

Winslow Township School District
Grade 4 Science
Unit 4: Earth and Human Activity

Overview: In this unit the primary focus will be upon that energy and fuels used by humans affects the environment in multiple ways. Students will also study that humans are able to reduce the impact of natural disasters and that a variety of hazards result from natural processes (earthquakes, volcanic eruptions, etc.)

Overview	Standards for Science	Unit Focus	Essential Questions
<p><u>Unit 4</u></p> <p>Earth and Human Activity</p>	<ul style="list-style-type: none"> • 4-ESS3-1 • 4-ESS3-2 • WIDA 1,4 	<ul style="list-style-type: none"> • Generate and compare multiple solutions to reduce the impact of natural disasters. (earthquake, flood walls, tsunamis, volcanoes, etc.) • Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 	<ul style="list-style-type: none"> • Why are natural resources important to the environment? • How can humans protect Earth more effectively? • Why are natural resources in jeopardy? How?
<p><i>Unit 4: Enduring Understandings</i></p>	<ul style="list-style-type: none"> • The difference between renewable and nonrenewable resources. • The definition of “hazard,” “fossil fuels,” “natural resources” and “tsunamis”. • How do volcanoes erupt and why? Vocabulary (conduit, magma, crust, lava). • Layers of the Earth/ Plate Tectonics. 	<ul style="list-style-type: none"> • How can we use science and technology to protect earth and earth’s plant and animal populations? 	

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Curriculum Unit 4	Standards		Pacing	
			Days	Unit Days
Unit 4: Earth and Human Activity	4-ESS3-1	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	15	36
	4-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	15	
	Assessment, Re-teach and Extension		6	

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Disciplinary Core Ideas	Indicator #	Indicator
<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 impacts. (4-ESS3-2) (Note: This Disciplinary Core Idea can also be found in 3.WC.)</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.
	4-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

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• Assessment Plan	
<ul style="list-style-type: none"> • Class discussions • Student participation • Independent & group work/projects • Teacher and/or book series provided quizzes, tests, and a performance task to assess student mastery. • Homework monitor and assess class work • Benchmark assessments and Short Constructed Responses 	<ul style="list-style-type: none"> • Students will generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. In order to do this, students will become forecasters of natural disaster events. They will be able to predict the type of disaster and its magnitude and explain to an audience of their peers why these disasters are occurring. In this way anyone who understands what is happening can prepare for managing it.
Resources	Activities
<ul style="list-style-type: none"> • Chromebooks • HSP Science Book correlations: Chapter 5, all lessons • StudyJams http://studyjams.scholastic.com/studyjams/ • Science A-Z (Subscription Service) https://www.sciencea-z.com/ • National Geographic for Kids http://kids.nationalgeographic.com/ • Center for Teaching and Learning: 4th Grade Lessons for Energy and Natural Resources https://www.njctl.org/courses/science/4th-grade-science/energy-natural-resources/energy-natural-resources-2/ • Exploring Earth Textbook with Interactive Diagrams https://www.classzone.com/books/earth_science/terc/navigation/visualization.cfm • Grand Canyon http://www.nps.gov/teachers/index.htm • Pbs Eco-World http://pbskids.org/eeeworld/ • Bill Nye the Science Guy: "Erosion" (Full Episode) https://www.youtube.com/watch?v=D7WFeh30UpY • American Red Cross Disaster Preparedness http://www.redcross.org/prepare/disaster • Kids Do Ecology http://kids.nceas.ucsb.edu/ • Diversity, Equity & Inclusion Educational Resources https://www.nj.gov/education/standards/dei/ 	<ul style="list-style-type: none"> • mini-lessons • independent reading • films • website exploration • discussions, dialogues • debates • partner or small group work • student presentations, reports, journals, reflections, • in-class assessments, • written reports, essays, research, and homework

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Instructional Best Practices and Exemplars	
1. Identifying similarities and differences 2. Summarizing and note taking 3. Reinforcing effort and providing recognition 4. Homework and practice 5. Nonlinguistic representations	6. Cooperative learning 7. Setting objectives and providing feedback 8. Generating and testing hypotheses 9. Cues, questions, and advance organizers 10. Manage response rates
9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training & 9.4 Life Literacies and Key Skills	
<p>9.1.5.EG.3: Explain the impact of the economic system on one’s personal financial goals.</p> <p>9.1.5. EG.4: Describe how an individual’s financial decisions affect society and contribute to the overall economy.</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 (e.g., life guards, child care, medicine, education) and examples of these requirements.</p> <p>9.4.5.GCA.1: Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8).</p> <p>9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each.</p> <p>9.4.5.TL.5: Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).</p> <p>The implementation of the 21st Century skills and standards for students of the Winslow Township District is infused in an interdisciplinary format in a variety of curriculum areas that include, English language Arts, Mathematics, School Guidance, Social Studies, Technology, Visual and Performing Arts, Science, Physical Education and Health, and World Language.</p> <p>Additional opportunities to address 9.1, 9.2 & 9.4:</p> <p>Philadelphia Mint https://www.usmint.gov/learn/kids/resources/educational-standards</p> <p>Different ways to teach Financial Literacy. https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/</p>	

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Modifications for Special Education/504

Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities. Accommodations will be made for those students who need extra time to complete assignment. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.

- Small group instruction
- Audio books/ Text-to-speech platforms
- Leveled texts/Vocabulary Readers
- Leveled informational texts via online
- Modeling and guided practice
- Read directions aloud
- Repeat, rephrase and clarify directions
- Extended time as needed
- Break down assignments into smaller units
- Provide shortened assignments
- Modify testing format
- Repeat directions as needed
- Graphic organizers
- Study Guides, Study Aids and Re teaching as needed

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Modifications for At-Risk Students

Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations

- Audio books and Text-to-speech platforms
- Leveled texts/Vocabulary Readers
- Leveled informational texts via online
- Extended time as needed
- Read directions aloud
- Assist with organization
- Use of computer
- Emphasize/highlight key concepts
- Recognize success
- Provide timelines for work completion
- Break down multi-step tasks into smaller chunks
- Provide copy of class notes and graphic organizer

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English Language Learners	Modifications for Gifted Students
<p>All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors</p> <p><input type="checkbox"/> Grades 4-5 WIDA Can Do Descriptors:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Listening <input type="checkbox"/> Speaking <input type="checkbox"/> Reading <input type="checkbox"/> Writing <input type="checkbox"/> Oral Language <p>Students will be provided with accommodations and modifications that may include:</p> <ul style="list-style-type: none"> • Relate to and identify commonalities in science studies in student’s home country • Assist with organization • Use of computer • Emphasize/highlight key concepts • Teacher Modeling • Peer Modeling • Label Classroom Materials - Word Walls 	<p>Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic.</p> <ul style="list-style-type: none"> • Raise levels of intellectual demands • Require higher order thinking, communication, and leadership skills • Differentiate content, process, or product according to student’s readiness, interests, and/or learning styles • Provide higher level texts • Expand use of open-ended, abstract questions • Critical and creative thinking activities that provide an emphasis on research and in-depth study • Enrichment Activities/Project-Based Learning/Independent Study <p>Additional Strategies may be located at the links:</p> <ul style="list-style-type: none"> ❖ Gifted Programming Standards ❖ Webb’s Depth of Knowledge Levels and/or Revised Bloom’s Taxonomy ❖ REVISED Bloom’s Taxonomy Action Verbs

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Interdisciplinary Connections

Interdisciplinary Connections:

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.

RI.4.4. Determine the meaning of general academic and domain- specific words or phrases in a text relevant to a grade 4 topic or subject area.

W.4.1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

W.4.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

W.4.8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

SL.4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

SL.5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Math Standards:

4.OA.C.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

Integration of Computer Science and Design Thinking NJSLS 8

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.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data.

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.

8.2.5.ITH.1: Explain how societal needs and wants influence the development and function of a product and a system.