

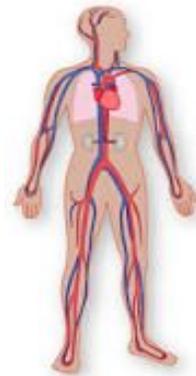
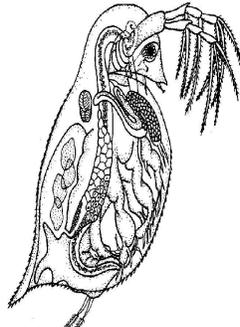
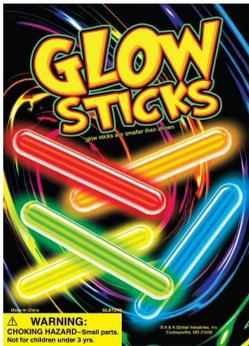
Semester 1  
Life Science  
10th Grade  
Lindsay, Chandra, Jomo, Luis



## Welcome to 10th Grade Life Science I!

### Class Description

This is a semester long course that is designed to help you answer the essential question “*How can I better understand myself and my community?*” You will be introduced to the Science of Biology, the study of living things and how they are impacted by their environment. Have you ever wondered what you have in common with a tiny mouse, or a giant elephant? Or why your body reacts the way it does to heat or stress? In the first semester of class you will learn to be like a real scientist and design your own experiments. You will learn how to design an experiment using glow sticks, how to use a microscope to observe microscopic organisms and their traits, and about the your own body systems and how they’re affected by the outside world.



In this course, you will be expected to work as scientists do in the real world. This means that you will observe scientific facts and situations, ask questions, form hypotheses, think of ways of testing those hypotheses, make new discoveries, discuss and reflect on those discoveries and apply what you learn to your own lives.

### Major Assessments:

Over the course of the first semester, you will be completing four projects in which you will use your knowledge of the principles of life science to explore characteristics of living things. These projects will involve students demonstrating their knowledge of experimental design, how to use a microscope, make analogies to show your understanding of the parts of a cell, and design, run, and analyze an experiment to test how your own body reacts. This is a portfolio class, which will culminate in the students presenting three

exemplary examples of their project work in January, along with a cover letter that illustrates their growth and skills over the semester. These projects must attain a grade of a 77% or above, or be revised to attain a grade of a 77% or above or the work may not be presented. In addition to presenting projects and a cover letter, students will also be required in presentations to verbally answer content questions related to the life science material and skills that they have learned. All of these assessments will be used to determine your final grade.

**Project 1:** The Glow Stick Experiment Project

**Project 2:** The Daphnia Project

**Project 3:** The Osmosis and Diffusion Project

**Project 4:** The Human Body Experiment Project

### **Essential Question**

The overall essential question for the first semester of the Life Science class is: *“How can I better understand myself and my community?”*

### **Grade Breakdown:**

Most class information, including due dates and copies of assignments will be found on Google Classroom. Please make sure you are able to access our Classroom, and have access to your Facing History email address. Teachers and students at FHS use Pupil Path to access grading information. We are using a semester system, so you will only receive credits twice a year, in January and June. However you will receive progress reports from your teachers throughout the school year. This makes it even more important to be on top of your work! The grading categories have changed to be in line with our work towards layered curriculum.

**Learning Activities** (homework, classwork, participation): at least 60-80 graded, entered assignments a semester.

**Formative Assessments** (Quizzes and rough drafts of projects): at least 8-10 a semester

**Summative Assessments** (Major tests and final drafts of projects): at least 4-6 summative assessments a semester.

### **Supplies:**

Students will need either a single subject notebook which will contain ONLY Science notes, or a multi-subject notebook with a section for Science, or a binder with loose-leaf and a separate section for Science. In addition you will need a folder or section of a binder to keep Science

handouts. Students should have a pen or pencil every day, and come to class ready to learn and participate.

## Progress Reports

Grades are available online at <https://pupilpath.skedula.com/> and will be updated regularly. If you don't already have one please create an account so that you keep track of your grades individually.

## Contact Information

If you have any questions, please don't hesitate to contact us:

### **Email:**

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### Term 1

Unit of Study	Essential Question	Unit Objectives	CCSS	Resources	Major Assessments
Unit 1 - The Scientific Method	<i>How do we know what we believe in science is true?</i>	1.1 - I can define Science. 1.2 - I can differentiate between Science and non-Science. 1.3 - I can solve a problem using logical reasoning and evidence from data. 1.4 - I can name and describe the steps of the scientific method in order. 1.5 - I can distinguish between observations and inferences. 1.6 - I can identify an experimental problem from an assigned reading. 1.7 - I can develop a proper hypothesis using the correct format. 1.8 - I can develop a proper detailed procedure for an experiment. 1.9 - I can compare & identify	<b>RST.9-10</b> <b>1, 3, 4, 5, 6, 7</b>	-Various articles and videos will be used	<b>B and C Layer Assignments</b> <ol style="list-style-type: none"> <li>The Glow Stick Portfolio Project</li> <li>Amazing Maze Experiment</li> <li>Unit Test</li> </ol> <b>A-Layer</b> Answer the EQ using class materials, independent research. Student choice in method of completion.

		<p>independent, dependent variables, and constants in an experiment.</p> <p>1.10 - I can differentiate between experimental and control groups in an experiment.</p> <p>1.11 - I can analyze an experiment to identify errors in the design.</p> <p>1.12 - I can use the scientific method to create an original experiment.</p> <p>1.13 - I can accurately collect relevant data and present it in a table and create an appropriate graph.</p> <p>1.14 - I can develop a valid conclusion using evidence from experimental data.</p> <p>1.15 - I can explain a scientific process related to an experiment (glow stick).</p> <p>1.16 - I can explain how temperature affects the intensity of the glow in a glow stick.</p> <p>1.17 - I can present the design and results of an experiment as a formal lab report.</p> <p>1.18 - I can critique an experiment and suggest improvements.</p>			
<p><b>Unit 2. Microscopy and Cells</b></p>	<p><i>How do we know that something exists if we can't see it?</i></p>	<p>2.1 - I can describe different methods of studying microscopic organisms.</p> <p>2.2 - I can identify by name the parts of a compound microscope and explain the function for each.</p>	<p><b>RST.9-10</b> 3, 4, 5, 6, 8</p>	<p>-Various articles and videos will be used</p>	<p><b>B and C Layer Assignments</b></p> <ol style="list-style-type: none"> <li>1. Microscope Practical</li> <li>2. Daphnia Project</li> <li>3. Cell Analogy Project</li> <li>4. Diffusion Experiment</li> </ol> <p><b>A – Layer Questions</b> Answer the EQ using class materials, independent research. Student choice in method of completion.</p>

		<p>2. 3 - I can calculate the total magnifying power if given the power of individual lenses.</p> <p>2.4 - I can use a microscope safely and correctly to observe and describe cells.</p> <p>2.5 - I can use a virtual microscope to analyze cell parts.</p> <p>2.6 - I can identify the life processes of all living things.</p> <p>2.7 - I can give examples of cells, tissues, organs, organ systems, and organisms.</p> <p>2.8 - I can explain three facts about the cell theory.</p> <p>2.9 - I can identify and explain the functions of the organelles of the cell.</p> <p>2.10 - I can compare and contrast plant and animal cells.</p> <p>2.11 - I can explain how the basic life functions of an organism are carried out within cells.</p> <p>2.12 - I can create analogies in order to teach others the functions of organelles.</p> <p>2.13 - I can diagram and label the parts of the cell membrane, and explain their properties.</p>			
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		<p>2.14 - I can explain diffusion.</p> <p>2.15 - I can predict how diffusion will occur in a given scenario.</p> <p>2.16 - I can explain osmosis.</p> <p>2.17 - I can predict how osmosis will occur in a given scenario.</p>			
<p><b>Unit 3 - Body Systems and Homeostasis</b></p>	<p><i><b>When are the needs of the community more important than individual choice?</b></i></p>	<p>3.1 - I can describe homeostasis.</p> <p>3.2 - I can predict how the human body might respond to restore homeostasis.</p> <p>3.3. - I can differentiate between different pathogens and describe how they affect the human body.</p> <p>3.4 - I can interpret data to infer a disease transmission pattern.</p> <p>3.5 - I can describe the components of the immune system.</p> <p>3.6 - I can predict how the immune system might react to pathogens.</p> <p>3.7 - I can describe how humans treat or prevent diseases.</p> <p>3.8 - I can describe some disorders of the immune system.</p> <p>3.9 - I can describe the components of the circulatory system.</p> <p>3.10 - I can predict how the circulatory system will</p>	<p><b>RST.9-10</b> <b>2, 3, 4, 5,</b> <b>8, 9</b></p>	<p>-Various articles and videos will be used</p>	<p><b>B and C Layer Assignments</b></p> <ol style="list-style-type: none"> <li>1. Epidemiology Disease Transmission Lab</li> <li>2. Human Body Experiment (Student Designed)</li> </ol> <p><b>A – Layer Questions</b></p> <p>Answer the EQ using class materials, independent research. Student choice in method of completion.</p>

		<p>maintain homeostasis.</p> <p>3.11 - I can describe the components of the respiratory system.</p> <p>3.12 - I can predict how the respiratory system will maintain homeostasis.</p> <p>3.13 - I can connect the relationship between the circulatory and respiratory system.</p> <p>3.14 - I can synthesize relevant research to describe the effects of different diseases on homeostasis.</p>			
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