

Curriculum Map

Grade: 10 Content: Living Environment Teacher(s): Lene

	Time period (month? Weeks? Quarter?)	Focus Standard	Assessment	Essential Question	Resources	Differentiation
Unit 1 Introduction to Biology	September 3 ½ weeks	Standard 1: Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions. Key Idea 1 The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing and creative process. Performance Indicator 1.1 Elaborate on basic scientific and personal explanations of natural phenomena, and develop extended visual models and mathematical formulation to represent one's	Participation in class discussion/ block activity Successful completion of "Intro to Scientific Method Quiz" Successful completion of answering questions about maggots in a jar Successful completion of the Observing Fungi Lab	What is science? Who are scientists? How are questions answered using science? What does observation mean? In what ways can something be observed?	Miller & Levine, "Biology" 2019. Schraer & Stoltze, Laboratory Manual "Biology: The Study of Life."	

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		<p>thinking.</p> <p>Performance Indicator 1.2 Hone ideas through reasoning, library research, and discussion with others, including experts.</p> <p>Performance Indicator 1.3 Work toward reconciling competing explanations; clarify points of agreement and disagreement.</p> <p>Performance Indicator 1.4 Coordinate explanations at different levels of scale, points of focus, and degrees of complexity and specificity, and recognize the need for such alternative representations of the natural world.</p>	<p>Successful completion of bell ringer activity</p> <p>Successful completion of "Scientific Method Exercises" worksheet</p> <p>Successful completion of "Using SI Units of Measure" lab</p> <p>Successful completion of the worksheet "Applying Scientific Method to Everyday Applications of Biology"</p> <p>Successful</p>	<p>What does observation have to do with science?</p> <p>How is metric measurement used in order to determine length?</p> <p>How are mass, length, and volume measured?</p> <p>How are metric units converted?</p> <p>How is a stereoscope used properly?</p> <p>What are morals?</p> <p>What is ethics?</p>		
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		<p>Performance Indicator 2.1 Devise ways of making observations to test proposed explanations.</p> <p>Performance indicator 2.3 Develop and present proposals including formal hypotheses to test explanations: i.e., predict what should be observed under specific conditions if the explanation is true.</p> <p>Appendix A Living Environment - Laboratory Checklist</p> <p>- Selects and uses the correct instruments (for measurement purposes)</p>	<p>completion of "Intro to Biology Exam"</p>	<p>How do morals, ethics, and money play a role in science?</p> <p>What is the scientific method and how is it used?</p> <p>How are theories established?</p>		
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Grade: 10

Content: Living Environment

Teacher: Nicole Lener

	Time period (month? Weeks? Quarter?)	Focus Standard	Assessment	Essential Question	Resources	Differentiation
Unit 2 Biochemistry	Beginning of October 3 ½ weeks	Standard 4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting, and living environment and recognize the historical development of ideas in science. Key Idea 1 - Living things are both similar and different from each other and from non-living things. Key Idea 5 - Organisms maintain a dynamic equilibrium that sustains life.	* Successful (65% or better) completion of Introduction to Biochemistry quiz * Successful completion of "Introduction to Chemistry" worksheet. * Successful completion of "Testing for Nutrients" lab report. * Successful completion of pH lab report.	What are the parts of an atom? What is the difference between an atom, a molecule, an element, and a compound? What are the differences between the following organic compounds: proteins, carbohydrates, lipids, and nucleic acids? What is the	Miller & Levine, "Biology" 2019. Schraer & Stoltze, Laboratory Manual "Biology: The Study of Life."	

		<p>Key Idea 6 - Plants and animals depend on each other and their physical environment.</p> <p>Performance Indicator 1.1 Describe and explain the structures and functions of the human body at different organizational levels (e.g., systems, tissues, cells, organelles).</p> <p>Performance Indicator 5.1 Explain the basic biochemical processes in living organisms and their importance in maintaining dynamic equilibrium.</p> <p>Performance Indicator 6.1 Explain factors that limit growth of individuals and populations.</p>			
	<p>* Successful completion of "Catalase Lab."</p> <p>* Successful completion of Biochemistry Exam.</p>	<p>* Successful completion of "Biochemistry Worksheet."</p>	<p>structure and function of the four different types of organic molecules found in living things?</p> <p>How is water important to all living things?</p> <p>What is pH and what does it have to do with living things?</p> <p>What is a chemical indicator?</p> <p>How can a food be tested for the presence of proteins, starch, simple sugars, and fats?</p>		
		<p>What is the purpose of a control in an experiment?</p> <p>What is the difference</p>			

				between an acid, base, and neutral substance?		
				How is pH measured?		
				What types of substances are acids, bases, or neutral?		
				How are conclusions drawn from conflicting data?		
				What is an enzyme?		
				How do enzymes work?		

				<p>In what ways are enzymes specific?</p>		
				<p>Why are enzymes necessary within living things?</p>		
				<p>How does temperature effect the reaction rate of an enzyme?</p>		
				<p>How is time converted into reaction rate?</p>		
				<p>In what ways are enzymes specific?</p>		

	Time period (month? Weeks? Quarter?)	Focus Standard	Assessment	Essential Question	Resources	Differentiation
<p>Unit 3 Cells</p>	<p>End of October 4 weeks</p>	<p>Standard 4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting, and living environment and recognize the historical development of ideas in science.</p> <p>Key Idea 1 - Living things are both similar and different from each other and from non-living things.</p> <p>Performance Indicator 1.2 Describe and explain the structures and functions of the human body at different organizational levels (e.g. systems, tissues).</p>	<p>* Successful completion of cell quiz 1</p> <p>* Successful completion of "The Virtual Cell Worksheet"</p> <p>* Successful completion of "Cell Worksheet #1"</p> <p>* Successful completion of "How Plant and Animal Cells Differ" lab</p> <p>* Successful completion of "Cell Worksheet"</p>	<p>What contributions did Robert Hooke make to science?</p> <p>What are the three parts to the Cell Theory?</p> <p>What are the different parts of a cell?</p> <p>What do cells look like and what is their function?</p>	<p>Miller & Levine, "Biology" 2019.</p> <p>Schraer & Stoltze, Laboratory Manual "Biology: The Study of Life."</p>	

		<p>cells, organelles).</p> <p>Performance Indicator 1.3 Explain how a one-celled organism is able to function despite lacking the levels of organization present in more complex organisms.</p>	<p>#2"</p> <p>* Successful completion of "Cell Worksheet #3"</p> <p>* Successful completion of "Diffusion, Osmosis, Receptor Quiz"</p> <p>* Successful completion of Cell Exam</p> <p>* Successful completion of "Living Things in Pond Water"</p>	<p>How are animal and plant cells different from each other?</p> <p>What do the different cell parts look like and what is their function?</p> <p>What do different types of cells look like?</p> <p>How big are different cells compared to one another?</p> <p>What is the purpose of a stain in creating slides?</p>		
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				<p>How do receptor molecules play a role in cellular communication?</p>	
				<p>What different types of unicellular organisms are found in pond water?</p>	
				<p>How are unicellular organisms capable of survival?</p>	
				<p>What is concentration?</p>	
				<p>What is the criteria for diffusion to occur?</p>	
				<p>How is</p>	

facilitated
diffusion
different from
regular
diffusion?

How is active
transport
different from
diffusion?

How are iodine
and Benedict's
solution used as
chemical
indicators?

What is the
criteria for
diffusion through
a membrane?

How can a
solution be
drawn across a
slide?

How does adding salt to a wet mount of an onion cause for the cell membrane to shrink?

How can a shrunken cell membrane be restored to normal size?

In what ways can cells appear to be different from each other?

In what ways are the functions of different cells different from each other?