Biology:

* Intro to Biology
* Contact Information: isabel@silveroakmontessori.org
* Zoom Link: <https://us04web.zoom.us/j/5852397995?pwd=NUg3NGR0a3Q0RlQ5bDdYYU1tQ09iQT09>
	+ password: science



*“Biology will relate every human gene to the genes of other animals and bacteria, to this great chain of being” -Walter Gilbert*

# Essential Understanding:

**Intro to Life**

* Design and conduct different types of biological investigations
* Explain through analysis and correctness of scientific investigations
* Communicate and defend my investigations using evidence and connections
* Use laboratory equipment to conduct and improve scientific investigations?
* Use the SI system and graphs to communicate data
* Describe the criteria that are used to consider an organism as living
* Define and provide examples of levels of biological organization

# Overview

# *The unit reviews the scientific method and problem solving. We will address biochemistry, covering topics that include polarity of water, macromolecules, and enzymes.*

**Guiding question 1: How will I use the scientific method to complete laboratory activities and identify the differences between living and non-living?**

# Lessons

\_\_\_\_\_ Week 1: Welcome to Biology (08/27)

\_\_\_\_\_ Week 2: What is life? (08/31)

\_\_\_\_\_ Week 3: The Scientific Method (09/03)

\_\_\_\_\_ Week 4: Experimental Design (09/10)

\_\_\_\_\_ Week 5: Elements & Atoms (09/17)

**Individual Work**

\_\_\_\_\_ Read the overview with your group and mark it up with questions or comments. (08/24)

\_\_\_\_\_ Week 1-2: Welcome to Biology (08/24)

* Preparing for biology
	+ Expectations & Rules
* What is life? (08/27)

\_\_\_\_\_ Week 3: The Science of Biology (09/03)

* The scientific method

\_\_\_\_\_ Week 4: Experimental Design (09/10)

* Intro to experimental design & controlled experiments

\_\_\_\_\_ Week 5: Elements & Atoms (09/17)

* Matter, element, and atoms

\_\_\_\_\_Make Mind Map for Guiding Question - weekly

\_\_\_\_\_Make vocabulary cards for the vocabulary in your Vocabulary List. – (08/24)

\_\_\_\_\_Reflect on the answer to Guiding Question 1. Update your mind map with the group presentation. (09/17)

Group work/Lab work

\_\_ Lab 1: Scientific Method Lab (09/04)

\_\_ Lab 2: controlled Experiment virtual lab

<http://www.glencoe.com/sites/common_assets/science/virtual_labs/E16/E16.html> (09/11)

***Labs will be done in groups of 4 or 5.***

**Pre-lab**: There will be a pre-lab for students to complete before the lab experiment, during the lab the students will gather the necessary data to complete the lab and answer the questions associated with the topic. After the necessary data is collected students will work on completing their lab notebook.

**Lab Notebook**: Every student is required to keep a lab notebook. The lab notebook will be each student’s personal “copy”. You will receive specific instructions on the lab notebook requirements.

You will need a notebook. I will have you take picture of your work and add to Google Classroom as needed.

**Formal Laboratory Report**: Each quarter students will put together a formally written laboratory report. This laboratory report is done individually (plagiarisms is not allowed). The report must be typed and include: Title, Purpose, Procedure, Materials, Observations, Data, Results, Conclusion and Citations.

**Intro to Biology vocabulary:**

* Biology
* data
* control
* independent variable
* dependent variables
* hypothesis
* inferring
* theory
* law
* observation
* research bias
* inquiry
* light microscope
* electron microscope
* homeostasis
* metabolism
* reproduction
* stimulus
* pH
* acid
* base
* elements
* atoms
* proteins
* amino acids lipids
* carbon
* carbohydrates
* peptide bonds
* covalent bonds
* ionic bonds
* mixtures
* solutions
* monosaccharide
* disaccharide
* polysaccharide
* glucose
* fructose
* sucrose
* starch
* nucleic acids
* monomer
* polymer

# Assessment

\_\_\_\_Group Assessment (09/17)

\_\_\_\_Individual assessment (09/21)

**Extension/Honors:**

* **“Dissection” of scientific journal**