



Life Science & English Instructional Guide

Course Overview:

This course is composed of multiple modules designed to introduce students to life science. The class begins with scientific thinking and the scientific method and then moves to define characteristics of life and an in-depth look at cell structures and functions. Next, diversity within the living world is analyzed and genetics are explored. Finally, large-scale biological processes are introduced by looking at how energy and matter enter and move through the living world. Helpful videos, pictures, lab, models, and other visual strategies are used as learning tools with an expanded emphasis on writing and math to bring meaning to the content being addressed.

Course Outcomes:

- Identify the purpose of science and demonstrate scientific thinking.
- Apply the steps of the scientific method to everyday situations as well as laboratory investigations.
- Identify and describe the characteristics of cells and organelles.
- Demonstrate basic lab skills through the collection, synthesis, and analysis of data (including creation of graphs from data and correct interpretation of graphed data).
- Critique information presented online and in the media to determine if the information is “scientific and credible.”

College & Career Readiness Standards:

CCRs Reading Anchor(s): Level D (All)

CCRs Writing Anchor(s): Level D (All)

CCRs Speaking/Listening Anchor(s): Level D (All)

CCRs Language Anchor(s): Level D anchor 1, 2, 3

CCRs Math Level(s): Level C number and operations, Ratio/Proportion, Represent and interpret Data.

Course Delivery Notes:

- The course is designed to use Google Docs. Students and instructor should have Gmail accounts.
- **Module X:** Alka Seltzer Lab: supplies needed: Alka Seltzer tablets, cooking thermometers (can work without if not able to purchase) clear plastic cups, measuring cup, timing device (cell phones work well) and a way to heat water (a microwave or coffee maker?)
- **Module X:** Cell Math Lab: Supplies needed: Multiple rectangular prisms (boxes, kleenex box, books, etc.. Basically any 3 dimensional rectangle or square), tape measure or ruler.
- **Module X:** DNA and RNA lab is module 3 supplies needed: Red licorice, black licorice, mini colored marshmallows, toothpicks
- **Module 4:** Meiosis Model supplies needed: Play-Doh (at least 2 different colors)
- **Module X:** Billions of Bubbles Lab: supplies needed: Liquid dish soap, yeast, hydrogen peroxide, food coloring, empty water bottles (or empty plastic bottles), experiment contents will run out of the bottle, so aluminum catch pans are a smart choice.
- **Module X:** Water Osmosis Lab: will need paper towels (Not industrial ones from bathrooms because those will not work!) and paper cups. (This lab can be done at home by students)
- **Module X:** Here is a list of supplies needed for Ecosystem Model. Ts and Ss can gather these items throughout the previous weeks.
 - Two 2-liter soda bottles,
 - One bottle cap
 - Duck tape
 - One piece of heavy cotton string cut about 6 inches long
 - Distilled water
 - 8- 10 cm of planting soil

- And a couple of small plants with the roots attached (or seeds; the shorter the germination period the better)
- Optional, pill bugs (Isopods) worms, or a land snail.

Course Module Instructional Guides:

- Module 1: (Scientific Thinking)
- Module 2: Cells
- Module 3: Genetics
- Module 4: Mitosis and Meiosis
- Module 5: Chemistry of Life
- Module 6: Ecology and Biogeochemical Cycles
- Module 7: Ecosystems and Biomes
- Module 8: Community
- Module 9: Population
- Module 10: Environmental Action