

**Eagleswood Township School District Curriculum
Science Grade 4**

Standard Alignment September 2016
NJDOE Adoption Date September 2016
BOE Approved January 2019
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BOE Adoption January 2021

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering and Technology	20 Days
Unit 2: Energy	35 Days
Unit 3: Waves and Information Transfer	35 Days
Unit 4: Plant Structure and Function	20 Days
Unit 5: Animal Structure and Function	20 Days
Unit 6: Changes to Earth's Surface	15 Days
Unit 7: Rocks and Fossils	15 Days
Unit 8: Natural Resources and Hazards	15 Days

Core Materials

**Houghton Mifflin Harcourt Science Textbook
Studies Weekly Science**

	Correlation Key	
Holocaust	Amistad	Financial Literacy

Career Readiness, Life Literacies, and Key Skills Practices

<p>Act as a responsible and contributing community members and employee.</p>	<p>Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.</p>
<p>Consider the environmental, social and economic impacts of decisions.</p>	<p>Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.</p>
<p>Demonstrate creativity and innovation.</p>	<p>Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.</p>
<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>

<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 1 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This Unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 1 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p> Asking Questions and Defining Problems Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1) </p> <p> Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. 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. (3-5-ETS1-3) </p> <p> Constructing Explanations and Designing Solutions </p> <p> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and </p>	<p> ETS1.A: Defining and Delimiting Engineering Problems 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. (3-5-ETS1-1) </p> <p> ETS1.B: Developing Possible Solutions 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. (3-5-ETS1-2) 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. (3-5-ETS1-2) Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) </p> <p> ETS1.C: Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3) </p>	<p> Influence of Engineering, Technology, and Science on Society and the Natural World </p> <p> People’s needs and wants change over time, as do their demands for new and improved technologies. (3- 5-ETS1-1) </p> <p> Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2) </p>

compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)		
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Science Unit 1: Engineering and Technology	Duration: 15-20 Days (September)
Standards:	
3-5-ETS1-1 - Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	
3-5-ETS1-2 - 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.	
3-5-ETS1-3 - 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.	
Unit Summary: Students will be exposed to engineering and technology in this unit. This unit has three lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how engineers define problems and solutions, learn about the importance of prototypes, and use models to examine how prototypes are tested and improved.	
NJ Student Learning Standards:	
Interdisciplinary Skills	
Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLA for Mathematics, Language Arts	
NJSLA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.	
NJSLA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	
SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly	

Career Readiness, Life Literacies, and Key Skills

- 9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
- 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
- 9.2.5.CAP.2: Identify how you might like to earn an income.
- 9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
- 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.
- 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).
- 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).
- 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- 9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

- 8.1.5.CS.1: Model how computing devices connect to other components to form a system.
- 8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
- 8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes
- 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.
- 8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.
- 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.
- 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
- 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understanding

Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> • Engineers define problems • Engineers design solutions • Engineers test and improve prototypes 	<ul style="list-style-type: none"> • How do engineers define problems? • How do engineers design solutions? • How do engineers test and improve prototypes?
<p>Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>
<ul style="list-style-type: none"> • Students will conduct an investigation with a team where they will figure out how to extend their sense of sight, smell, and touch 	<p>Formative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Response Cards • Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> • Tests • Quizzes • Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work

Vocabulary	
constraint/criteria/engineering/failure analysis/fair test/optimize	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> ● How engineers define problems ● How engineers design solutions ● How engineers test and improve prototypes 	<i>Students will be able to...</i> <ul style="list-style-type: none"> ● Explore how engineers define problems and solutions ● Learn about the importance of prototypes ● Use models to examine how prototypes are tested and improved
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Walk around the room to inspect objects that have been engineered - Build a strong structure using index cards - Plan menus based on criterias and constraints - Design a hearing-enhancing device - Critique designs 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Print Materials	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook - Studies Weekly Science 	

- *Black Man on the Titanic: The Story of Joseph Laroche* by Serge Bilé

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

**For additional modifications and accommodations, see below*

English Language Learners

- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended Time
- Modified Assignments

Gifted and Talented

- Higher level questioning
- Students design questions
- Peer tutoring

- Choice of activity to extend learning
- Expose to sophisticated vocabulary
- Open ended questions to activate higher level thinking

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Communication logs

Special Education

- Follow all IEP modifications
- Provide student with specific graphic organizers to help them note take about the different levels of government
- Provide students with notes from the lesson and discussions
- Labeled pictures related to concepts
- Check in's during experiments to help refocus

504

- Provide differentiated instruction as needed
- Follow 504 Plan
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Use alternative forms of assessment
- Modified textbooks or audio-video materials

Correlation Key		
Holocaust	Amistad	Financial Literacy

[Career Readiness, Life Literacies, and Key Skills Practices](#)

<p>Act as a responsible and contributing community members and employee.</p>	<p>Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.</p>
<p>Consider the environmental, social and economic impacts of decisions.</p>	<p>Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.</p>
<p>Demonstrate creativity and innovation.</p>	<p>Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.</p>
<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>

<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 2 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This Unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
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<p>Asking Questions and Defining Problems Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. (4-PS3-3)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Make observations to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (4-PS3-2)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Use evidence (e.g., measurements, observations, patterns) to construct an explanation. (4-PS3-1) Apply scientific ideas to solve design problems. (4-PS3-4)</p>	<p>PS3.A: Definitions of Energy The faster a given object is moving, the more energy it possesses. (4-PS3-1) Energy can be moved from place to place by moving objects or through sound, light, or electric currents. (4-PS3-2),(4-PS3-3)</p> <p>PS3.B: Conservation of Energy and Energy Transfer 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. (4-PS3-2),(4-PS3-3) Light also transfers energy from place to place. (4-PS3-2) 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. (4-PS3-2),(4-PS3-4)</p> <p>PS3.C: Relationship Between Energy and Forces When objects collide, the contact forces transfer energy so as to change the objects' motions. (4-PS3-3)</p> <p>PS3.D: Energy in Chemical Processes and Everyday Life The expression “produce energy” typically refers to the conversion of stored energy into a desired form for</p>	<p>Energy and Matter</p> <p>Energy can be transferred in various ways and between objects. (4-PS3-1),(4-PS3-2),(4-PS3-3),(4-PS3-4)</p> <p>-----</p> <p>Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Science, Engineering and Technology on Society and the Natural World Engineers improve existing technologies or develop new ones. (4-PS3-4)</p> <p>-----</p> <p>Connections to Nature of Science</p> <p>Science is a Human Endeavor Most scientists and engineers work in teams. (4-PS3-4) Science affects everyday life. (4-PS3-4)</p>
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	<p>practical use. (4-PS3-4)</p> <p>ETS1.A: Defining Engineering Problems 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. (secondary to 4-PS3-4)</p>	
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ScienceUnit 2: Energy	Duration: 35Days (October-November)
<p>Standards:</p> <p>4-PS3-1 - Use evidence to construct an explanation relating the speed of an object to the energy of that object.</p> <p>4-PS3-2 - Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</p> <p>4-PS3-3 - Ask questions and predict outcomes about the changes in energy that occur when objects collide.</p> <p>4-PS3-4 - Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.</p>	
<p>Unit Summary: Students will be exposed to energy. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to discover what energy is, how energy is transferred, and explore how collisions can show energy.</p>	
<p>NJ Student Learning Standards</p> <p style="text-align: center;">Interdisciplinary Skills</p>	
<p>RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text</p>	

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Career Readiness, Life Literacies, and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

8.1.5.CS.1: Model how computing devices connect to other components to form a system.

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Energy is the ability to do work and cause changes in matter ● Energy can be transferred from one place to another ● Collisions can show energy 	<ul style="list-style-type: none"> ● What is energy? ● How is energy transferred? ● How do collisions show energy?
Evidence of Student Learning	
Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i>	Other Assessments
<ul style="list-style-type: none"> ● Students will use elastic energy or a spring to move a truck. They will design and test a truck with their team. 	<p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark

	<ul style="list-style-type: none"> ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Group Work/Class Work
Vocabulary	
collision/electric current/energy/energy transfer/energy transformation/heat/vibrate	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> ● What energy is ● How energy is transferred ● How collisions show energy 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Discover what energy is and how it is transferred ● Explore how collisions show energy
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Create a circuit for a lightbulb - Make a drum to see vibrations - Design and test a solar cooker - Observe energy transfer involving motion 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Preview lessons
- Labeled pictures
- Use visuals
- Teacher tutoring
- Modified Assignments

Gifted and Talented

- Higher level questioning
- Students design questions
- Differentiated Assignments

- Choice board to extend learning
- Peer tutoring

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Preview lessons
- Graphic organizers
- Cooperative learning groups

Special Education

- Provide differentiated instruction as needed
- Follow all IEP modifications
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit
- Modified assignments

504

- Provide differentiated instruction as needed
- Follow 504 Plan
- Pre teach vocabulary
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Modified textbooks or audio-video materials
- Use alternate forms of assessment

	Correlation Key	
Holocaust	Amistad	Financial Literacy

<p>Act as a responsible and contributing community members and employee.</p>	<p>Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.</p>
<p>Consider the environmental, social and economic impacts of decisions.</p>	<p>Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.</p>
<p>Demonstrate creativity and innovation.</p>	<p>Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.</p>
<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>

<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 3 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This Unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
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<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model using an analogy, example, or abstract representation to describe a scientific principle. (4-PS4- 1) Develop a model to describe phenomena. (4-PS4-2)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (4-PS4-3)</p> <p>-----</p> <p>Connections to Nature of Science</p> <p>Scientific Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns. (4- PS4-1)</p>	<p>PS4.A: Wave Properties 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; there is no net motion in the direction of the wave except when the water meets a beach. (Note: This grade band endpoint was moved from K–2.) (4-PS4- 1) Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks). (4-PS4-1)</p> <p>PS4.B: Electromagnetic Radiation An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)</p> <p>PS4.C: Information Technologies and Instrumentation Digitized information can be 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. (4-PS4-3)</p> <p>ETS1.C: Optimizing The Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (secondary to 4-PS4-3)</p>	<p>Patterns Similarities and differences in patterns can be used to sort and classify natural phenomena. (4-PS4-1) Similarities and differences in patterns can be used to sort and classify designed products. (4- PS4-3)</p> <p>Cause and Effect Cause and effect relationships are routinely identified. (4-PS4-2)</p> <p>-----</p> <p>Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering. (4-PS4-3)</p>
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Science Unit 3: Waves and Information Transfer	Duration: 35 Days (December-January)
<p>Standards:</p> <p>4-PS4-1 - Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p> <p>4-PS4-2 - Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.</p> <p>4-PS4-3 - Generate and compare multiple solutions that use patterns to transfer information.</p>	
<p>Unit Summary: Students will be exposed to waves and information transfer. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to discover the different parts of waves, explore how light can be reflected, and examine and describe how information is transferred from place to place.</p>	
<p>Interdisciplinary Skills</p>	
<p>RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text</p> <p>SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.</p>	
<p>Career Readiness, Life Literacies, and Key Skills</p>	
<p>9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.</p> <p>9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.</p> <p>9.2.5.CAP.2: Identify how you might like to earn an income.</p> <p>9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.</p> <p>9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.</p> <p>9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).</p>	

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

8.1.5.CS.1: Model how computing devices connect to other components to form a system.

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings

Essential Questions

Students will understand that...

- Waves are the up and down movement of surface water
- Light reflects off of objects when it encounters an obstacle
- Information can be transferred from place to place

- What are waves?
- How does light reflect?
- How is information transferred from place to place?

Evidence of Student Learning

Performance Tasks: *Activities to provide evidence for student learning of content and cognitive skills.*

Other Assessments

Formative Assessments

- Teacher Observations

<ul style="list-style-type: none"> • Students will plan a method with their team to bring more sunlight into poorly lit areas of the school 	<ul style="list-style-type: none"> • Performance Assessments • Exit Slips • Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> • Quizzes • Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work
<p>Vocabulary</p> <p>amplitude/crest/opaque/reflection/translucent/transparent/trough/volume/wave/wavelength</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> • What waves are • How light reflects off of objects • How information is transferred from place to place 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> • Discover the different parts of waves • Explore how light can be reflected • Examine and describe how information is transferred from place to place
<p>Instructional Plan</p>	

<p style="text-align: center;">Suggested Activities</p> <ul style="list-style-type: none"> - Create waves with certain materials - Use a model to investigate how images differ when light interacts with air and water - Create a model of reflected objects to investigate how angles of reflection affect light - Make a scytale - Make a code - Make a wave using binary code - Create a pixelated message using binary code 	<p style="text-align: center;">Resources</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p style="text-align: center;">Print Materials</p> <ul style="list-style-type: none"> - HMH Dimensions textbook/workbook - Studies Weekly Science 	
<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p>	

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended Time
- Less questions on a page for tests

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments
- Complete different homework assignments than peers
- Open ended questions to activate higher level thinking
- Higher level texts

Basic Skills/Economically Disadvantaged/Students at Risk

- Pre-teach vocabulary using visuals and gestures
- Chunk texts
- Highlight key words
- Frequent breaks
- Strategic grouping
- Pre-teach concepts
- Communication logs

Modifications/Accommodations

Special Education/

- Provide differentiated instruction as needed
- Follow all IEP modifications
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Strategic grouping
- Pre-teach concepts

504

- Provide differentiated instruction as needed
- Follow 504 Plan
- Pre teach vocabulary
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Modified textbooks or audio-video materials
- Use alternate forms of assessment

Holocaust

Amistad

Financial Literacy

Career Readiness, Life Literacies, and Key Skills Practices

Act as a responsible and contributing community members and employee.	Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
Consider the environmental, social and economic impacts of decisions.	Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>
<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 4 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This Unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence, data, and/or a model. (4-LS1-1)</p>	<p>LS1.A: Structure and Function Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p> <p>LS1.D: Information Processing 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. (4-LS1-2)</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (4-LS1-1),(4-LS1-2)</p>

Science Unit 4: Plant Structure and Function

Duration: 15Days (February)

Standards:

4-LS1-1 - Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Unit Summary: Students will be exposed to plant structure and function. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to explore the functions of internal and external plant structures and how they aid in growth, survival, behavior, and reproduction and learn how different plant structures work together as a system.

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Career Readiness, Life Literacies, and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

8.1.5.CS.1: Model how computing devices connect to other components to form a system.

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● There are different plant parts and they function in different ways ● Plants grow and reproduce 	<ul style="list-style-type: none"> ● What are some plant parts and how do they function? ● How do plants grow and reproduce?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will show how plants and animals work together to make pollination possible 	<p style="text-align: center;">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Performance Assessments ● Exit Slips ● Response Cards <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Summary ● Labs

	<p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>fertilization/leaf/pollination/reproduction/root/seed/spore/stem</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● Different plant parts ● How plant parts function ● How plants grow ● How plants reproduce 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore the functions of internal and external plant structures and how they aid in growth, survival, behavior, and reproduction ● Learn how different plant structures work together as a system
<p>Instructional Plan</p>	
<p>Suggested Activities</p> <ul style="list-style-type: none"> ● Model water flow in plants ● Test the function of roots ● Pollination models ● Pinecone parts ● Design a seed dispersal device 	<p>Resources</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p>Print Materials</p>	

- HMH Dimensions Textbook/Workbook
- Studies Weekly Science

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Organize and offer flexible small group learning activities
- Teach cognitive and methodological skills
- Use centers

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Communication logs

Special Education

- Follow all IEP modifications
- Provide visual aids to support concepts being taught
- Use graphic organizers to help students organize important information from a lesson
- Reword Directions
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus

504

- Provide differentiated instruction as needed
- Follow 504 Plan
- Pre teach vocabulary
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Modified textbooks or audio-video materials
- Use alternate forms of assessment

Correlation Key		
Holocaust	Amistad	Financial Literacy

Career Readiness, Life Literacies, and Key Skills Practices

Act as a responsible and contributing community members and employee.	Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
Consider the environmental, social and economic impacts of decisions.	Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>
<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 5 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This Unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence, data, and/or a model. (4-LS1-1)</p>	<p>LS1.A: Structure and Function Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p> <p>LS1.D: Information Processing 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. (4-LS1-2)</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (4-LS1-1),4-LS1-2</p>

Science Unit 5: Animal Structure and Function	Duration: 15-20 Days (March)
<p>Unit Summary: Students will be exposed to animal structure and function. This unit has three lessons attached to it and should be completed in about 15-20 Days. They will be able to explore the internal and external structure of animals and learn about how different senses work.</p>	
<p>Standards:</p> <p>4-LS1-1 - Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p>	

4-LS1-2 - 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.

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Career Readiness, Life Literacies, and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

8.1.5.CS.1: Model how computing devices connect to other components to form a system.

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Animals have external structures ● Animals have internal structures ● Different senses work in their own way 	<ul style="list-style-type: none"> ● What are some external structures of animals? ● What are some internal structures of animals? ● How do senses work?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will conduct an investigation with their team on how they can identify an animal based on its teeth. 	<p style="text-align: center;">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Interactive Notebook ● Performance Assessments ● Graphic Organizers <p>Summative Assessments</p>

	<ul style="list-style-type: none"> ● Tests ● Summary ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>External structures/internal structures/organ/organ system/receptors</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● Some external structures of animals ● Some internal structures of animals ● How senses work 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore the internal and external structures of animals ● Learn about how different senses work
<p>Instructional Plan</p>	
<p>Suggested Activities</p>	<p>Resources</p>

- Draw an animal in its natural environment
- Build a model to discover how an animal's covering affects its survival
- Gather evidence to investigate the relationship between exercise, heart rate, and breathing rate
- Name that scent!
- Develop a way to test the sense of touch by modeling how receptors in the body work

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- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
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Print Materials

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- Provide pictures and well labeled models
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- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education

- Follow all IEP modifications
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

504

- Provide differentiated instruction as needed

- Follow 504 Plan
- Pre teach vocabulary
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
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	Correlation Key	
Holocaust	Amistad	Financial Literacy

<u>Career Readiness, Life Literacies, and Key Skills Practices</u>	
Act as a responsible and contributing community members and employee.	Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

<p>Consider the environmental, social and economic impacts of decisions.</p>	<p>Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.</p>
<p>Demonstrate creativity and innovation.</p>	<p>Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.</p>
<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>
<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>

<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 6 will incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 6 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
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<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1)</p> <p>Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2)</p>	<p>ESS2.A: Earth Materials and Systems 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. (4-ESS2-1)</p> <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions 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. (4-ESS2-2)</p> <p>ESS2.E: Biogeology Living things affect the physical characteristics of their regions. (4-ESS2-1)</p>	<p>Patterns Patterns can be used as evidence to support an explanation. (4-ESS2-2)</p> <p>Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2-1)</p>
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<p>ScienceUnit 6: Changes to Earth’s Surface</p>	<p>Duration: 15 Days (April)</p>
<p>Unit Summary: Students will be exposed to changes to Earth’s surface. This unit has four lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how Earth has been shaped by water and other factors, discover how people map Earth’s surface, and learn about the patterns we can see from maps.</p>	
<p>Standards:</p>	

4-ESS2-1 - Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

4-ESS2-2 - Analyze and interpret data from maps to describe patterns of Earth's features.

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Career Readiness, Life Literacies, and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

8.1.5.CS.1: Model how computing devices connect to other components to form a system.

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings

Students will understand that...

- Water shapes the Earth's surface
- Other factors shape the Earth's surface
- Maps can help you learn about the Earth's surface
- Maps show you different patterns

Essential Questions

- How does water shape Earth's surface?
- How do other factors shape Earth's surface?
- How can maps help us learn about Earth's surface?
- What patterns do maps show us?

Evidence of Student Learning

Performance Tasks: *Activities to provide evidence for student learning of content and cognitive skills.*

- Students will conduct an investigation with their team to find examples of weathering at the school and how they can affect it.

Other Assessments

Formative Assessments

- Teacher Observations
- Interactive Notebook
- Performance Assessments

	<p>Summative Assessments</p> <ul style="list-style-type: none"> ● Quizzes ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Group Work/Class Work
<p>Vocabulary</p> <p>continent/deposition/desert/elevation/erosion/ocean trench/rainforest/scale/weathering</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● Water shapes the Earth’s surface ● How other factors shape the Earth’s surface ● How maps can help you learn about the Earth’s surface ● What patterns maps show them 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore how Earth has been shaped by water and other factors ● Discover how people map Earth’s surface ● Learn about the patterns you can see from maps

Instructional Plan

Suggested Activities

- Watch water grow in a freezer
- Model and observe the effect of slope on the erosion of Earth's surface
- Plan and conduct investigations to model and observe changes that occur on Earth's surface
- Make a map
- Design a park. Include cost of equipment. Extend by discussing who would be building and maintaining the park and the current salaries for those employees.
- Model an earthquake
- Model the features of the ocean floor
- Model mountains
- Analyze and interpret current data on earthquakes to identify patterns

Resources

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Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

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- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education

- Follow all IEP modifications
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

04

- Provide differentiated instruction as needed
- Follow 504 Plan
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[Career Readiness, Life Literacies, and Key Skills Practices](#)

<p>Act as a responsible and contributing community members and employee.</p>	<p>Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.</p>
<p>Consider the environmental, social and economic impacts of decisions.</p>	<p>Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.</p>
<p>Demonstrate creativity and innovation.</p>	<p>Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.</p>
<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>

<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>
<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>

Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 7 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data. Often, several design solutions exist, each better in some way than the others.

Unit 7 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3– 5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Identify the evidence that supports particular points in an explanation. (4-ESS1-1)</p>	<p>ESS1.C: The History of Planet Earth 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. (4-ESS1-1)</p>	<p>Patterns Patterns can be used as evidence to support an explanation. (4-ESS1-1) ----- Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (4-ESS1-1)</p>

ScienceUnit 7: Rocks and Fossils	Duration: 15 (May)
<p>Unit Summary: Students will be exposed to rocks and fossils. This unit has three lessons attached to it and should be completed in 15-20 Days. They will be able to explore the different layers of rocks and how they change, discover what they can learn about fossils and ancient environments, and identify patterns in fossils.</p>	
<p>Standards:</p> <p>4-ESS1-1 - Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</p>	

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Career Readiness, Life Literacies, and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6)

Computer Science and Design Thinking

8.1.5.CS.1: Model how computing devices connect to other components to form a system.

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Rock layers change ● Fossils tell us about ancient environments ● Fossils show us patterns 	<ul style="list-style-type: none"> ● How do rocks layers change? ● What do fossils tell us about ancient environments? ● What are some patterns fossils show us?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will research a dinosaur’s needs and design a zoo space for it with their team. 	<p style="text-align: center;">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes

	<p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>Aquatic fossil/extinct/fossil/relative age/terrestrial fossil</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● How rock layers change ● What fossils tell them about ancient environments ● What are some patterns fossils show them 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore the different layers of rocks and how they change ● Discover what we can learn about fossils and ancient environments ● Identify patterns in fossils
<p>Instructional Plan</p>	
<p style="text-align: center;">Suggested Activities</p> <ul style="list-style-type: none"> ● Use a jar and three types of materials to model how rock layers form ● Model ways that rock layers form and the forces that can cause 	<p style="text-align: center;">Resources</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts)

- them to change
- Examine fossils from a fossil kit to determine the kind of organism that each belonged to and how it lived
 - Choose a fossil and research where they can be found all over the world
 - Build a replica of rock layers

- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Print Materials

- HMH Dimensions Textbook/Workbook
- Studies Weekly Science

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

	Correlation Key	
Holocaust	Amistad	Financial Literacy

<u>Career Readiness, Life Literacies, and Key Skills Practices</u>	
Act as a responsible and contributing community members and employee.	Students understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
Consider the environmental, social and economic impacts of decisions.	Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

<p>Utilize critical thinking to make sense of problems and persevere in solving them.</p>	<p>Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.</p>
<p>Model integrity, ethical leadership and effective management.</p>	<p>Students consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.</p>
<p>Plan education and career paths aligned to personal goals.</p>	<p>Students take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.</p>

<p>Use technology to enhance productivity, increase collaboration and communicate effectively.</p>	<p>Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.</p>
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Career Readiness, Life Literacies, and Key Skills Core Ideas

Unit 8 will include incorporate the following core ideas.

You can give back in areas that matter to you.

Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Taxes are collected on a variety of goods and services at the local, state, and federal levels.

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.

Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.

Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Computer Science and Design Thinking

This unit will include incorporate the following core ideas.

Computing devices may be connected to other devices to form a system as a way to extend their capabilities

Shared features allow for common troubleshooting strategies that can be effective for many systems.

The development and modification of computing technology is driven by individual’s needs and wants and can affect individuals differently.

Data can be organized, displayed, and presented to highlight relationships.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

Often, several design solutions exist, each better in some way than the others.

Unit 8 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (4-ESS3-2)</p>	<p>ESS3.A: Natural Resources 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. (4-ESS3-1)</p> <p>ESS3.B: Natural Hazards A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their</p>	<p>Cause and Effect Cause and effect relationships are routinely identified and used to explain change. (4-ESS3-1) Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS3-2)</p> <p>-----</p> <p>Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology Knowledge of relevant</p>

<p>Obtaining, Evaluating, and Communicating Information</p> <p>Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluate the merit and accuracy of ideas and methods. Obtain and combine information from books and other reliable media to explain phenomena. (4-ESS3-1)</p>	<p>impacts. (4-ESS3-2) (Note: This Disciplinary Core Idea can also be found in 3.WC.)</p> <p>ETS1.B: Designing Solutions to Engineering Problems Testing a solution involves investigating how well it performs under a range of likely conditions. (secondary to 4-ESS3-2)</p>	<p>scientific concepts and research findings is important in engineering. (4-ESS3-1)</p> <p>Influence of Science, Engineering and Technology on Society and the Natural World</p> <p>Over time, people’s needs and wants change, as do their demands for new and improved technologies. (4-ESS3-1) Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands. (4-ESS3-2)</p>
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Science Unit 8: Natural Resources and Hazards	Duration: 15-20 Days (June)
<p>Unit Summary: Students will be exposed to natural resources and hazards. This unit has four lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how renewable and nonrenewable resources are used for energy and discover how people can reduce land- and water- based hazards and their impacts.</p>	
<p>Standards:</p> <p>4-ESS3-1 - Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.</p> <p>4-ESS3-2 - Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</p>	
<p>Interdisciplinary Skills</p>	

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Career Readiness, Life Literacies, and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification.

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

Computer Science and Design Thinking

8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.

8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

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8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Essential Understandings

Essential Questions

Students will understand that...

- Certain nonrenewable resources are used for energy
- Certain renewable resources are used for energy
- People can reduce the impact of land-based hazards
- People can reduce the impact of water-based hazards

- What nonrenewable resources are used for energy?
- What renewable resources are used for energy?
- How can people reduce the impact of land-based hazards?
- How can people reduce the impact of water-based hazards?

Evidence of Student Learning

Performance Tasks: *Activities to provide evidence for student learning of content and cognitive skills.*

- Students will research the pros and cons of nonrenewable energy resources and support their argument with evidence.

Other Assessments

Formative Assessments

- Teacher Observations
- Interactive Notebook
- Performance Assessments

Summative Assessments

- Summary
- Labs
- Hands-On Activities

Benchmark Assessment

	<ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary	
drawback/natural hazard/natural resource/nonrenewable resource/pollution/renewable resource/resource	
Knowledge and Skills	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● Which nonrenewable resources are used for energy ● Which renewable resources are used for energy ● How people can reduce the impact of land-based hazards ● How people can reduce the impact of water-based hazards 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore how renewable and nonrenewable resources are used for energy ● Discover how people can reduce land- and water-based hazards and their impacts
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> ● Research where the school gets its energy from ● Mining using birdseed, beads, and sunflower seeds ● Evaluate the air quality around the school ● Stay within a budget to design a solar hot water heater ● Create a seismometer ● Create a disaster supply kit 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

- Develop a plan to reduce the impact of a landslide
- Develop a design solution to reduce the impact of a tsunami

Print Materials

- HMH Dimensions Textbook/Workbook
- Studies Weekly Science

Websites

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Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

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- Provide pictures and well labeled models
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- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

504

- Provide differentiated instruction as needed
- Follow 504 Plan
- Pre teach vocabulary
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Modified textbooks or audio-video materials

- Use alternate forms of assessment