Biology I Can Statements

Term 1 – Classification and Cells

Students will use classification schemes to group organisms together.

- ☐ C1. I can classify organisms using a dichotomous key
- ☐ C2. I can use the rules of classification to create a classification system
- ☐ C3. I can explain how classification of living organisms was done historically and in modern times
- ☐ C4. I can describe how evolutionary relationships are shown in modern classification schemes

Students will explain the history and theory of evolution.

- ☐ C5. I can explain the history of the theory of evolution by natural selection
- ☐ C6. I can differentiate between natural and artificial selection
- ☐ C7. I can cite evidence for evolution

Students will describe the basic chemistry of living cells.

- ☐ C8. I can list the main elements in cells
- ☐ C9. I can identify the properties of water and describe why these properties are important to life
- ☐ C10. I can list the 4 main types of macromolecules in cells and describe the structure and function of each

Students will differentiate between structure and function of cells and cell parts.

- ☐ C11. I can describe the 3 main ideas of cell theory and its history
- ☐ C12. I can compare prokaryotic and eukaryotic cells
- ☐ C13. I can describe the structure and function of cell organelles and parts
- ☐ C14. I can describe how the cell regulates transport of materials into and out of cells

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Term 2 – Reproduction and Inheritance

Students will describe the flow of energy in cellular processes.

- ☐ R1. I can differentiate between autotrophic and heterotrophic cells
- ☐ R2. I can illustrate how matter and energy flow through photosynthesis and cellular respiration

Students will explain sexual and asexual reproduction.

- ☐ R3. I can differentiate between mitosis and meiosis and explain each one
- ☐ R4. I can compare the advantages/disadvantages of sexual and asexual reproductive strategies

Students will predict patterns of inheritance in sexually reproducing organisms.

- ☐ R5. I can explain segregation and independent assortment in terms of meiosis
- ☐ R6. I can use Mendelian principles to predict patterns of inheritance
- ☐ R7. I can use Punnett squares to predict genotypes and phenotypes resulting from crosses that display dominance/recessiveness, incomplete dominance, co-dominance, and sex linked traits
- ☐ R8. I can form educated opinions and debate reproductive bioethical issues

Students will explain the structure and replication of DNA/RNA.

- ☐ R9. I can build a model DNA and summarize the history of its discovery
- ☐ R10. I can model the process of protein formation
- ☐ R11. I can explain how mutations in DNA change organisms
- ☐ R12. I can use research methods to find information on modern genetic technologies

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Term 3 – Organisms and Organs

Students will explain the mechanisms of evolution.

- ☐ O1. I can explain how mutations and recombination influence evolution
- ☐ O2. I can predict how genetic variability will influence the potential of a species to adapt to change
- ☐ O3. I can describe and give examples of how a species evolves

Students will explain the structure and function of organs.

- ☐ O4. I can list and give examples of the levels of complexity in living things
- ☐ O5. I can describe the structure and function of organs
- ☐ O6. I can compare organs in different types of organisms

Students will explain the structure and function of organ systems.

- ☐ O7. I can explain how the function of organs is related to the function of an organ system
- ☐ O8. I can describe the structure and function of organ systems
- ☐ O9. I can list similarities and differences between organ systems in different types of organisms

Biology I Can Statements

Term 4 – Ecosystems and the Environment

Students will explain how energy flows through an ecosystem.

- ☐ E1. I can use food chains and webs to show how energy flows through an ecosystem
- ☐ E2. I can list and describe the basic trophic levels and use an energy pyramid to compare them
- ☐ E3. I can describe energy input and output for specific organisms

Students will explain cycles of matter and their relationship to organisms.

- ☐ E4. I can use diagrams to show how carbon, oxygen, nitrogen, and water cycle through the environment
- ☐ E5. I can explain why water is a limiting factor in many environments
- ☐ E6. I can give examples of how humans can impact the cycling of matter, energy, and ecosystems

Students will describe interactions among organism and the environment.

- ☐ E7. I can differentiate between biotic and abiotic factors in an environment
- ☐ E8. I can describe how organisms interact with one another – competition, predator/prey, symbiosis