COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

UNIT/FOCUS: Energy **TIMEFRAME:** 12 Weeks

Transfer

Students will be able to independently use their learning to…

- Ask questions about what would happen if a variable is changed.
- Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.
- Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.
- Develop and/or use models to describe and/or predict phenomena.
- Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- Make predictions about what would happen if a variable changes.
- Represent data in tables and/or various graphical displays (bar graphs, pictographs, and/or pie charts) to reveal patterns that indicate relationships.
- Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.
- Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
- Analyze data to refine a problem statement or the design of a proposed object, tool, or process.
- Use data to evaluate and refine design solutions.
- Organize simple data sets to reveal patterns that suggest relationships.
- Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.
- Identify the evidence that supports particular points in an explanation.
- Apply scientific ideas to solve design problems.
- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.
- Construct and/or support an argument with evidence, data, and/or a model.
- Use data to evaluate claims about cause and effect.
- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.
- Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence.
- Compare and/or combine across complex texts and/or other reliable media to support the engagement in other scientific and/or engineering practices.
- Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.
- Communicate scientific and/or technical information orally and/or in written formats, including various forms of media and may include tables, diagrams, and charts.

Meaning

Enduring Understandings (EUs)	Essential Questions (EQs)
Students will understand that…	*Students will keep considering…*
• Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products. • Patterns of change can be used to make predictions. • Patterns can be used as evidence to support an explanation. • Cause and effect relationships are routinely identified, tested, and used to explain change. • A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. • A system can be described in terms of its components and their interactions. • Energy can be transferred in various ways and between objects.	• What underlying forces explain the variety of interactions observed? • What is energy? • What is meant by conservation of energy? • How is energy transferred between objects or systems? • How are forces related to energy? • How do food and fuel provide energy? • If energy is conserved, why do people say it is produced or used? • What are the characteristic properties and behaviors of waves? • What is light? • How can one explain the varied effects that involve light? • What other forms of electromagnetic radiation are there? • How are instruments that transmit and detect waves used to extend human senses?

	• What is a design for? • What are the criteria and constraints of a successful solution? • What is the process for developing potential design solutions? • How can the various proposed design solutions be compared and improved?

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Acquisition	
Knowledge	Skills
Students will know…	*Students will be able to…*
• Objects in contact exert forces on each other. • Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. • The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. • The faster a given object is moving, the more energy it possesses. • Energy can be moved from place to place by moving objects or through sound, light, or electric currents. • Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. • Light also transfers energy from place to place. • Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy. • When objects collide, the contact forces transfer energy so as to change the objects' motions. • The expression "produce energy" typically refers to the conversion of stored energy into a desired form for practical use. • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). • Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; it does not move in the direction of the wave except when the water meets the beach. Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks). • An object can be seen when light reflected from its surface enters the eyes. • Digitized information transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa. • Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. • Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. • At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. • Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. • Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.	• Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. • Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. • Use evidence to construct an explanation relating the speed of an object to the energy of that object. • Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. • Ask questions and predict outcomes about the changes in energy that occur when objects collide. • Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. • Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. • Generate and compare multiple solutions that use patterns to transfer information. • Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. • Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. • Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Aligned Concepts, Topics, and Skills

Topics:

- Lighting a bulb
- Conductors and circuits
- Series and parallel circuits
- Strings of lights
- Magnets and materials
- Magnetic fields
- Magnetic force
- Electromagnets
- Magnet strength
- Telegraph
- Presence of energy
- Rolling balls down slopes
- Collisions
- Forms of waves
- Light travels
- Engineering with solar cells

Pacing Guide

- Approximately 2 weeks per investigation

21st Century Life and Career Ready Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP10. Plan education and career paths aligned to personal goals.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Interdisciplinary Connections

- Science and Engineering Practices
- Cross-Cutting Concepts
- Imagine no electricity
- Read Dr. Mr. Henshaw
- Name that conductor
- Math problem of the week
- Write directions for compass use
- Investigate emergency codes
- Research safety technologies
- Research roller coasters

Instructional Resources

- FOSS Kits
- FOSS Science Resource Books
- FOSS Online Activities

Benchmark / Summative Assessments

- Investigations
  - Energy and Circuits
  - Force of Magnetism
  - Electromagnetism
  - Energy Transfer
- I-Checks
- Self-Assessments
- FOSS Post Test

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Supports / Modifications for ELLs	Supports / Modifications for Students w/ 504s and or IEPs
• Preview content • Utilize visuals, images, actions, and talk • Scaffold development of comprehension process vocabulary AND content-specific vocabulary • Display anchor charts for language structures • Provide assessments with graphic supports • Utilize prepared sentence stems • Graphic organizers • Flexible grouping • Additional time for processing and assessment	• Differentiate content, process, product, and learning environment • Provide alternative or high interest text at student's reading level. • Provide summaries of materials for student. • Shorten assignments and assessments to focus on mastery of key concepts. • Substitute alternatives for written assignments. • Specify and review often exactly what the student will need to learn to pass. • Modify expectations based on student needs. • Provide a "designated notetaker" or photocopy of other student or teacher notes. • Provide a print copy of assignments or notes. • Go over directions orally. • Provide additional time on tests. • Read test materials to the student, and allow oral responses. • Use enlarged graph paper to write problems to help the student keep numbers in columns. • Break long-term assignments into small steps, with daily monitoring and frequent grading. • Use both oral and printed directions.
Supports / Modifications for At Risk Students	**Supports / Modifications for Gifted & Talented Students**
• Review the classroom rules frequently. • Evaluate classroom structure against the student's needs (flexible structure, firm limits, etc.). • Keep workspace clear of unrelated materials. • Keep classroom quiet during intense learning times. • Reduce visual distractions in the classroom (mobiles, etc.). • Seat the student close to the teacher / instruction, and away from distractions. • Keep extra supplies of classroom materials (pencils, books) on hand. • Alert student several minutes before a transition from one activity to another is planned; give several reminders. • Reinforce (often) when a student displays positive behavior. • Develop an individualized behavior intervention plan that consistent with the student's ability and skills. • Arrange for a student to leave the classroom for a designated "safe place" when highly stressed. • Develop a system or a code word to let a student know when behavior is not appropriate. • Ignore behaviors that are not seriously disruptive.	• Provide opportunities to pursue advanced level work • Expose students to higher level thinking skills • Provide enrichment centers • pursue a self-selected interest • work in groups with students having common interests • move to a higher grade for specific subject area instruction • work with students of comparable ability across classrooms at the same grade level • work on an advanced curriculum unit on a teacher-selected topic • participate in competitive programs focusing on thinking skills/ problem solving • receive concentrated instruction in critical thinking and creative problem solving

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

UNIT/FOCUS: Soils, Rocks, and Landforms **TIMEFRAME:** 12 Weeks

Transfer

Students will be able to independently use their learning to…

- Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.
- Identify limitations of models.
- Develop and/or use models to describe and/or predict phenomena.
- Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- Make predictions about what would happen if a variable changes.
- Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.
- Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
- Organize simple data sets to reveal patterns that suggest relationships.
- Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).
- Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.
- Identify the evidence that supports particular points in an explanation.
- Apply scientific ideas to solve design problems.
- Compare and refine arguments based on an evaluation of the evidence presented.
- Respectfully provide and receive critiques from peers about a proposed procedure, explanation or model.by citing relevant evidence and posing specific questions.
- Construct and/or support an argument with evidence, data, and/or a model.
- Use data to evaluate claims about cause and effect.
- Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence.
- Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.

Meaning

Enduring Understandings (EUs)	Essential Questions (EQs)
Students will understand that…	*Students will keep considering…*
• Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products. • Cause and effect relationships are routinely identified, tested, and used to explain change. • Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods. • A system can be described in terms of its components and their interactions.	• How do people reconstruct and date events in Earth's planetary history? • How do Earth's major systems interact? • Why do the continents move, and what causes earthquakes and volcanoes? • How do the properties and movements of water shape Earth's surface and affect its systems? • How do living organisms alter Earth's processes and structures? • How do humans depend on Earth's resources? • How do natural hazards affect individuals and societies? • What is a design for? • What are the criteria and constraints of a successful solution? • What is the process for developing potential design solutions? • How can the various proposed design solutions be compared and improved?

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Acquisition	
Knowledge	Skills
Students will know… • Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. • Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. • The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. • Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. • Living things affect the physical characteristics of their regions. • Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. • A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. • Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. • Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. • Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. • At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. • Testing a solution involves investigating how well it performs under a range of likely conditions. • Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.	*Students will be able to…* • Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. • Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. • Analyze and interpret data from maps to describe patterns of Earth's features. • Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. • Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. • Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. • Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. • Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Aligned Concepts, Topics, and Skills

Topics:
- Soil Composition
- Physical Weathering
- Chemical Weathering
- Schoolyard Soils
- Erosion and deposition
- Stream-table
- Schoolyard erosion and deposition
- Fossil evidence
- Topographic maps
- Drawing a profile
- Mount St Helens
- Rapid changes
- Natural resources
- Making concrete
- Earth materials in use

Pacing Guide

- Approximately 2 weeks per investigation

21st Century Life and Career Ready Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP10. Plan education and career paths aligned to personal goals.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Interdisciplinary Connections

- Science and Engineering Practices
- Cross-Cutting Concepts
- Math problem of the week
- Write soil stories
- Write an investigation report
- How much is a million?
- Create maps in fictional places
- Find out what surveyors do
- Research local natural resources

Instructional Resources

- FOSS Kits
- FOSS Science Resource Books
- FOSS Online Activities

Benchmark / Summative Assessments

- Investigations
  - Soil & Weathering
  - Landforms
  - Mapping Earth's Surface
  - Natural Resources
- I-Checks
- Self-Assessments
- FOSS Post Test

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Supports / Modifications for ELLs	Supports / Modifications for Students w/ 504s and or IEPs
• Preview content • Utilize visuals, images, actions, and talk • Scaffold development of comprehension process vocabulary AND content-specific vocabulary • Display anchor charts for language structures • Provide assessments with graphic supports • Utilize prepared sentence stems • Graphic organizers • Flexible grouping • Additional time for processing and assessment	• Differentiate content, process, product, and learning environment • Provide alternative or high interest text at student's reading level. • Provide summaries of materials for student. • Shorten assignments and assessments to focus on mastery of key concepts. • Substitute alternatives for written assignments. • Specify and review often exactly what the student will need to learn to pass. • Modify expectations based on student needs. • Provide a "designated notetaker" or photocopy of other student or teacher notes. • Provide a print copy of assignments or notes. • Go over directions orally. • Provide additional time on tests. • Read test materials to the student, and allow oral responses. • Use enlarged graph paper to write problems to help the student keep numbers in columns. • Break long-term assignments into small steps, with daily monitoring and frequent grading. • Use both oral and printed directions.
Supports / Modifications for At Risk Students	**Supports / Modifications for Gifted & Talented Students**
• Review the classroom rules frequently. • Evaluate classroom structure against the student's needs (flexible structure, firm limits, etc.). • Keep workspace clear of unrelated materials. • Keep classroom quiet during intense learning times. • Reduce visual distractions in the classroom (mobiles, etc.). • Seat the student close to the teacher / instruction, and away from distractions. • Keep extra supplies of classroom materials (pencils, books) on hand. • Alert student several minutes before a transition from one activity to another is planned; give several reminders. • Reinforce (often) when a student displays positive behavior. • Develop an individualized behavior intervention plan that consistent with the student's ability and skills. • Arrange for a student to leave the classroom for a designated "safe place" when highly stressed. • Develop a system or a code word to let a student know when behavior is not appropriate. • Ignore behaviors that are not seriously disruptive.	• Provide opportunities to pursue advanced level work • Expose students to higher level thinking skills • Provide enrichment centers • pursue a self-selected interest • work in groups with students having common interests • move to a higher grade for specific subject area instruction • work with students of comparable ability across classrooms at the same grade level • work on an advanced curriculum unit on a teacher-selected topic • participate in competitive programs focusing on thinking skills/problem solving • receive concentrated instruction in critical thinking and creative problem solving

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

UNIT/FOCUS: Environments **TIMEFRAME:** 12 Weeks

Transfer

Students will be able to independently use their learning to…

- Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.
- Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
- Evaluate appropriate methods and/or tools for collecting data.
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- Make predictions about what would happen if a variable changes.
- Represent data in tables and/or various graphical displays (bar graphs, pictographs, and/or pie charts) to reveal patterns that indicate relationships.
- Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.
- Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
- Organize simple data sets to reveal patterns that suggest relationships.
- Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).
- Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.
- Identify the evidence that supports particular points in an explanation.
- Respectfully provide and receive critiques from peers about a proposed procedure, explanation or model.by citing relevant evidence and posing specific questions.
- Construct and/or support an argument with evidence, data, and/or a model.
- Use data to evaluate claims about cause and effect.
- Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence.
- Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.
- Communicate scientific and/or technical information orally and/or in written formats, including various forms of media and may include tables, diagrams, and charts.

Meaning

Enduring Understandings (EUs)	Essential Questions (EQs)
Students will understand that…	*Students will keep considering…*
• Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena. • Cause and effect relationships are routinely identified, tested, and used to explain change. • Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. • A system can be described in terms of its components and their interactions. • Energy can be transferred in various ways and between objects. • Substructures have shapes and parts that serve functions. • Change is measured in terms of differences over time and may occur at different rates.	• How do the structures of organisms enable life's functions? • How do organisms detect, processes, and use information about the environment? • What happens to ecosystems when the environment changes? • What evidence shows that different species are related? • How does genetic variation among organisms affect survival and reproduction? • How does the environment influence populations of organisms over multiple generations? • What is biodiversity, how do humans affect it, and how does it affect humans? • How do humans depend on Earth's resources?

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Acquisition	
Knowledge	Skills
Students will know… • Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. • Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions. • When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. • Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. • Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. • For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. • Populations live in a variety of habitats, and change in those habitats affects the organisms living there.	*Students will be able to…* • Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. • Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. • Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago • Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. • Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. • Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. • Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Aligned Concepts, Topics, and Skills	Pacing Guide
Topics: • Structure and Function • Information Processing • Ecosystem Dynamics, Functioning, and Resilience • Evidence of Common Ancestry and Diversity • Natural Selection • Adaptation • Biodiversity and Humans • Natural Resources	Approximately 3 weeks per investigation
21st Century Life and Career Ready Practices	**Interdisciplinary Connections**
• CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • CRP3. Attend to personal health and financial well-being. • CRP4. Communicate clearly and effectively and with reason. • CRP5. Consider the environmental, social and economic impacts of decisions. • CRP6. Demonstrate creativity and innovation. • CRP7. Employ valid and reliable research strategies. • CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. • CRP9. Model integrity, ethical leadership and effective management. • CRP10. Plan education and career paths aligned to personal goals. • CRP11. Use technology to enhance productivity. • CRP12. Work productively in teams while using cultural global competence.	• Science and Engineering Practices • Cross-Cutting Concepts • Write organism books • Problem of the week • Describe aquatic environments • Estimate brine shrimp larvae • Research drought areas • Research salt on roads
Instructional Resources	**Benchmark / Summative Assessments**

• FOSS Kits
• FOSS Science Resource Books
• FOSS Online Activities
	• Investigations
	  o Environmental Factors
	  o Ecosystems
	  o Brine Shrimp Hatching
	  o Range of Tolerance
	• I-Checks
	• Self-Assessments
	• FOSS Post Test

COURSE/SUBJECT: Science **LEVEL/GRADE**: 4th

Supports / Modifications for ELLs	Supports / Modifications for Students w/ 504s and or IEPs
• Preview content • Utilize visuals, images, actions, and talk • Scaffold development of comprehension process vocabulary AND content-specific vocabulary • Display anchor charts for language structures • Provide assessments with graphic supports • Utilize prepared sentence stems • Graphic organizers • Flexible grouping • Additional time for processing and assessment	• Differentiate content, process, product, and learning environment • Provide alternative or high interest text at student's reading level. • Provide summaries of materials for student. • Shorten assignments and assessments to focus on mastery of key concepts. • Substitute alternatives for written assignments. • Specify and review often exactly what the student will need to learn to pass. • Modify expectations based on student needs. • Provide a "designated notetaker" or photocopy of other student or teacher notes. • Provide a print copy of assignments or notes. • Go over directions orally. • Provide additional time on tests. • Read test materials to the student, and allow oral responses. • Use enlarged graph paper to write problems to help the student keep numbers in columns. • Break long-term assignments into small steps, with daily monitoring and frequent grading. • Use both oral and printed directions.
Supports / Modifications for At Risk Students	**Supports / Modifications for Gifted & Talented Students**
• Review the classroom rules frequently. • Evaluate classroom structure against the student's needs (flexible structure, firm limits, etc.). • Keep workspace clear of unrelated materials. • Keep classroom quiet during intense learning times. • Reduce visual distractions in the classroom (mobiles, etc.). • Seat the student close to the teacher / instruction, and away from distractions. • Keep extra supplies of classroom materials (pencils, books) on hand. • Alert student several minutes before a transition from one activity to another is planned; give several reminders. • Reinforce (often) when a student displays positive behavior. • Develop an individualized behavior intervention plan that consistent with the student's ability and skills. • Arrange for a student to leave the classroom for a designated "safe place" when highly stressed. • Develop a system or a code word to let a student know when behavior is not appropriate. • Ignore behaviors that are not seriously disruptive.	• Provide opportunities to pursue advanced level work • Expose students to higher level thinking skills • Provide enrichment centers • pursue a self-selected interest • work in groups with students having common interests • move to a higher grade for specific subject area instruction • work with students of comparable ability across classrooms at the same grade level • work on an advanced curriculum unit on a teacher-selected topic • participate in competitive programs focusing on thinking skills/problem solving • receive concentrated instruction in critical thinking and creative problem solving