



# Zoology and the Study of Life

# Zoology: The study of Animal Life

- What is LIFE?
- What makes up a living thing?
- Any ideas?



# Life

- Ultimately, life is defined by evolutionary history. NOT by any simple definition. We can identify characteristics of life.



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THE MEANING OF LIFE

I know, I don't get it either!!!

# 1. Chemical Uniqueness

- Living systems have a unique and complex molecular organization (macromolecules).

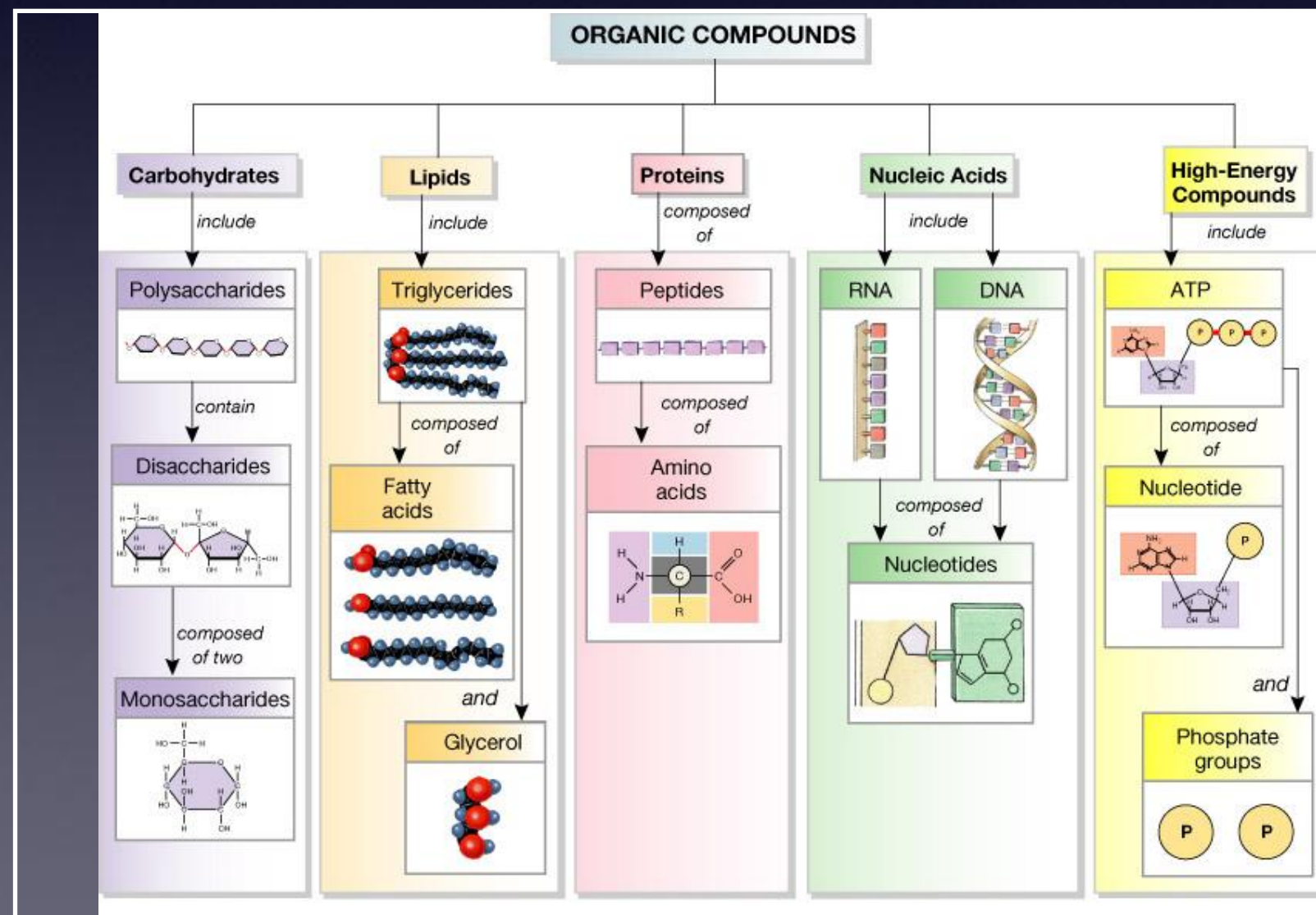
- There are 4 types of macromolecules

- Lipids

- Nucleic Acids

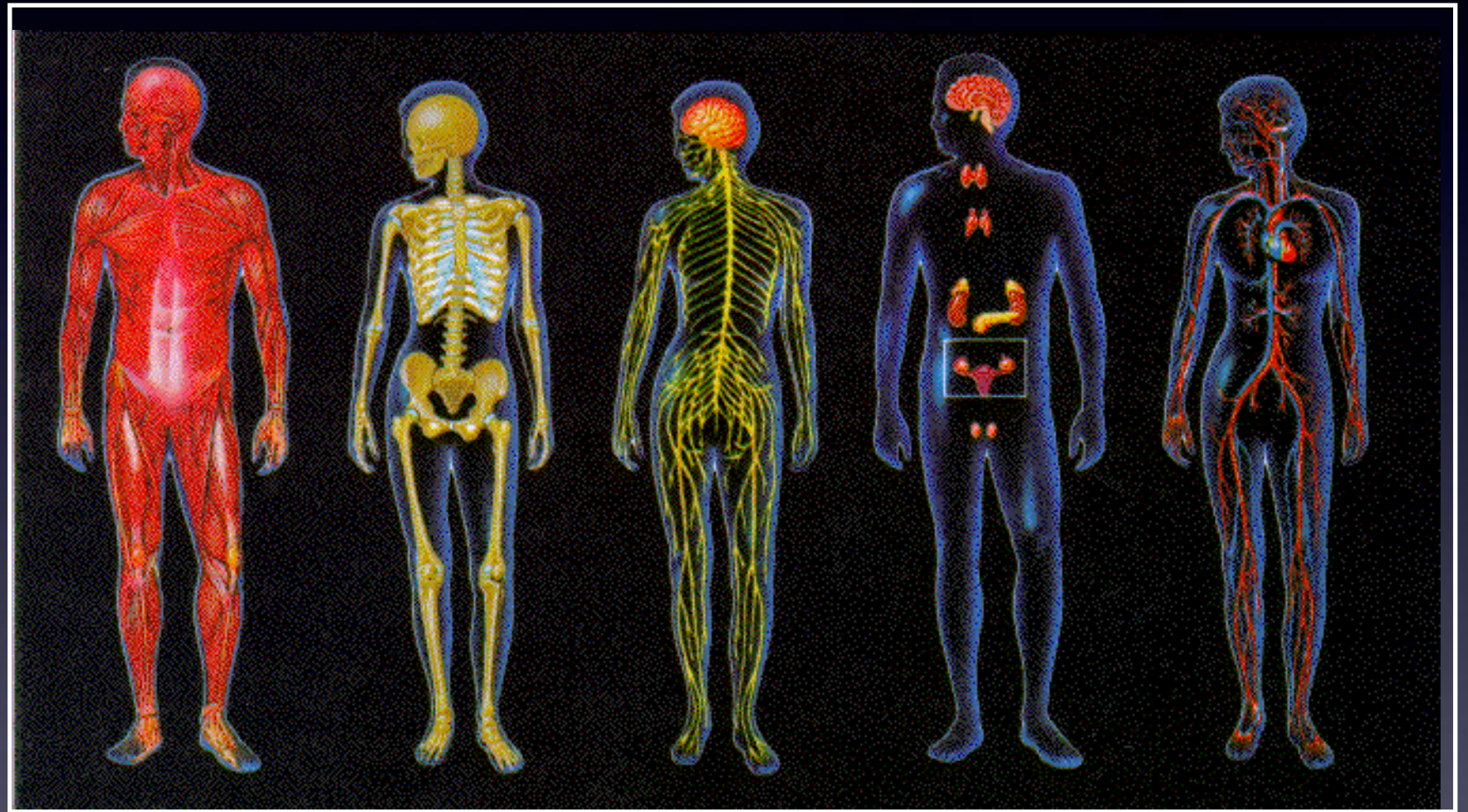
- Carbohydrates

- Proteins





# 2. Complexity and Organization



- Macromolecules, cells, organisms, populations, and species.
- Each builds on each other.



# 3. Reproduction

- Living organisms can reproduce themselves.
- Not by Spontaneous Generation.
- Use Biogenesis and the cell theory



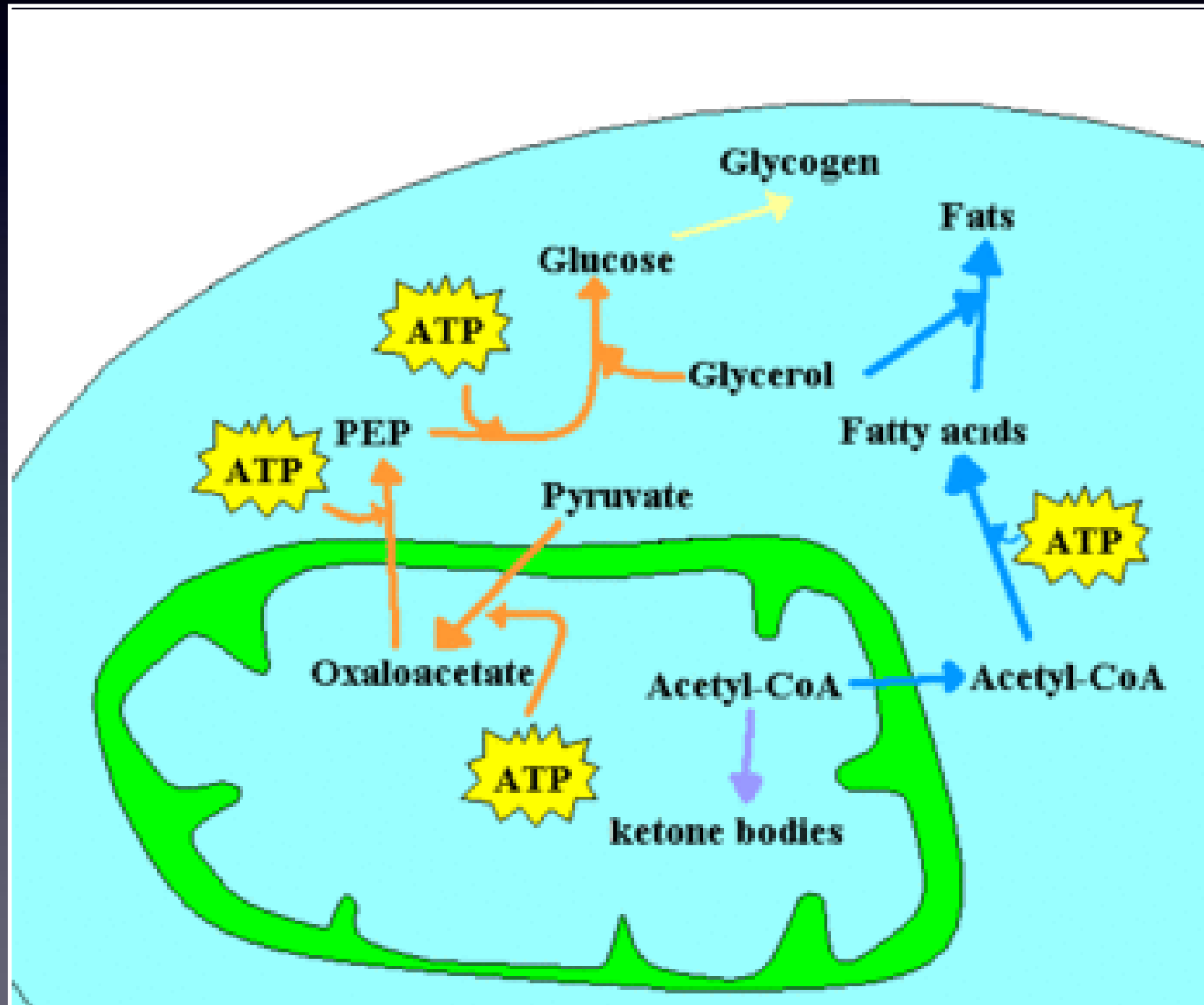
# 4. Possession of Genetic Makeup

- Has structures (DNA) which can make macromolecules such as proteins.
- Each organism will have a genetic code.



# 5. Metabolism

- Living organisms can maintain themselves by acquiring nutrients from their environments.
- The study of how they use metabolic functions is called physiology.





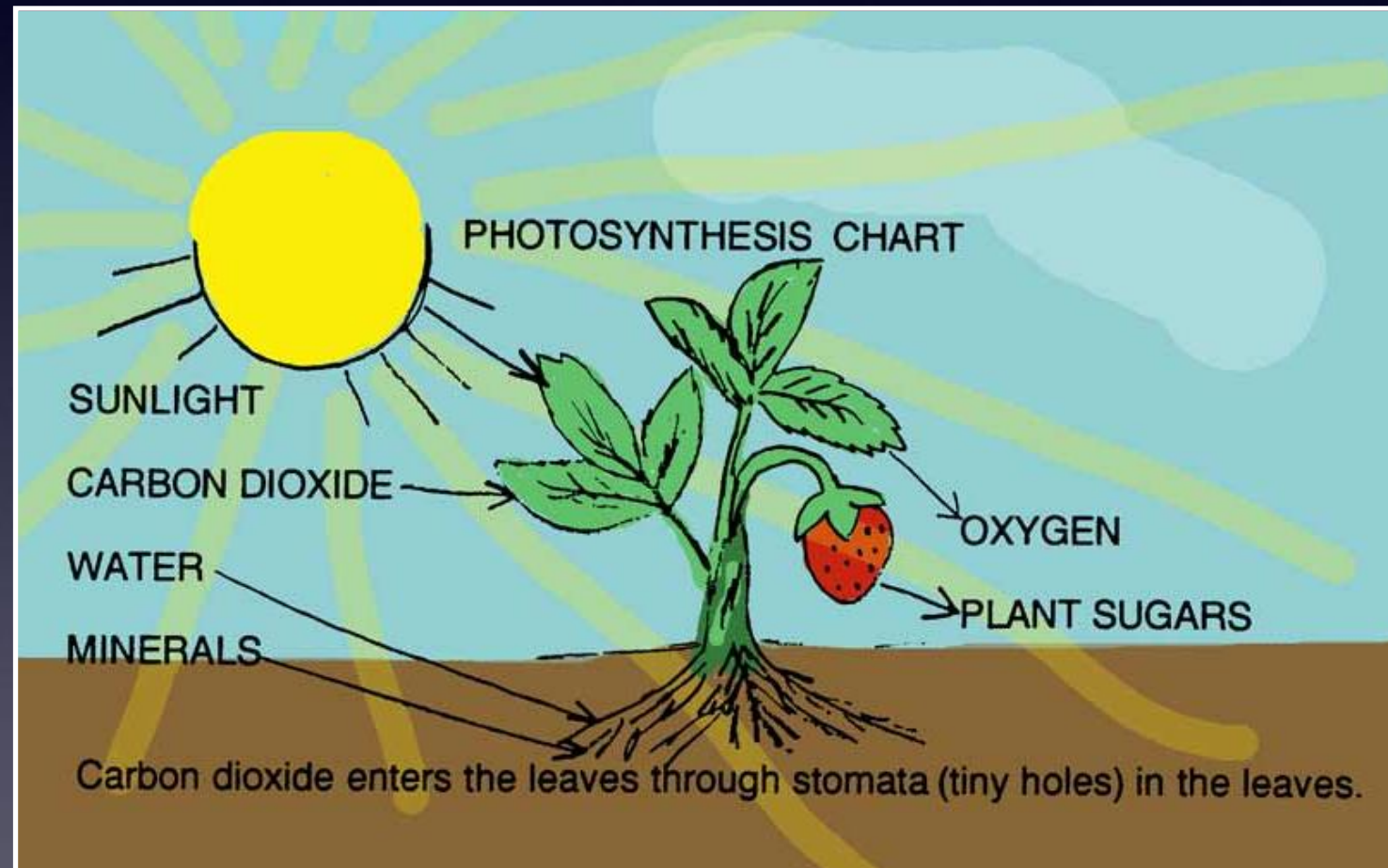
# 6. Growth and Development

- Living organisms have a life cycle. Movement from egg/sperm to an adult.
- Involves a change in size and shape, and differentiation of structures within an organism.



# 7. Environmental Interaction

- Each organism has an ecology or interaction with the environment.
- All organisms respond to environmental stimuli called irritability. Movement away from a noxious substance/smell etc.





# 8. Movement

- Living systems show precise and controlled movements arising from within the system.
- The energy that living systems extract permits them to initiate controlled movements.



# Life Obeys Laws

- First law of thermodynamics: Energy is neither created or destroyed. But it can be transformed from one form to another
- 2nd law of thermodynamics: Physical systems tend to proceed toward a state of greater disorder or entropy. Energy obtained and stored by plants is subsequently released by various mechanisms and finally dissipated as heat.