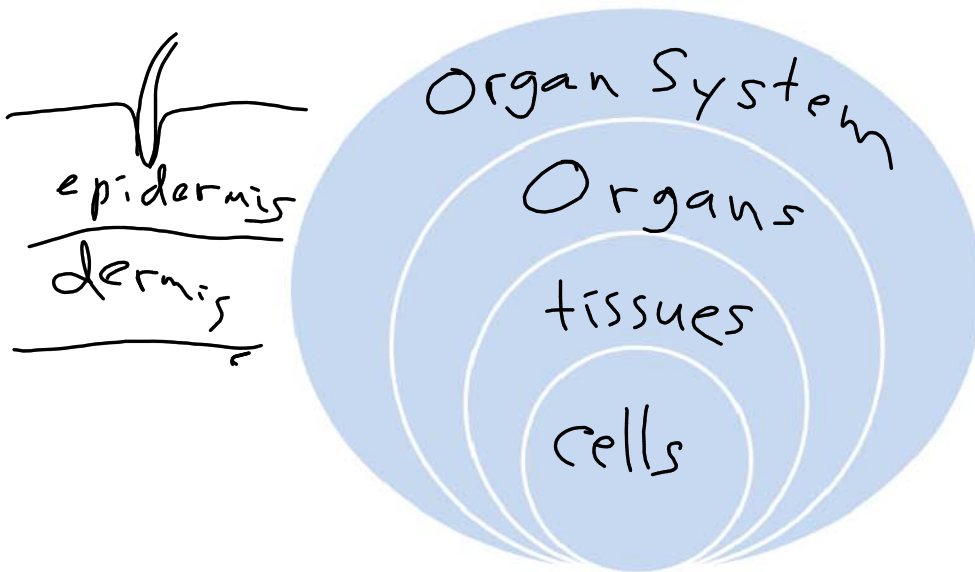


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2. Living Things Have Different Levels of Organization

- Single-celled organisms have different functional structures that work together for the survival of the whole organism.
- Multicellular organisms are organized at 4 levels:



3. Living Things Use Energy

- All organisms take energy from the Sun and use it for maintenance and growth.
- Examples:
 - Plant: Sun → photosynthesis → glucose
 - Herbivore: Eats the plant
 - Carnivore: Eats the herbivore that ate the plant

4. Living Things Respond To Their Environment

- Organisms make changes in their movement or behavior in response to stimuli in their environment.

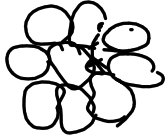
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• Examples:

- Plants grow toward the sun.
- Deer startle when they hear a predator.
- Humans salivate when they smell freshly baked bread.

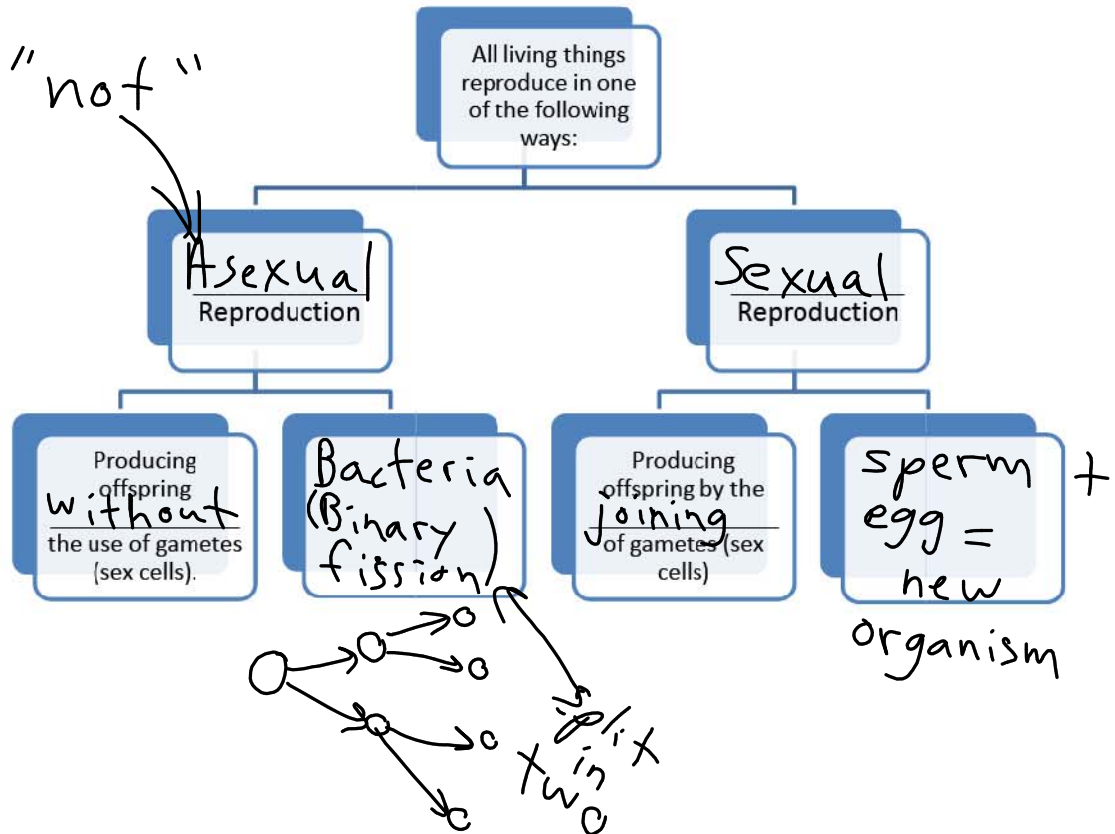
5. Living Things Grow



- Growth is a natural & irreversible increase in size
- Occurs at the cellular level, as newly formed cells must grow to their mature size.
- Occurs at the organism level, as organisms add to the number of cells in the body.

6. Living Things Reproduce

- Reproduction is not essential for the survival of individual organisms but must occur for a species to survive.



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adapts

7. Living Things Adapt To Their Environment

- Adaptation is the adjustment or change in a species' behavior or anatomy to become better suited to the environment.
- Example: Sunbirds and Rat's Tails
 - The sunbird has developed a long slender beak to reach nectar at the bottom of the flower.
 - The rat's tail has developed a tall sturdy stalk to attract pollinators looking for a safe perch.



So, what is alive?

- There are basically 5 categories of living things that meet all 7 criteria.

