Textbook Information

Name of Textbook: Science Explorer Life Science

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Unit	State Standards	Outcomes	Essential Questions	Essential Skills	Assessments	Faith Integration
1st Quarter						
Introduction to Like Science *(updated 6/10/20)*	SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP4.A.6-8(A) Students extend quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. This includes the following: •Construct, analyze, or interpret graphical displays of data and large data sets to identify linear and nonlinear relationships. •Use graphical displays (e.g., maps, charts, graphs, and tables) of large data sets to identify temporal and spatial relationships. •Distinguish between causal and correlational relationships in data. •Analyze and interpret data to provide evidence for explanations of phenomena. •Apply concepts of statistics and probability (including mean, median, mode, and variability) to analyze and characterize data, using digital tools when feasible. •Consider limitations of data analysis (e.g., measurement error), and seek to improve precision and accuracy of data with better technological tools and methods (e.g., multiple trials). •Analyze and interpret data to determine similarities and differences in findings. •Analyze data to define an optimal operational range for a proposed object, tool, process, or system that best meets criteria for success. SCI.SEP7.A.6-8(A) Students construct a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. This includes the following.		Identify skills scientists use to learn about the world. Explain what scientific inquiry involves. Describe how to develop a hypothesis and design an experiment. Describe the attitudes that are important to science. Describe the goal of technology. Explain how technology affects people in both positive and negative ways. Explain why preparation is important when carrying out scientific investigation. Describe what you should do if an accident occurs.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Science Skills and Tols Lab	God is the giver of life. He created all living things. Discuss how the universal cell theory proves the theory of evolution impossible.

	•Compare and critique two arguments on the same topic. Analyze whether they emphasize similar or different evidence and interpretations of facts. •Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail. •Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. •Make an oral or written argument that supports or refutes the advertised performance of a device, process, or system. Based the argument on empirical evidence concerning whether or not the technology meets relevant criteria and constraints. •Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. SCI.SEP1.B.6-8(I) Students define a design problem that can be solved through the development of an object, tool, process, or system, and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions.					
Living Things *(updated 6/10/20)*	SCI.CC1.6-8(A) Students recognize macroscopic patterns are related to the nature of microscopic and atomic-level structure. They identify patterns in rates of change and other numerical relationships that provide information about natural and human-designed systems. They use patterns to identify cause and effect relationships and use graphs and charts to identify patterns in data. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.B.8(A) Animals engage in behaviors that increase the odds of reproduction. An organism's growth is affected by both genetic and environmental factors. SCI.LS4.D.8(A) Changes in biodiversity can influence humans' resources and ecosystem services they rely on.		List the characteristics all living things share. Explain where living things come from. Identify what all living things need to survive. Explain why biologists classify organisms. Relate the levels of classification to the relationship between organisms. Tell what cells are. State the cell theory. Describe how microscopes produce magnified images. Identify the role of the cell wall and the cell membrane in the cell. Describe the functions of cell organelles. Explain how cells are organized in many-celled organisms.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Inferring and calculating	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Microscope Labs	Read the creation account to determine when each living things was created by God.
Cell Processes and Energy *(updated 6/10/20)*	SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation,		Define elements and compounds. Explain how water is important to cells. Identify the four main kinds of organic compounds in living things. Describe how most small molecules cross the cell membrane. Explain why osmosis	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations	Look at the role of plants in the Bible and how photosynthesis is God's gift to all creatures!

	or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP4.A.6-8(A) Students extend quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. This includes the following: •Construct, analyze, or interpret graphical displays of data and large data sets to identify linear and nonlinear relationships. •Use graphical displays (e.g., maps, charts, graphs, and tables) of large data sets to identify temporal and spatial relationships. •Distinguish between causal and correlational relationships in data. •Analyze and interpret data to provide evidence for explanations of phenomena. •Apply concepts of statistics and probability (including mean, median, mode, and variability) to analyze and characterize data, using digital tools when feasible. •Consider limitations of data analysis (e.g., measurement error), and seek to improve precision and accuracy of data with better technological tools and methods (e.g., multiple trials). •Analyze and interpret data to determine similarities and differences in findings. •Analyze data to define an optimal operational range for a proposed object, tool, process, or system that best meets criteria for success. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.C.8(A) Plants use the energy from light to make sugars through photosynthesis. Within individual organisms, food is broken down through a series of chemical reactions that rearrange molecules and release energy. SCI.SEP2.A.6-8(I) Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following: •Evaluate limitations of a model for a proposed object or tool. •Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed. •Use and develop a model of simple systems with uncertain and less predictable factors. •Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena. •Develop and use a model to predict and describe phenomena. •Develop a model to describe unobservable mechanisms. •Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. SCI.ETS3.C.6(I) A theory is an explanation of some aspect of the natural world. Scientists develop theories by using multiple approaches. Validity of these theories and explanations is	is important. Tell the difference between passive and active transport. Explain how the sun aides in photosynthesis. Describe the process of photosynthesis. Describe the events that occur during respiration. Tell what fermentation is. Identify the events that take place during the three stages of the cell cycle. Explain how DNA is used by doctors.	Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Inferring, predicting, drawing conclusions	Building a Model of a Cell		

	increased through a peer review process that tests and evaluates the evidence supporting scientific claims. SCI.ETS3.C.7(I) Theories are explanations for observable phenomena based on a body of evidence developed over time. A hypothesis is a statement that can be tested to evaluate a theory. Scientific laws describe cause and effect relationships among observable phenomena.					
Unit	**State Standards**	**Outcomes**	**Essential Questions**	**Essential Skills**	**Assessments**	**Faith Integration**
2nd Quarter						
Genetics *(updated 6/10/20)*	SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP1.B.6-8(A) Students define a design problem that can be solved through the development of an object, tool, process, or system, and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions. SCI.SEP2.A.6-8(A) Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following: •Evaluate limitations of a model for a proposed object or tool. •Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed. •Use and develop a model of simple systems with uncertain and less predictable factors. •Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena. •Develop and use a model to predict and describe phenomena. •Develop a model to describe unobservable mechanisms. •Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. SCI.SEP3.A.6-8(A) Students plan and carry out investigations that use multiple variables and provide evidence to support explanations or solutions. This includes the following: •Individually and collaboratively plan an investigation, identifying: independent and dependent variables and controls, tools needed to do the gathering, how measurements will be recorded, and how many data are		Describe the results of Mendel's work. Identify what controls the inheritance of traits in organisms. Define probability and describe how it helps explain the results of genetic crosses. Explain what is meant by genotype and phenotype. Tell what codominance is. Describe the role of chromosomes in inheritance. Identify the events of meiosis. Explain the relationship between chromosomes and genes. Explain what forms the genetic code. Describe how a cell produces proteins. Identify how mutations can affect an organism.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Inferring and communicating	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Take a Class Survey Lab	Discuss the life of Gregor Mendel as a monk in comparison to that of Martin Luther. Discuss the life style of a monk and how that impacted their relationship with God.

needed to support a claim.
•Conduct an investigation. Evaluate and revise the experimental design to produce data that serve as the basis for evidence to meet the goals of the investigation.
•Evaluate the accuracy of various methods for collecting data.
•Collect data under a range of conditions that serve as the basis for evidence to answer scientific questions or test design solutions.
•Collect data about the performance of a proposed object, tool, process, or system under a range of conditions.

SCI.SEP4.A.6-8(A)
Students extend quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. This includes the following:
•Construct, analyze, or interpret graphical displays of data and large data sets to identify linear and nonlinear relationships.
•Use graphical displays (e.g., maps, charts, graphs, and tables) of large data sets to identify temporal and spatial relationships.
•Distinguish between causal and correlational relationships in data.
•Analyze and interpret data to provide evidence for explanations of phenomena.
•Apply concepts of statistics and probability (including mean, median, mode, and variability) to analyze and characterize data, using digital tools when feasible.
•Consider limitations of data analysis (e.g., measurement error), and seek to improve precision and accuracy of data with better technological tools and methods (e.g., multiple trials).
•Analyze and interpret data to determine similarities and differences in findings.
•Analyze data to define an optimal operational range for a proposed object, tool, process, or system that best meets criteria for success.

SCI.SEP7.A.6-8(A)
Students construct a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. This includes the following.
•Compare and critique two arguments on the same topic. Analyze whether they emphasize similar or different evidence and interpretations of facts.
•Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail.
•Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.
•Make an oral or written argument that supports or refutes the advertised performance of a device, process, or system. Based the argument on empirical evidence concerning whether or not the technology meets relevant criteria and constraints.
•Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.

SCI.LS1.A.8(A)
All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions.

SCI.LS3.A.8(A)
Genes chiefly regulate a specific protein, which affect an individual's traits.

SCI.LS3.B.8(A)
In sexual reproduction, each parent contributes half of the genes acquired by the offspring resulting in variation between parent and offspring. Genetic information can be

	altered because of mutations, which may result in beneficial, negative, or no change to proteins in or traits of an organism. SCI.ETS1.B.7(A) There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. SCI.ETS2.A.7(A) Science and technology drive each other forward SCI.ETS3.A.6(A) Individuals and teams from many nations, cultures and backgrounds have contributed to advances in science and engineering. SCI.ETS3.A.7(I) Scientists and engineers are persistent, use creativity, reasoning, and skepticism, and remain open to new ideas.					
Modern Genetics *(updated 6/10/20)*	SCI.ETS2.A.7(A) Science and technology drive each other forward SCI.ETS2.B.8(A) Technology use varies over time and from region to region. SCI.ETS3.C.6(A) A theory is an explanation of some aspect of the natural world. Scientists develop theories by using multiple approaches. Validity of these theories and explanations is increased through a peer review process that tests and evaluates the evidence supporting scientific claims. SCI.ETS3.C.7(A) Theories are explanations for observable phenomena based on a body of evidence developed over time. A hypothesis is a statement that can be tested to evaluate a theory. Scientific laws describe cause and effect relationships among observable phenomena. SCI.ETS3.C.8(A) Engineers develop solutions using multiple approaches and evaluate their solutions against criteria such as cost, safety, time and performance. This evaluation often involves trade-offs between constraints to find the optimal solution. SCI.ETS1.C.7(I) Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design. SCI.ETS1.C.8(I) The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. SCI.ETS2.A.6(I) Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems SCI.ETS2.B.7(I) The uses of technologies are driven by people's needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions SCI.ETS3.B.8(I) Science and engineering have direct impacts on the quality of life for all people. Therefore, scientists and engineers need to pursue their work in an ethical manner that requires honesty, fairness and dedication to public health, safety and welfare.		Identify some patterns of inheritance in humans. Describe the functions of sex chromosomes. Explain the relationship between genes and the environment. Identify two major causes of genetic disorders. Explain how geneticists trace inheritance. Describe how genetic disorders are diagnosed and treated. Describe three ways of producing organisms with desired traits. State the goal of the Human Genome Project.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Interpreting data Drawing conclusions	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Birth Defects Study Family Puzzle Lab	God designed sex for the purpose of reproduction, discuss this process to determine how we became who we are today. Children of the HEavenly Father.

Changes Over Time *(updated 6/10/20)*	SCI.CC2.6-8(A) Students classify relationships as causal or correlational, and recognize correlation does not necessarily imply causation. They use cause and effect relationships to predict phenomena in natural or designed systems. They also understand that phenomena may have more than one cause, and some cause and effect relationships in systems can only be explained using probability. SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.CC7.6-8(A) Students explain stability and change in natural or designed systems by examining changes over time, and considering forces at different scales, including the atomic scale. They understand changes in one part of a system might cause large changes in another part, systems in dynamic equilibrium are stable due to a balance of feedback mechanisms, and stability might be disturbed by either sudden events or gradual changes that accumulate over time. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP4.A.6-8(A) Students extend quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. This includes the following: •Construct, analyze, or interpret graphical displays of data and large data sets to identify linear and nonlinear relationships. •Use graphical displays (e.g., maps, charts, graphs, and tables) of large data sets to identify temporal and spatial relationships. •Distinguish between causal and correlational relationships in data. •Analyze and interpret data to provide evidence for explanations of phenomena. •Apply concepts of statistics and probability (including mean, median, mode, and variability) to analyze and characterize data, using digital tools when feasible. •Consider limitations of data analysis (e.g., measurement error), and seek to improve precision and accuracy of data with better technological tools and methods (e.g., multiple		Describe the important observations Darwin made. State the hypothesis Darwin made to explain different species. Explain how natural selection leads to evolution. State evidence that supports the theory of evolution. Explain how scientists infer evolutionary relationships among organisms. Describe how new species form. Describe how most fossils form. Explain how scientists can determine a fossil's age. State the Geologic time scale. Identify some unanswered questions about evolution.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Making models Inferring	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Evolution vs. Creation Study Nature at Work Lab	Evolution vs. Creation. Compare Genesis 1 to what science teaches about evolution.

	trials). •Analyze and interpret data to determine similarities and differences in findings. •Analyze data to define an optimal operational range for a proposed object, tool, process, or system that best meets criteria for success. SCI.LS2.A.8(A) Organisms and populations are dependent on their environmental interactions both with other living things and with nonliving factors, any of which can limit their growth. Competitive, predatory, and mutually beneficial interactions vary across ecosystems but the patterns are shared. SCI.LS3.A.8(A) Genes chiefly regulate a specific protein, which affect an individual's traits. SCI.LS3.B.8(A) In sexual reproduction, each parent contributes half of the genes acquired by the offspring resulting in variation between parent and offspring. Genetic information can be altered because of mutations, which may result in beneficial, negative, or no change to proteins in or traits of an organism. SCI.LS4.A.8(A) The fossil record documents the existence, diversity, extinction, and change of many life forms and their environments through Earth's history. The fossil record and comparisons of anatomical similarities between organisms enables the inference of lines of evolutionary descent. SCI.LS4.C.8(A) Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common. SCI.ETS1.C.7(A) Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design. SCI.LS4.B.8(I) Both natural and artificial selection result from certain traits giving some individuals an advantage in surviving and reproducing, leading to predominance of certain traits in a population.					
Viruses, Bacteria, Protists, and Fungi *(updated 6/10/20)*	SCI.CC7.6-8(A) Students explain stability and change in natural or designed systems by examining changes over time, and considering forces at different scales, including the atomic scale. They understand changes in one part of a system might cause large changes in another part, systems in dynamic equilibrium are stable due to a balance of feedback mechanisms, and stability might be disturbed by either sudden events or gradual changes that accumulate over time. SCI.SEP3.A.6-8(A) Students plan and carry out investigations that use multiple variables and provide evidence to support explanations or solutions. This includes the following: •Individually and collaboratively plan an investigation, identifying: independent and dependent variables and controls, tools needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim. •Conduct an investigation. Evaluate and revise the experimental design to produce data that serve as the basis for evidence to meet the goals of the investigation.		List characteristics of viruses and state reasons why viruses are considered to be nonliving. Describe the components of a basic structure of a virus. Explain how both active and hidden viruses multiply. Name and describe structures, sizes, and shapes of bacteria. Compare autotrophs and heterotrophs. Describe the conditions under which bacteria thrive and reproduce	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations How Many Viruses Fit on a Pin Lab Research of Covid19	Look at the plagues of the Old Testament and the reason God sent them as compared to the viruses and bacterial plagues of today.

	•Evaluate the accuracy of various methods for collecting data. •Collect data under a range of conditions that serve as the basis for evidence to answer scientific questions or test design solutions. •Collect data about the performance of a proposed object, tool, process, or system under a range of conditions. SCI.SEP7.A.6-8(A) Students construct a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. This includes the following. •Compare and critique two arguments on the same topic. Analyze whether they emphasize similar or different evidence and interpretations of facts. •Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail. •Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. •Make an oral or written argument that supports or refutes the advertised performance of a device, process, or system. Based the argument on empirical evidence concerning whether or not the technology meets relevant criteria and constraints. •Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.ETS3.C.6(A) A theory is an explanation of some aspect of the natural world. Scientists develop theories by using multiple approaches. Validity of these theories and explanations is increased through a peer review process that tests and evaluates the evidence supporting scientific claims. SCI.ETS3.C.7(A) Theories are explanations for observable phenomena based on a body of evidence developed over time. A hypothesis is a statement that can be tested to evaluate a theory. Scientific laws describe cause and effect relationships among observable phenomena.		frequently. Describe the charateristics of animal-like protists, plant like protists, and fungus like protists. Name the characteristics that fungi share. Explain how fungi reproduce. Describe the role fungi play in nature.	Questions, cues, and advance organizers Classifying, observing, controlling variables Calculating and making models Measuring and drawing conclusions		
Plants *(updated 6/10/20)*	SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer.		Identify the characteristics all plants share. Name the things that a plant needs to live. Compare nonvascular and vascular plants. Describe the plant life cycle. Name some nonvascular plants and their characteristics, and some vascular plants. Identify characteristics that seed plants share. Explain how seeds become new plants. How are gymnosperms and angiosperms similar and different	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Coloring Carnations Lab Plants Grow to Light Exploration	Discuss the age of trees by looking at the rings and compare that to when God created mature trees in the Garden of Eden that were already more than the one day old at creation.

	•Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP2.A.6-8(A) Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following: •Evaluate limitations of a model for a proposed object or tool. •Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed. •Use and develop a model of simple systems with uncertain and less predictable factors. •Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena. •Develop and use a model to predict and describe phenomena. •Develop a model to describe unobservable mechanisms. •Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.C.8(A) Plants use the energy from light to make sugars through photosynthesis. Within individual organisms, food is broken down through a series of chemical reactions that rearrange molecules and release energy. SCI.LS1.D.8(A) Each sense receptor responds to different inputs, transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain resulting in immediate behavior or memories. SCI.LS3.B.8(A) In sexual reproduction, each parent contributes half of the genes acquired by the offspring resulting in variation between parent and offspring. Genetic information can be altered because of mutations, which may result in beneficial, negative, or no change to proteins in or traits of an organism. SCI.LS4.C.8(A) Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common. SCI.ESS3.D.8(A) Evidence suggests human activities affect global warming. Decisions to reduce the impact of global warming depend on understanding climate science, engineering capabilities, and social dynamics. SCI.ETS1.B.9(A) Models of all kinds are important for testing solutions.		and different. How do gymnosperms and angiosperms reproduce? Identify three stimuli that produce plant responses. Describe how plants respond to seasonal changes. State how long different angiosperms live.	organizers Classifying, observing, controlling variables Observing and measuring		
Unit	**State Standards**	**Outcomes**	**Essential Questions**	**Essential Skills**	**Assessments**	**Faith Integration**
3rd Quarter						

Sponges, Cnidarians, and Worms *(updated 6/10/20)*	SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP4.A.6-8(A) Students extend quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. This includes the following: •Construct, analyze, or interpret graphical displays of data and large data sets to identify linear and nonlinear relationships. •Use graphical displays (e.g., maps, charts, graphs, and tables) of large data sets to identify temporal and spatial relationships. •Distinguish between causal and correlational relationships in data. •Analyze and interpret data to provide evidence for explanations of phenomena. •Apply concepts of statistics and probability (including mean, median, mode, and variability) to analyze and characterize data, using digital tools when feasible. •Consider limitations of data analysis (e.g., measurement error), and seek to improve precision and accuracy of data with better technological tools and methods (e.g., multiple trials). •Analyze and interpret data to determine similarities and differences in findings. •Analyze data to define an optimal operational range for a proposed object, tool, process, or system that best meets criteria for success. SCI.SEP8.A.6-8(A) Students evaluate the merit and validity of ideas and methods. This includes the following: •Critically read scientific texts adapted for classroom use to determine the central ideas, to obtain scientific and technical information, and to describe patterns in and evidence about the natural and designed world(s). •Clarify claims and findings by integrating text-based qualitative and quantitative scientific information with information contained in media and visual displays. •Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy,		Describe the levels of organization in animal bodies. Identify the functions that allow animals to meet their needs. Explain how animals are classified. Define symmetry. Identify characteristics of sponges and cnidarians Identify the three main phyla of worms. Describe the characteristics of each worm phylum.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Dissecting Inferring	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Dissect a Worm Symmetry Around the World Activity Soak It Up Lab	All animals no matter how big or small were created by God for a purpose, and have a role in the food chain and ecosystem. We need to be good stewards of God's creation.

	and possible bias of each publication. Describe how they are supported or not supported by evidence and evaluate methods used. •Evaluate data, hypotheses, and conclusions in scientific and technical texts in light of competing information or accounts. •Communicate scientific and technical information (e.g. about a proposed object, tool, process, or system) in writing and through oral presentations. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.B.8(A) Animals engage in behaviors that increase the odds of reproduction. An organism's growth is affected by both genetic and environmental factors. SCI.LS1.D.8(A) Each sense receptor responds to different inputs, transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain resulting in immediate behavior or memories. SCI.LS2.A.8(A) Organisms and populations are dependent on their environmental interactions both with other living things and with nonliving factors, any of which can limit their growth. Competitive, predatory, and mutually beneficial interactions vary across ecosystems but the patterns are shared. SCI.LS2.D.8(A) Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on -- for example, water purification and recycling. SCI.LS4.C.8(A) Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common. SCI.ETS2.A.7(A) Science and technology drive each other forward SCI.ETS3.B.6(A) Science asks questions to understand the natural world and assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. Science carefully considers and evaluates anomalies in data and evidence.					
Mollusks, Arthropods, and Echinoderms *(updated 6/10/20)*	SCI.CC6.6-8(A) Students model complex and microscopic structures and systems and visualize how their function depends on the shapes, composition, and relationships among their parts. They analyze many complex natural and designed structures and systems to determine how they function. They design structures to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation,		Identify the main characteristics of mollusks, arthropods, insects, and echinoderms. Describe the differences of the major groups of all the classes. Name the two types of metamorphosis found in insects. Explain why insects are important in food chains. Describe some methods used to control pest insects.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Dissect a Squid Dissect a Crayfish A Snails Pace Lab	Discuss the locust that John ate in the dessert, and the locusts that came as plague during the time f Moses. Bring in grasshoppers to eat.

	or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.SEP6.A.6-8(A) Students construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following: •Construct an explanation that includes qualitative or quantitative relationships between variables that predict and describe phenomena. •Construct an explanation using models or representations. •Construct a scientific explanation based on valid and reliable evidence obtained from sources, including the students' own experiments. Solutions should build on the following assumption: theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. •Apply scientific ideas, principles, and evidence to construct, revise, or use an explanation for real world phenomena, examples, or events. •Apply scientific reasoning to show why the data or evidence is adequate for the explanation. SCI.SEP6.B.6-8(A) Students design solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following: •Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process, or system. •Undertake a design project, engaging in the design cycle, to construct and implement a solution that meets specific design criteria and constraints. •Optimize performance of a design by prioritizing criteria, making trade-offs, testing, revising, and retesting. SCI.SEP7.A.6-8(A) Students construct a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. This includes the following. •Compare and critique two arguments on the same topic. Analyze whether they emphasize similar or different evidence and interpretations of facts. •Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail. •Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. •Make an oral or written argument that supports or refutes the advertised performance of a device, process, or system. Based the argument on empirical evidence concerning whether or not the technology meets relevant criteria and constraints. •Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.D.8(A) Each sense receptor responds to different inputs, transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain resulting in immediate behavior or memories.			Questions, cues, and advance organizers Classifying, observing, controlling variables Dissecting Inferring Graphing		

	SCI.LS4.C.8(A) Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common.					
Fishes, Amphibians, and Reptiles *(updated 6/10/20)*	SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.CC7.6-8(A) Students explain stability and change in natural or designed systems by examining changes over time, and considering forces at different scales, including the atomic scale. They understand changes in one part of a system might cause large changes in another part, systems in dynamic equilibrium are stable due to a balance of feedback mechanisms, and stability might be disturbed by either sudden events or gradual changes that accumulate over time. SCI.SEP7.A.6-8(A) Students construct a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. This includes the following. •Compare and critique two arguments on the same topic. Analyze whether they emphasize similar or different evidence and interpretations of facts. •Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail. •Construct, use, and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. •Make an oral or written argument that supports or refutes the advertised performance of a device, process, or system. Based the argument on empirical evidence concerning whether or not the technology meets relevant criteria and constraints. •Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.B.8(A) Animals engage in behaviors that increase the odds of reproduction. An organism's growth is affected by both genetic and environmental factors. SCI.LS1.D.8(A) Each sense receptor responds to different inputs, transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain resulting in immediate behavior or memories. SCI.LS4.C.8(A) Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common. SCI.ETS3.B.6(A) Science asks questions to understand the natural world and assumes that objects and events in natural systems occur in consistent patterns that are understandable		Name the characterisitcs that all vertebrates share. Name the main characteristics of fish, amphibians, and reptiles How do the groups of fish differ? How are adult amphibians adapted for life on land? Identify the rock in which fossils are frequently found. Describe what scientists can learn from studying fossils.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Inferring	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Soaking Up Those Rays Lab Amphibian vs. Reptile Debate	Discuss the Biblical acount of Jonah and the possibilities of being swallowed by a whale today. Also discuss the role of dinosaurs in God's creation and where they are mentioned in the Bible.

	through measurement and observation. Science carefully considers and evaluates anomalies in data and evidence. SCI.ETS3.C.6(A) A theory is an explanation of some aspect of the natural world. Scientists develop theories by using multiple approaches. Validity of these theories and explanations is increased through a peer review process that tests and evaluates the evidence supporting scientific claims.					
Birds and Mammals *(updated 6/10/20)*	SCI.CC1.6-8(A) Students recognize macroscopic patterns are related to the nature of microscopic and atomic-level structure. They identify patterns in rates of change and other numerical relationships that provide information about natural and human-designed systems. They use patterns to identify cause and effect relationships and use graphs and charts to identify patterns in data. SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.CC6.6-8(A) Students model complex and microscopic structures and systems and visualize how their function depends on the shapes, composition, and relationships among their parts. They analyze many complex natural and designed structures and systems to determine how they function. They design structures to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. •Ask questions that challenge the premise(s) of an argument or the interpretation of a data set. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.LS1.B.8(A) Animals engage in behaviors that increase the odds of reproduction. An organism's growth is affected by both genetic and environmental factors. SCI.LS1.D.8(A) Each sense receptor responds to different inputs, transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain resulting in immediate behavior or memories.		Identify the common characteristics of birds. Explain how birds are adapted to their environments. Explain how birds are able to fly. Describe the main characteristics common to all mammals. List the three main groups of mammals.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Making models and graphing	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Book Study on Mammal Dissecting Owl Pellets	God made man, a mammal, in His image. Therefore, we need to treat man and animal with ultimate respect and care.

	SCI.LS3.B.8(A) In sexual reproduction, each parent contributes half of the genes acquired by the offspring resulting in variation between parent and offspring. Genetic information can be altered because of mutations, which may result in beneficial, negative, or no change to proteins in or traits of an organism. SCI.LS4.B.8(A) Both natural and artificial selection result from certain traits giving some individuals an advantage in surviving and reproducing, leading to predominance of certain traits in a population. SCI.LS4.C.8(A) Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common. SCI.ETS3.A.6(A) Individuals and teams from many nations, cultures and backgrounds have contributed to advances in science and engineering.					
Unit	**State Standards**	**Outcomes**	**Essential Questions**	**Essential Skills**	**Assessments**	**Faith Integration**
4th Quarter						
Animal Behavior *(updated 6/10/20)*	SCI.CC2.6-8(A) Students classify relationships as causal or correlational, and recognize correlation does not necessarily imply causation. They use cause and effect relationships to predict phenomena in natural or designed systems. They also understand that phenomena may have more than one cause, and some cause and effect relationships in systems can only be explained using probability. SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.CC7.6-8(A) Students explain stability and change in natural or designed systems by examining changes over time, and considering forces at different scales, including the atomic scale. They understand changes in one part of a system might cause large changes in another part, systems in dynamic equilibrium are stable due to a balance of feedback mechanisms, and stability might be disturbed by either sudden events or gradual changes that accumulate over time. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between variables and clarify arguments and models. This includes the following: •Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information. •Ask questions to identify and clarify evidence and the premise(s) of an argument. •Ask questions to determine relationships between independent and dependent variables and relationships in models. •Ask questions to clarify or refine a model, an explanation, or an engineering problem. •Ask questions that require sufficient and appropriate empirical evidence to answer. •Ask questions that can be investigated within the scope		Explain what causes animal behavior. Describe what instincts are. Describe four types of learned behavior. List three ways animals communicate. Explain the benefits of tracking animal migrations.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Predicting Inferring	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Become a Learning Detective Lab Study of Ant Social Behavior	Look at instincts and learned behavior as a Christian. We are born into sin, but God sent Jesus to be the Savior for all.

of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.
•Ask questions that challenge the premise(s) of an argument or the interpretation of a data set.

SCI.SEP6.A.6-8(A)
Students construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:
•Construct an explanation that includes qualitative or quantitative relationships between variables that predict and describe phenomena.
•Construct an explanation using models or representations.
•Construct a scientific explanation based on valid and reliable evidence obtained from sources, including the students' own experiments. Solutions should build on the following assumption: theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
•Apply scientific ideas, principles, and evidence to construct, revise, or use an explanation for real world phenomena, examples, or events.
•Apply scientific reasoning to show why the data or evidence is adequate for the explanation.

SCI.LS1.A.8(A)
All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions.

SCI.LS1.B.8(A)
Animals engage in behaviors that increase the odds of reproduction. An organism's growth is affected by both genetic and environmental factors.

SCI.LS2.A.8(A)
Organisms and populations are dependent on their environmental interactions both with other living things and with nonliving factors, any of which can limit their growth. Competitive, predatory, and mutually beneficial interactions vary across ecosystems but the patterns are shared.

SCI.LS2.B.8(A)
The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. Food webs model how matter and energy are transferred among producers, consumers, and decomposers as the three groups interact within an ecosystem.

SCI.LS2.C.8(A)
Ecosystem characteristics vary over time. Disruptions to any part of an ecosystem can lead to shifts in all of its populations. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health.

SCI.LS2.D.8(A)
Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on -- for example, water purification and recycling.

SCI.LS4.C.8(A)
Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. Traits that support successful survival and reproduction in the new environment become more common.

SCI.ETS2.B.6(A)
All human activity draws on natural resources and has both short and longterm consequences, positive as well as negative, for the health of people and the natural environment.

Bones, Muscles and Skin *(updated 6/10/20)*	SCI.CC1.6-8(A) Students recognize macroscopic patterns are related to the nature of microscopic and atomic-level structure. They identify patterns in rates of change and other numerical relationships that provide information about natural and human-designed systems. They use patterns to identify cause and effect relationships and use graphs and charts to identify patterns in data. SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.SEP2.A.6-8(A) Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following: •Evaluate limitations of a model for a proposed object or tool. •Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed. •Use and develop a model of simple systems with uncertain and less predictable factors. •Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena. •Develop and use a model to predict and describe phenomena. •Develop a model to describe unobservable mechanisms. •Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. SCI.SEP8.A.6-8(A) Students evaluate the merit and validity of ideas and methods. This includes the following: •Critically read scientific texts adapted for classroom use to determine the central ideas, to obtain scientific and technical information, and to describe patterns in and evidence about the natural and designed world(s). •Clarify claims and findings by integrating text-based qualitative and quantitative scientific information with information contained in media and visual displays. •Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication. Describe how they are supported or not supported by evidence and evaluate methods used. •Evaluate data, hypotheses, and conclusions in scientific and technical texts in light of competing information or accounts. •Communicate scientific and technical information (e.g. about a proposed object, tool, process, or system) in writing and through oral presentations. SCI.LS1.A.8(A) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions. SCI.ETS2.B.6(A) All human activity draws on natural resources and has both short and longterm consequences, positive as well as negative, for the health of people and the natural environment. SCI.ETS2.B.7(A) The uses of technologies are driven by people's needs,		Identify the levels of organization in the body. Identify the functions of the skeleton. Explain the role that joints play in the body. Identify the types of muscles found in the body. Explain that skeletal muscles work in pairs. Describe the functions of the skin. Explain how to keep the skin healthy.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Drawing conclusions Inferring Measuring Reading an X-ray	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Build a Life Size Model of Body System Bone and Muscle Memorization A Look Beneath the Skin Lab	Discuss the science behind hanging Jesus on the cross and how the nails were placed so that He would hang, and what happened to His body as He suffocated while hanging.

	desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions SCI.ETS3.A.6(A) Individuals and teams from many nations, cultures and backgrounds have contributed to advances in science and engineering.					
Food and Digestion *(updated 6/10/20)*	SCI.CC2.6-8(A) Students classify relationships as causal or correlational, and recognize correlation does not necessarily imply causation. They use cause and effect relationships to predict phenomena in natural or designed systems. They also understand that phenomena may have more than one cause, and some cause and effect relationships in systems can only be explained using probability. SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.CC6.6-8(A) Students model complex and microscopic structures and systems and visualize how their function depends on the shapes, composition, and relationships among their parts. They analyze many complex natural and designed structures and systems to determine how they function. They design structures to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. SCI.SEP2.A.6-8(A) Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following: •Evaluate limitations of a model for a proposed object or tool. •Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed. •Use and develop a model of simple systems with uncertain and less predictable factors. •Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena. •Develop and use a model to predict and describe phenomena. •Develop a model to describe unobservable mechanisms. •Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. SCI.SEP6.A.6-8(A) Students construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following: •Construct an explanation that includes qualitative or quantitative relationships between variables that predict and describe phenomena. •Construct an explanation using models or representations. •Construct a scientific explanation based on valid and reliable evidence obtained from sources, including the students' own experiments. Solutions should build on the following assumption: theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. •Apply scientific ideas, principles, and evidence to construct, revise, or use an explanation for real world		Explain why the body needs food. Describe how nutrients carry out essential processes. Describe the digestive system. Explain the roles of the mouth, esophagus, and stomach. Explain the role of the large intestine in digestion.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing, controlling variables Predicting Measuring	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations What's For Lunch Activity Calorie and Nutrition Recording Project Raisin the Raisin Question Lab	Look at the feeding of the 5000 and determine the nutritional value behind the loaves and fishes, and then consider the left overs.

	phenomena, examples, or events. •Apply scientific reasoning to show why the data or evidence is adequate for the explanation. SCI.SEP8.A.6-8(A) Students evaluate the merit and validity of ideas and methods. This includes the following: •Critically read scientific texts adapted for classroom use to determine the central ideas, to obtain scientific and technical information, and to describe patterns in and evidence about the natural and designed world(s). •Clarify claims and findings by integrating text-based qualitative and quantitative scientific information with information contained in media and visual displays. •Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication. Describe how they are supported or not supported by evidence and evaluate methods used. •Evaluate data, hypotheses, and conclusions in scientific and technical texts in light of competing information or accounts. •Communicate scientific and technical information (e.g. about a proposed object, tool, process, or system) in writing and through oral presentations. SCI.LS1.B.8(A) Animals engage in behaviors that increase the odds of reproduction. An organism's growth is affected by both genetic and environmental factors. SCI.LS2.D.8(A) Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on -- for example, water purification and recycling. SCI.LS4.D.8(A) Changes in biodiversity can influence humans' resources and ecosystem services they rely on. SCI.ETS3.B.8(A) Science and engineering have direct impacts on the quality of life for all people. Therefore, scientists and engineers need to pursue their work in an ethical manner that requires honesty, fairness and dedication to public health, safety and welfare.					
Circulation *(updated 6/10/20)*	SCI.CC1.6-8(A) Students recognize macroscopic patterns are related to the nature of microscopic and atomic-level structure. They identify patterns in rates of change and other numerical relationships that provide information about natural and human-designed systems. They use patterns to identify cause and effect relationships and use graphs and charts to identify patterns in data. SCI.CC4.6-8(A) Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study. SCI.CC6.6-8(A) Students model complex and microscopic structures and systems and visualize how their function depends on the shapes, composition, and relationships among their parts. They analyze many complex natural and designed structures and systems to determine how they function. They design structures to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. SCI.SEP1.A.6-8(A) Students ask questions to specify relationships between		Explain the functions of the cardiovascular system. Describe the structure and function of the heart. Describe arteries, veins, and capillaries. Describe the components of blood. What bloods can be transfused into what blood types? What is the function of the lymph system? Identify diseases of the cardiovascular system. Describe behaviors that can help maintain cardiovascular disease.	Identifying similarities and differences Summarizing and note taking Reinforcing effort/ providing recognition Homework and practice Non linguistic representations Cooperative learning Setting objectives and providing feedback Generalizing and testing hypotheses Questions, cues, and advance organizers Classifying, observing,	Big 40+2 Vocabulary Quizzes Listing the Steps of the Scientific Method Exit Tickets Chapter Exams Tri-weekly Homework Assignments Explorations Heart Beat, Health Beat Lab Do You Know Your ABO's Lab Skits	Discuss the LCMS doctrine on communion and the blood of Christ.

variables and clarify arguments and models. This includes the following:
•Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify or seek additional information.
•Ask questions to identify and clarify evidence and the premise(s) of an argument.
•Ask questions to determine relationships between independent and dependent variables and relationships in models.
•Ask questions to clarify or refine a model, an explanation, or an engineering problem.
•Ask questions that require sufficient and appropriate empirical evidence to answer.
•Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.
•Ask questions that challenge the premise(s) of an argument or the interpretation of a data set.

SCI.SEP2.A.6-8(A)
Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following:
•Evaluate limitations of a model for a proposed object or tool.
•Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed.
•Use and develop a model of simple systems with uncertain and less predictable factors.
•Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena.
•Develop and use a model to predict and describe phenomena.
•Develop a model to describe unobservable mechanisms.
•Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales.

SCI.ETS1.B.8(A)
Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.

SCI.ETS2.A.6(A)
Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems

SCI.ETS2.A.7(A)
Science and technology drive each other forward

SCI.ETS2.B.7(A)
The uses of technologies are driven by people's needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions

SCI.ETS2.B.8(A)
Technology use varies over time and from region to region.

SCI.ETS3.A.6(A)
Individuals and teams from many nations, cultures and backgrounds have contributed to advances in science and engineering.

SCI.ETS3.A.7(A)
Scientists and engineers are persistent, use creativity, reasoning, and skepticism, and remain open to new ideas.

SCI.ETS3.B.8(A)
Science and engineering have direct impacts on the quality of life for all people. Therefore, scientists and engineers need to pursue their work in an ethical manner that

controlling variables
Inferring
Creating data tables

	requires honesty, fairness and dedication to public health, safety and welfare.					