East Newark Public School

Science Curriculum
Grade 3

Science Grade 3

EAST NEWARK PUBLIC SCHOOL

Course Description

Based on the Next Generation science Standards, and the New Jersey Student Learning Standards, the East Newark Public School third grade science program is designed to introduce and develop a foundation in science through six major units of study. Students will gain an understanding of many important areas of the Life, Earth and Physical Sciences, and will utilize and understand scientific processes. These units are: Weather and Climate, Motion and Stability: Forces and Interactions, Traits, Continuing the Cycle, Organisms and the Environment, and Using Evidence to Understand Change in Environments.

The performance expectations in third grade help students formulate answers to questions such as: “What are some landforms? What is weather? What is the water cycle? How and why do objects move? How do living things change? What are behavioral adaptations? What are ecosystems? What is a food chain?” Students are able to organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. Students are expected to develop an understanding of the similarities and differences of organisms’ life cycles. An understanding that organisms have different inherited traits, and that the environment can also affect the traits that an organism develops, is acquired by students at this level. In addition, students are able to construct an explanation using evidence for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. Students are expected to develop an understanding of types of organisms that lived long ago and also about the nature of their environments. Third graders are expected to develop an understanding of the idea that when the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. Students are able to determine the effects of balanced and unbalanced forces on the motion of an object and the cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. They are then able to apply their understanding of magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the third grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems; developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate an understanding of the core ideas. (Next Generation Science Standards)

Course Resources

1. Science Fusion Teacher Edition
2. Science Fusion Student Edition
3. Inquiry Flipchart
4. www.thinkcentral.com
5. Digital Lessons
6. Virtual Lab
7. New Jersey Center for Teaching and Learning
8. SMARTboard

Pacing Guide

Unit #	Unit Title	Standards	Resources
1	Weather and Climate	3-ESS2-1 3-ESS2-2 3-ESS3-1	Science Fusion Think Central
2	Motion and Stability: Forces and Interactions	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4	New Jersey Center for Teaching and Learning Think Central
3	Traits	3-LS3-1 3-LS3-2	Science Fusion Think Central
4	Continuing the Cycle	3-LS1-1 3-LS4-2	Science Fusion Think Central
5	Organisms and the Environment	3-LS2-1 3-LS4-3	Science Fusion Think Central
6	Using Evidence to Understand Change in Environments	3-LS4-1 3-LS4-4	Science Fusion Think Central

Unit 1 – Weather and Climate

Timeframe	September
Overview	In this unit of study, students organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Resources	● Science Fusion Teacher Edition (Chapters 5: Changes to the Earth's Surface & 7: Water and Weather) ● Science Fusion Student Edition (Chapters 5: Changes to the Earth's Surface & 7: Water and Weather) ● Inquiry Flipchart ● www.thinkcentral.com ● Digital Lessons ● Virtual Lab ● SMARTboard
Essential Questions	● What are some landforms? ● How does Earth's surface change slowly? ● How can we model erosion? ● How does Earth's surface change quickly? ● What is the water cycle? ● What is weather? ● How can we measure weather?
Essential Learning Outcomes	● Students will name and describe two landforms. ● Students will give an example of one way the land changes, and talk about the conditions that cause this change. ● Students will describe a model that might be used to show erosion. ● Students will illustrate the water cycle by showing where water is found and how it changes as it travels around Earth. ● Students will explain what weather ism and describe different kinds of weather.

	● Students will demonstrate how to use tools for measuring weather. ● Students will identify and demonstrate the characteristics of the four seasons.
Technology Infusion	● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/or pictures ● 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue ● 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data
Standards	● 3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. ● 3-ESS2-2 Obtain and combine information to describe climates in different regions of the world. ● 3-ESS3-1 Make a claim about the merit of design solution that reduces the impacts of a weather-related hazard.

Integrated Accommodations and Modifications	● **Special Education Students**
	  ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ● Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
	
	● **English Language Learners**
	  ● Invite students to explore different points of view on a topic of study and compare
	  ● Integrated and small-group support
	  ● Provide visuals of vocabulary/language
	  ● Provide students with multiple literacy strategies
	  ● Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences

	• **504 Students**
	  • Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  • Extended time for revisions or opportunity to identify and develop areas of personal interest
	  • Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment
	
	• **Gifted & Talented Students**
	  • Encourage students to explore concepts in depth and encourage independent studies or investigations
	  • Modeling or independent student led research

Assessments	• Sum it up/Brain Check (Student Edition-end of each lesson) • Unit Review • Unit Quizzes • Unit Test • Performance Assessment (Short or Long Option) • Online Assessment
Integration of 21st Century Learning Skills	• 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community. • 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. • CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • 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.
Career Education	The 12 Career Ready Practices: These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness. This unit addresses standard 9.2 (Career Awareness, Exploration, and Preparation) as it outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
Interdisciplinary Connections	• The science curriculum includes unifying themes such as systems, changes, and models. These themes combine with connected skills such as using measurement and representations. These themes and skills, along with the shared processes of observing and predicting, provide teachers with a myriad of opportunities for making meaningful curricular connections across disciplines. • For example, investigations of local issues can engage students in thinking about science and social science concepts and help develop their understanding of probability and data analysis, which are parts of the mathematics standards. Learning, understanding, and using scientific vocabulary allows to students to attach their ideas to content specific words and phrases. Students must understand appropriate levels of scientific terminology to be able to meet the lesson objectives. In addition, teachers may use journals, night writes, lab reports, and outlines to provide students with opportunities to write in the science classroom.

Unit 2 - Motion and Stability: Forces and Interactions

Timeframe	October - December
Overview	In this unit of study, students determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concept of cause and effect, and the interdependence of science, engineering, and technology, and the influence of engineering, technology, and 5 science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems. Students are also expected to use these practices to demonstrate an understanding of the core ideas.
Resources	● New Jersey Center for Teaching and Learning ○ 3rd Grade: Motion and Stability Unit ○ Teacher Resources ○ Presentation ○ Classwork ○ Labs ● SMARTboard
Essential Questions	1. How and why do objects move? 2. How do balanced and unbalanced forces affect the motion of an object? 3. What effect do magnetic and electric forces have on an object?
Essential Learning Outcomes	1. Understand that forces are pushes and pulls and that motion occurs in predicting patterns. 2. Describe the cause and effect relationships of electric and magnetic interactions. 3. Solve a design problem using a magnet. 4. Conduct investigations about forces and make observations and take measurements of motion. 5. Ask questions about electric and magnetic interactions.
Technology Infusion	● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures ● 8.1.5.A.3 Use a graphic organizer to organize information about a problem or issue ● 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data
Standards	● **3-PS2-1:** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. ● **3-PS2-2:** Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. ● **3-PS2-3:** Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

	• **3-PS2-4:** Define a simple design problem that can be solved by applying scientific ideas about magnets. • **3-5-ETS1-1:** Define a simple design problem reflecting a need or a want that includes specific criteria for success and constraints on materials, time, or cost.

Integrated Accommodations and Modifications	• **Special Education Students**
	  ◦ Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ◦ Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ◦ Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
	• **English Language Learners**
	  ◦ Invite students to explore different points of view on a topic of study and compare
	  ◦ Integrated and small-group support
	  ◦ Provide visuals of vocabulary/language
	  ◦ Provide students with multiple literacy strategies
	  ◦ Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences
	• **504 Students**
	  ◦ Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ◦ Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ◦ Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment
	• **Gifted & Talented Students**
	  ◦ Encourage students to explore concepts in depth and encourage independent studies or investigations
	  ◦ Modeling or independent student led research

Assessments	• Sum it up/Brain Check (Student Edition-end of each lesson) • Unit Review • Unit Quizzes • Unit Test • Performance Assessment (Short or Long Option) • Online Assessment
Integration of 21st Century Learning Skills	• 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

	• 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. • CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • 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.
Career Education	The 12 Career Ready Practices: These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness. This unit addresses standard 9.2 (Career Awareness, Exploration, and Preparation) as it outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
Interdisciplinary Connections	• The science curriculum includes unifying themes such as systems, changes, and models. These themes combine with connected skills such as using measurement and representations. These themes and skills, along with the shared processes of observing and predicting, provide teachers with a myriad of opportunities for making meaningful cross-curricular connections. • For example, investigations of local issues can engage students in thinking about science and social science concepts and help develop their understanding of probability and data analysis, which are part of the mathematics standards. Learning, understanding, and using scientific vocabulary allows students to connect their ideas to content specific words and phrases. Students must understand appropriate levels of scientific terminology to be able to achieve the lesson objectives. In addition, teachers may use journals, writing prompts, lab reports, and outlines to provide students with opportunities to write in the science classroom.

Unit 3 - Traits

Timeframe	January - February
Overview	In this unit of study, students acquire an understanding that organisms have different inherited traits and that the environment can also affect the traits that an organism develops. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in analyzing and interpreting data, constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Resources	● Science Fusion Teacher Edition (Chapter 3: Plants and Animals) ● Science Fusion Student Edition (Chapter 3: Plants and Animals) ● Inquiry Flipchart ● www.thinkcentral.com ● Digital Lessons ● Virtual Lab ● SMARTboard
Essential Questions	● What are some plant life cycles? ● What are some animal life cycles? ● How do living things change?
Essential Learning Outcomes	● Students will explain the stages of the plant life cycle. ● Students will name and describe three different animal life cycles. ● Students will describe how seeds germinate and become sprouts.
Technology Infusion	● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures ● 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue ● 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data
Standards	● 3-LS3-1 Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

	• 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

Integrated Accommodations and Modifications	• **Special Education Students**
	  ◦ Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ◦ Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ◦ Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
	
	• **English Language Learners**
	  ◦ Invite students to explore different points of view on a topic of study and compare
	  ◦ Integrated and small-group support
	  ◦ Provide visuals of vocabulary/language
	  ◦ Provide students with multiple literacy strategies
	  ◦ Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences
	
	• **504 Students**
	  ◦ Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ◦ Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ◦ Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment
	
	• **Gifted & Talented Students**
	  ◦ Encourage students to explore concepts in depth and encourage independent studies or investigations
	  ◦ Modeling or independent student led research

Assessments	• Sum it up/Brain Check (Student Edition-end of each lesson) • Unit Review • Unit Quizzes • Unit Test • Performance Assessment (Short or Long Option) • Online Assessment

Integration of 21st Century Learning Skills	• 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community. • 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. • CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • 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.
Career Education	The 12 Career Ready Practices: These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness. This unit addresses standard 9.2 (Career Awareness, Exploration, and Preparation) as it outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
Interdisciplinary Connections	• The science curriculum includes unifying themes such as systems, changes, and models. These themes combine with connected skills such as using measurement and representations. These themes and skills, along with the shared processes of observing and predicting, provide teachers with a myriad of opportunities for making meaningful curricular connections across disciplines. • For example, investigations of local issues can engage students in thinking about science and social science concepts and help develop their understanding of probability and data analysis,

	which are parts of the mathematics standards. Learning, understanding, and using scientific vocabulary allows to students to attach their ideas to content specific words and phrases. Students must understand appropriate levels of scientific terminology to be able to meet the lesson objectives. In addition, teachers may use journals, night writes, lab reports, and outlines to provide students with opportunities to write in the science classroom.

Unit 4 - Continuing the Cycle

Timeframe	February - March
Overview	In this unit of study, students develop an understanding of the similarities and differences in organisms' life cycles. In addition, students 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. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Resources	● Science Fusion Teacher Edition (Chapter 3: Plants and Animals) ● Science Fusion Student Edition (Chapter 3: Plants and Animals) ● Inquiry Flipchart ● www.thinkcentral.com ● Digital Lessons ● Virtual Lab ● SMARTboard
Essential Questions	● What are structural adaptations? ● How can we model a physical adaptation? ● What are behavioral adaptations?
Essential Learning Outcomes	● Students will name a defense adaptation, camouflage, and mimicry. ● Students will describe an adaptation that helps frogs find food. ● Students will give examples of learned and instinctive behaviors.
Technology Infusion	● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures ● 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue ● 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data
Standards	● 3-LS1-1 Develop models to describe that organisms have unique and diverse life cycles but all have common birth, growth, reproduction, and death.

	● 3-LS4-2 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.

Integrated Accommodations and Modifications	● **Special Education Students**
	  ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ● Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
	
	● **English Language Learners**
	  ● Invite students to explore different points of view on a topic of study and compare
	  ● Integrated and small-group support
	  ● Provide visuals of vocabulary/language
	  ● Provide students with multiple literacy strategies
	  ● Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences
	
	● **504 Students**
	  ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ● Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ● Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment
	
	● **Gifted & Talented Students**
	  ● Encourage students to explore concepts in depth and encourage independent studies or investigations
	  ● Modeling or independent student led research

Assessments	● Sum it up/Brain Check (Student Edition-end of each lesson) ● Unit Review ● Unit Quizzes ● Unit Test

	• Performance Assessment (Short or Long Option) • Online Assessment
Integration of 21st Century Learning Skills	• 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community. • 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. • CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • 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.
Career Education	The 12 Career Ready Practices: These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness. This unit addresses standard 9.2 (Career Awareness, Exploration, and Preparation) as it outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
Interdisciplinary Connections	• The science curriculum includes unifying themes such as systems, changes, and models. These themes combine with connected skills such as using measurement and representations. These themes and skills, along with the shared processes of observing and predicting, provide teachers with a myriad of opportunities for making meaningful curricular connections across disciplines.

	● For example, investigations of local issues can engage students in thinking about science and social science concepts and help develop their understanding of probability and data analysis, which are parts of the mathematics standards. Learning, understanding, and using scientific vocabulary allows to students to attach their ideas to content specific words and phrases. Students must understand appropriate levels of scientific terminology to be able to meet the lesson objectives. In addition, teachers may use journals, night writes, lab reports, and outlines to provide students with opportunities to write in the science classroom.

Unit 5 - Organisms and the Environment

Timeframe	March - April
Overview	In this unit of study, students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of cause and effect and the interdependence of science, engineering, 6 and technology are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in engaging in argument from evidence. Students are also expected to use this practice to demonstrate understanding of the core ideas.
Resources	● Science Fusion Teacher Edition (Chapter 4: Ecosystems and Interactions) ● Science Fusion Student Edition (Chapter 4: Ecosystems and Interactions) ● Inquiry Flipchart ● www.thinkcentral.com ● Digital Lessons ● Virtual Lab ● SMARTboard
Essential Questions	● What are ecosystems? ● What's in an ecosystem? ● What is a food chain? ● What are some food chains? ● How do environmental changes affect living things?
Essential Learning Outcomes	● Students will define ecosystem, and discuss examples of land and water ecosystems. ● Students will demonstrate how they observed an ecosystem. ● Students will tell what a food chain is. ● Students will draw an example of a food chain. ● Students will discuss ways that nature and people affect the environment.
Technology Infusion	● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures

	• 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue • 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data
Standards	• 3-LS2-1 Construct an argument that some animals form groups that help members survive. • 3-LS4-3 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.

Integrated Accommodations and Modifications	• **Special Education Students**
	  • Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  • Extended time for revisions or opportunity to identify and develop areas of personal interest
	  • Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
	• **English Language Learners**
	  • Invite students to explore different points of view on a topic of study and compare
	  • Integrated and small-group support
	  • Provide visuals of vocabulary/language
	  • Provide students with multiple literacy strategies
	  • Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences
	• **504 Students**
	  • Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  • Extended time for revisions or opportunity to identify and develop areas of personal interest
	  • Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment
	• **Gifted & Talented Students**

	• Encourage students to explore concepts in depth and encourage independent studies or investigations • Modeling or independent student led research
Assessments	• Sum it up/Brain Check (Student Edition-end of each lesson) • Unit Review • Unit Quizzes • Unit Test • Performance Assessment (Short or Long Option) • Online Assessment
Integration of 21st Century Learning Skills	• 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community. • 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. • CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • 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.
Career Education	The 12 Career Ready Practices: These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness. This unit addresses standard 9.2 (Career Awareness, Exploration, and Preparation) as it outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Interdisciplinary Connections	● The science curriculum includes unifying themes such as systems, changes, and models. These themes combine with connected skills such as using measurement and representations. These themes and skills, along with the shared processes of observing and predicting, provide teachers with a myriad of opportunities for making meaningful curricular connections across disciplines. ● For example, investigations of local issues can engage students in thinking about science and social science concepts and help develop their understanding of probability and data analysis, which are parts of the mathematics standards. Learning, understanding, and using scientific vocabulary allows to students to attach their ideas to content specific words and phrases. Students must understand appropriate levels of scientific terminology to be able to meet the lesson objectives. In addition, teachers may use journals, night writes, lab reports, and outlines to provide students with opportunities to write in the science classroom.

Unit 6 – Using Evidence to Understand Change in Environments

Timeframe	May - June
Overview	In this unit of study, students develop an understanding of the types of organisms that lived long ago and also about the nature of their environments. Students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of systems and system models; scale, proportion, and quantity; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Resources	● Science Fusion Teacher Edition (Chapter 6: People and Resources) ● Science Fusion Student Edition (Chapter 6: People and Resources) ● Inquiry Flipchart ● www.thinkcentral.com ● Digital Lessons ● Virtual Lab ● SMARTboard
Essential Questions	● What are some natural resources? ● How can we conserve resources? ● What is Soil?
Essential Learning Outcomes	● Students will identify the natural resources that are used to make several items in the classroom. Discuss whether each resource is renewable or nonrenewable. ● Students will list three ways to conserve paper products. ● Students will discuss the importance of soil to Earth's ecosystems.
Technology Infusion	● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures

	• 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue • 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data
Standards	• 3-LS4-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. • 3-LS4-4 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.

Integrated Accommodations and Modifications	• **Special Education Students**
	  ◦ Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ◦ Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ◦ Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
	• **English Language Learners**
	  ◦ Invite students to explore different points of view on a topic of study and compare
	  ◦ Integrated and small-group support
	  ◦ Provide visuals of vocabulary/language
	  ◦ Provide students with multiple literacy strategies
	  ◦ Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences
	• **504 Students**
	  ◦ Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
	  ◦ Extended time for revisions or opportunity to identify and develop areas of personal interest
	  ◦ Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment
	• **Gifted & Talented Students**

	• Encourage students to explore concepts in depth and encourage independent studies or investigations • Modeling or independent student led research
Assessments	• Sum it up/Brain Check (Student Edition-end of each lesson) • Unit Review • Unit Quizzes • Unit Test • Performance Assessment (Short or Long Option) • Online Assessment
Integration of 21st Century Learning Skills	• 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community. • 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. • CRP1. Act as a responsible and contributing citizen and employee. • CRP2. Apply appropriate academic and technical skills. • 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.
Career Education	The 12 Career Ready Practices: These practices outline the skills that all individuals need to have to truly be adaptable, reflective, and proactive in life and careers. These are researched practices that are essential to career readiness. This unit addresses standard 9.2 (Career Awareness, Exploration, and Preparation) as it outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Interdisciplinary Connections	● The science curriculum includes unifying themes such as systems, changes, and models. These themes combine with connected skills such as using measurement and representations. These themes and skills, along with the shared processes of observing and predicting, provide teachers with a myriad of opportunities for making meaningful curricular connections across disciplines. ● For example, investigations of local issues can engage students in thinking about science and social science concepts and help develop their understanding of probability and data analysis, which are parts of the mathematics standards. Learning, understanding, and using scientific vocabulary allows to students to attach their ideas to content specific words and phrases. Students must understand appropriate levels of scientific terminology to be able to meet the lesson objectives. In addition, teachers may use journals, night writes, lab reports, and outlines to provide students with opportunities to write in the science classroom.