Middle School Life Science

12 Week Fall Semester Syllabus

Dates: Thursdays, September 22 to December 15 (no class November 24)

Textbook: [CK-12 Life Science Concepts](http://www.ck12.org/book/CK-12-Life-Science-Concepts-For-Middle-School/)

**Week 1: Nature of Science & Engineering/Scientific Method** *7.1.1.1.2, 7.1.1.2.1*

Students will learn the scientific method and how to develop and test a hypothesis. They will practice by collecting and analyzing data as a group and discussing the results as a class.

\*Students will conduct an experiment at home using the scientific method and presenting the results to their classmates. *7.1.1.2.2*

**Week 2: Nature of Sci & Eng/Scientific Method & Interdependence Among Living Things** *7.1.3.4.2, 7.1.1.2.3, 7.4.2.1.1*

Students will conduct a population study studying diversity. They will develop a hypothesis, collect and analyze data, and accept or reject their hypothesis.

\*Field trip week to Wolsfelds Woods SNA.

**Week 3: Interdependence Among Living Things** *7.4.2.2.1, 7.4.2.2.2, 7.4.2.2.3*

Students will learn about Minnesota’s four main biomes and learn about terrestrial and aquatic biomes around the world. Students will construct a food web for one of the biomes discussed including producers and consumers/autotrophs and heterotrophs.

**Week 4: Interdependence Among Living Things**  *7.4.2.1.2, 7.4.2.1.3*

Students will learn about the ways living things interact with each other including predator/prey relationships, commensalism, mutualism, and parasitism. Includes Oh Deer! and Good Buddies activities.

**Week 5: Presentations & Human Interactions with Living Systems** *7.4.4.2.1*

Students will give a 5-minute presentation on the experiment conducted at home. Can be a PowerPoint, video, poster, etc. that details their hypothesis, materials, procedure, data, analysis, and conclusion.

With the remaining time, students will participate in a hands on activity, called Poison Pump, that illustrates how some organisms can be harmful to humans causing illness.

**Week 6: Structure & Function of Living Things** *7.4.1.1.1, 7.4.1.2.3*

Students will learn the basics of cells and their structure. They will compare and contrast prokaryotic cells with eukaryotic cells. Students will have a chance to view cells using microscopes including live cultures from yogurt.

\*If students have a microscope at home, they should bring it in so the students can share. (I have one microscope for students to use.)

**Week 7: Structure & Function of Living Things** *7.4.1.2.1*

Students will learn about the structures and functions of cell organelles. They will compare and contrast plant and animal cells.

\*Students will create a 3-D model of either a plant or animal cell to be turned in the next week. These will be “graded” by their classmates.

**Week 8: Structure & Function of Living Things** *7.4.2.2.1*

Students will learn the basics of photosynthesis and cellular respiration and how they are connected. They will use molecular models to piece together the chemical equations for both processes.

**Week 9: Evolution in Living Things and Genetics** *7.4.3.1.1, 7.4.3.2.1*

Students will learn how and why cells divide. They will learn about genes and genetic code. Students will compare asexual and sexual reproduction in terms of diversity throughout populations. Through a hands on activity, students will demonstrate how genetic traits are passed down from the parents to the offspring.

**Week 10: Evolution in Living Things** *7.4.3.1.3, 7.4.3.2.3*

Students will learn about Charles Darwin and his theory of Natural Selection. They will learn the difference between inherited traits and traits acquired based on environment. They will learn about adaptations and survival of the fittest through a hands on activity.

**Week 11: Diversity of Life**

Students will learn how living things are classified based on common characteristics. They will learn how organisms are divided up into Domains and Kingdoms. Students will learn the 6 kingdoms going more in depth on the plant and animal kingdoms. Students will have a chance to learn how to classify themselves using their common characteristics.

**Week 12: Living Systems**

Students will learn about the various organ systems of vertebrates through dissection. Working in pairs, students will dissect a frog identifying major organs.

\*Lab fee for this class: $15 [*Carolina’s Young Scientist Frog Dissection Kit*](http://www.carolina.com/young-scientist-preserved-dissection-kits/young-scientists-frog-dissection-kit/221521.pr)