Unit 1: The Nature of Life

Chapters: 1 & 2

Standards:

- HS-ETS1-2: Design a solution to solve a complex problem by breaking it down into smaller problems
- HS-ETS1-3: Evaluate the effectiveness and application of solutions, and correct solutions to reduce human impact
- HS-ESS3-4: Evaluate or refine a technological solution that reduces human impact
- HS-LS1-6: Explain how carbon, hydrogen, and oxygen from sugar molecules can create other large carbon-based molecules using evidence
- HS-ESS2-5: Plan and conduct an investigation of the properties of water and how it affects Earth's materials and processes
- HS-ETS1-1: Analyze a major global challenge and identify qualitative and quantitative needs and limitations for solutions that also accommodate the needs and wants of society

Objectives:

1. Describe the goals of science
2. Explain the procedures that make up the scientific method
3. Define the term scientific theory (and understand how it is different from a hypothesis)
4. Describe how attitudes and experiences generate new ideas
5. Explain why peer review is important
6. Explain the relationship between science and society
7. List practices common to both science and engineering
8. Identify characteristics of all living things
9. Explain the unique properties of water
10. Explain how water's polarity affects the way that water interacts with other substances
11. Identify the elements that carbon bonds with to make up the molecules of life
12. Explain the functions of each of the four groups of macromolecules
13. Explain what happens to chemical bonds during chemical reactions
14. Investigate how energy changes affect whether a chemical reaction will occur
15. Explain the role enzymes play in living things and what affects their function

Vocabulary:

- Observation
- Inference
- Hypothesis
- Controlled experiment
- Independent variable
- Dependent variable
- Control group
- Data
- Theory
- Bias
- Biology
- Atom
- Covalent bond
- Molecule
- Hydrogen bond
- Cohesion
- Adhesion
- Solution
- Solute
- pH scale
- Monomer
- Polymer
- Carbohydrate
- Lipid
- Nucleotide
- Nucleic acid
- Protein
- Amino acid
- Reactant
- Product
- Activation energy
- Catalyst
- Enzyme
- Substrate