

SI Session #1

I. Review

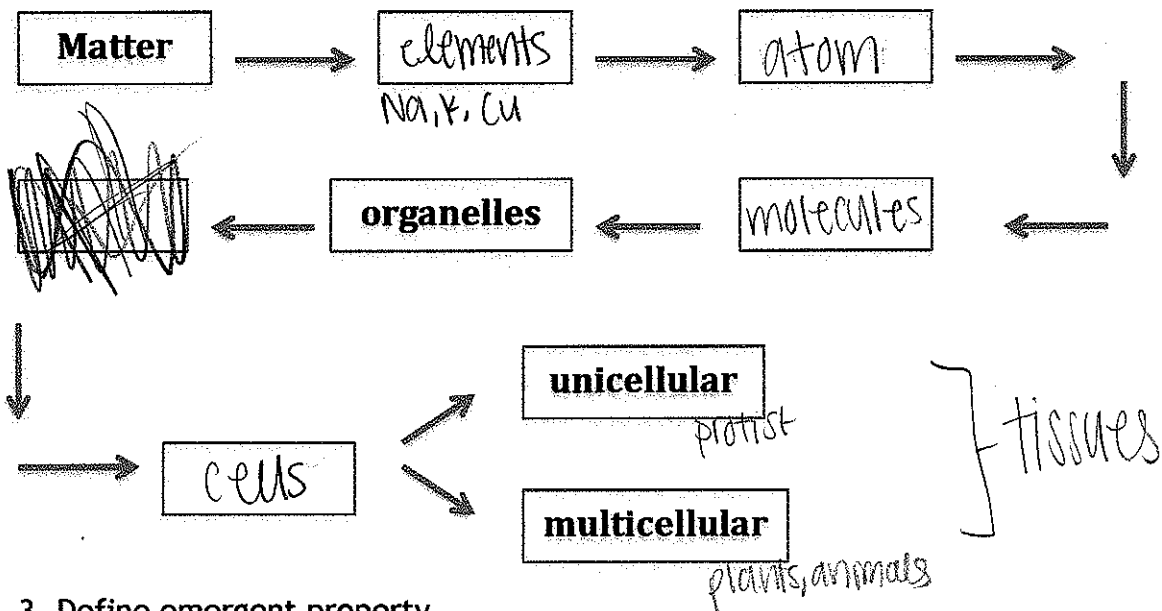
II. Questions

1. What are the 7 properties of life? Briefly describe each and give an example of how the property is illustrated in the environment.

1. Order - structure/organization (emergent properties)
2. Adaptation - life evolves b/c of interactions b/w organisms & environment
3. Response to environment - sweating - organisms respond to stimuli
4. Reproduction - animals reproduce
5. Growth & development - DNA stores heritable info
6. Energy processing - metabolism (energy is transferred & transformed)
 - ↳ transferred b/w organisms transformed into new types of energy
7. regulation - homeostasis
 - O₂/CO₂ exchange
 - pH balance

gills

2. Complete the flow chart. List an example under each box



3. Define emergent property

- when simpler components are combined new properties emerge
- property that emerges as a result of interactions b/w components

* How is this illustrated in life?

4. Describe the difference between prokaryotic and eukaryotic cells?

prokaryotic

- not a well defined nucleus
- no membrane-bound organelles
- unicellular

eukaryotic

- have a true nucleus
- membrane-bound organelles
- typically multi-cellular

cell - basic structural & functional unit of life

5. Define positive and negative feedback. How do these mechanisms work to maintain homeostasis?

- negative feedback: product inhibits process
- positive feedback: product stimulates process

The mechanisms work together to regulate processes in the organism (i.e.: hormones, digestion)

More
Common
mechanism

6. What are the three major domains used to classify living organisms?

Bacteria, Archaea, & Eukarya

7. List the steps of the scientific method:

1. observation
2. Hypothesis
3. Testing
4. Data collection
5. inference/conclusion

* True/false: a hypothesis is proven

- false a hypo. is either accepted or rejected

8. What is the difference between a hypothesis and a theory?

A theory is broader than a hypothesis & is supported by a large body of evidence