

Grade Level: 10thCourse: 10th Science

Timeline/ Month(s) /Rotation (include date of rotation]	Content / concept	Grade Level Expectations (GLE's) [include GLE number & statement]	Skill(s) Use verbs to describe student's expected performance (i.e., identify nouns, describe components)	Resources (books, FOSS kits, guest speakers, models, etc.)	List all measures you used to check student understanding assessments, performance, projects, homework) [If using FOSS kit assessmen just list the item such as, Observation.]
September - June	Nature of Science	2.1.1 Understand how to generate and evaluate questions that can be answered through scientific investigations 2.1.2 Understand how to plan and conduct systematic and complex scientific investigations 2.2.4 Analyze scientific investigations for validity of method and reliability of results 2.2.5 Understanding how scientific knowledge evolves	Generate questions and hypotheses to answer questions about nature Conduct laboratory procedures to investigate hypotheses Evaluate the use and need for validity measures including sample size and multiple trials Learn and use the vocabulary specific to science (ex. Manipulated variables, hypothesis, etc.)	The Matter of Life, Active Chemistry, What On Earth, Blueprints of Infection, and Traits and Fates module texts	All Teacher created assessments Journal checks of homework assignments Formative assessment through discussions Quizzes PIER forms (lab reports) Unit Tests Semester Finals
September-October	Characteristics of Life	1.3.8 Understand how organisms, including cells, use matter and energy to sustain life and that these processes are complex, integrated, and regulated.	Apply the characteristics of Life to determine if something is alive or not	The Matter of Life	Same
September - October	Photosynthesis	1.3.8 Understand how organisms, including cells, use matter and energy to sustain life and that these processes are complex, integrated, and regulated	List the reactants and products of photosynthesis Explain the importance of the process of photosynthesis to all life	The Matter of Life	Same
November	Biomolecules	1.1.6 Analyze structural, cellular, biochemical, and genetic characteristics in order to determine the relationships among organisms	Understand that all living organisms contain the same biomolecules Describe the functions of each of the biomolecules	The Matter of Life	Same
September-October	Basic chemistry	1.1.1 Understand the atomic nature of matter, how it relates to physical and chemical properties and serves as the basis for the structure and use of the periodic table 1.2.3 Understand the structure of atoms, how atoms bond to form molecules, and that molecules form solutions	Identify materials based on their properties Understand the relationships between the elements as organized by the periodic table Describe the parts of an atom and how they are arranged, and how	Active Chemistry	Same

		<p>1.3.3 Analyze the factors that affect physical, chemical, and nuclear changes and understand that matter and energy are conserved</p> <p>2.1.4 Analyze how physical, conceptual, and mathematical models represent and are used to investigate objects, events, systems, and processes</p>	<p>atoms and ions bond</p> <p>Explain the difference between endothermic and exothermic reactions</p>		
November	Metabolism, (Digestive System, Respiratory System, Cellular Respiration)	<p>1.2.8 Analyze how human organ systems regulate growth, development, and life functions</p> <p>1.3.8 Understand how organisms, including cells, use matter and energy to sustain life and that these processes are complex, integrated, and regulated</p>	<p>Describe the parts of the digestive and respiratory systems and explain how they work to maintain life</p> <p>Explain the differences between anabolism and catabolism</p> <p>Describe how cellular respiration works and how it is related to photosynthesis</p>	The Matter of Life	Same
November – December	Cells	<p>1.1.6 Analyze structural, cellular, biochemical, and genetic characteristics in order to determine the relationships among organisms</p> <p>1.2.6 Understand cellular structures, their functions, and how specific genes regulate these functions</p> <p>1.2.7 Understand how genetic information (DNA) in the cell is encoded at the molecular level and provides genetic continuity between generations</p> <p>1.3.8 Understand how organisms, including cells, use matter and energy to sustain life and that these processes are complex, integrated, and regulated</p> <p>2.1.4 Analyze how physical, conceptual, and mathematical models represent and are used to investigate objects, events, systems, and processes</p>	<p>Understand that the cell is the basic unit of all Life</p> <p>Understand how the organelles of the cell work together to maintain homeostasis in the cell</p> <p>Understand how genetic material is passed from cell to cell through mitosis</p>	The Matter of Life	Same
December - January	Ecology	<p>1.2.2 Analyze energy transfers and transformations within a system, including energy conservation</p> <p>1.3.8 Understand how organisms, including cells, use matter and energy to sustain life and that these processes are complex, integrated, and regulated</p> <p>1.3.10 Understand that that an organism's ability to survive is influenced by the organism's behavior and the ecosystem in which it lives</p>	<p>Understand and draw appropriate food chains and webs</p> <p>Analyze the transfer of materials and energy in a food chain</p> <p>Explain the difference between abiotic and biotic factors and how they affect an organism</p>	What On Earth	Same
December – January And May	Theory of Evolution	<p>1.3.9 Analyze the scientific evidence used to develop the theory of biological evolution and the concepts of natural selection, speciation, adaptation, and biological diversity</p>	<p>Understand and apply the concepts of the Theory of Evolution and how it relates to biological diversity</p>	What On Earth	Same
January - February	Pathogens and Infectious Disease	<p>1.1.6 Analyze structural, cellular, biochemical, and genetic characteristics in order to determine the relationships among</p>	<p>Determine the differences between the three major groups of pathogens (bacteria, viruses, parasites)</p>	Blueprints of Infection	Same

		<p>organisms 2.1.1 Understand how to generate and evaluate questions that can be answered through scientific investigations</p>	<p>Understand and explain the methods of disease transmission Use basic methods of epidemiology to identify a “new” disease in a population</p>		
February - March	DNA Structure and the Central Dogma	<p>1.2.6 Understand cellular structures, their functions, and how specific genes regulate these functions 1.2.7 Understand how genetic information (DNA) in the cell is encoded at the molecular level and provides genetic continuity between generations</p>	<p>Construct models showing the structure of DNA Explain the central dogma: DNA – RNA – proteins (codons, anticodons, transcription and translation) Explain how changes in the structure of DNA result in different proteins Understand and explain how the structure of a protein determines its function Use gel electrophoresis to separate biomolecules</p>	Blueprints of Infection	Same
March - April	Human Body Systems and Immune Response	<p>1.2.8 Analyze how human organ systems regulate growth, development, and life functions</p>	<p>Describe the parts of the circulatory (cardiovascular) system and how blood flows the system Understand how the immune system (both cell mediated and humoral response portions) fights pathogens that enter the body to prevent disease Understand how AIDS is transmitted, and how this transmission can be prevented Understand how infectious disease can be treated (vaccines versus antibiotics)</p>	Blueprints of Infection	Same
April - June	Human and General Genetics	<p>1.2.7 Understand how genetic information (DNA) in the cell is encoded at the molecular level and provides genetic continuity between generations</p>	<p>Understand and use a vast variety of genetic terms Understand the difference between mitosis and meiosis Use karyotypes to determine the incidence of genetic disease Use gel electrophoresis to solve a problem involving DNA in populations Describe the different modes of genetic inheritance Use Punnet squares to determine the outcome of a genetic cross</p>	Traits and Fates	Same

