

Winslow Township School District
Grade 4 Science
**Unit 3: Earth's Place in the Universe/
Earth System's**

Overview: In this unit the primary focus will be upon global patterns of rock formations and how to classify rocks based on physical appearance and makeup. Students will study that rocks change over time for many reasons (wind, water, weathering, human and animal interactions). Lastly, students will focus on that landforms correlate with movement of tectonic plates that the interior of the planet earth, affects the exterior of the planet.

Overview	Standards for Science	Unit Focus	Essential Questions
<p><u>Unit 3</u> Earth's Place in the Universe/ Earth System's</p>	<ul style="list-style-type: none"> ● 4-ESS1-1 ● 4-ESS2-1 ● 4-ESS2-2 ● WIDA 1,4 	<ul style="list-style-type: none"> ● Identify rock layers and their meaning ● Demonstrate how water, wind and gravity break rocks, soils into small particles ● Identify and label fault lines on a map ● Analyze map of earth's continental boundaries and mountains ● Locate on a map sites of massive natural disasters through the years ● Draw conclusions about the formation of fossils ● Predict the effect of human activities on the environment ● Identify differences between interior and exterior earth 	<ul style="list-style-type: none"> ● Why does our planet look the way it does? ● How and why do the Earth's features constantly change? ● How does the Earth's constant change affect our future?
<p><i>Unit 3: Enduring Understandings</i></p>	<ul style="list-style-type: none"> ● Earthquakes, other natural disasters, and tectonics are responsible for the patterns and changes of Earth's rock formations. ● The locations of fossils show the order in which rock layers were formed. ● Climate and weather shape the land and determine which living things are found in a region. ● The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and 5-Volcanoes occur in patterns. ● Living things affect the physical features of a region. ● Plate tectonics cause volcanoes and earthquakes 		

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Curriculum Unit 3	Standards		Pacing	
			Days	Unit Days
Unit 3: Earth's Place in the Universe/ Earth System's	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.	10	36
	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.	10	
	4-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features.	10	
	Assessment, Re-teach and Extension		6	

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Unit 3 Grade 4		
Disciplinary Core Ideas	Indicator #	Indicator
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)	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.
	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.

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Unit 3 Grade 4	
• 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 use shells, and other objects to create a 5 layer model of the earth and form a fossil imprint in each of the layers. The model will be exchanged with another student model. Students receive the new model, take it apart, attempt to determine the type of plant or animal that formed the fossil, and then communicate their finding. Students will use observed changes to construct an argument on how the observation indicates what that layer of Earth was like years ago.
Resources	Activities
<ul style="list-style-type: none"> • Chromebooks • HSP Science Book correlations: Chapter 3: Lesson 3; Chapter 5: lesson 3; Chapter 7: lesson 3 and Lesson 4, Chapter 8 – all lessons • The Creation of Mountains by Jeri Freedman • Super Storms that Rocked the World by Mark Shulman • Shaping the Earth by Dorothy Hinshaw • Natural Disasters by Claire Watts • Earth's Changing Crust by Rebecca Harmen • Youtube: Plate Tectonics for Kids: www.makemegenius.com • National Geographic Classics: Natural Disasters • Bill Nye the Science Guy: Earth's Crust Classroom Edition • national geographic for kids • United States Geological Survey http://education.usgs.gov/primary.html • Earth visualizations https://www.classzone.com/books/earth_science/terc/navigation/visualization.cfm • Science Kids: Earth for Kids http://www.sciencekids.co.nz/earth.html • Make Me a Genius: Weathering and Erosion for Kids Video http://makemegenius.com/video • 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

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| <ol style="list-style-type: none"> 1. Identifying similarities and differences 2. Summarizing and note taking 3. Reinforcing effort and providing recognition 4. Homework and practice 5. Nonlinguistic representations | <ol style="list-style-type: none"> 6. Cooperative learning 7. Setting objectives and providing feedback 8. Generating and testing hypotheses 9. Cues, questions, and advance organizers 10. Manage response rates |
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9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training & 9.4 Life Literacies and Key Skills

- 9.1.5.EG.3:** Explain the impact of the economic system on one’s personal financial goals.
- 9.1.5. EG.4:** Describe how an individual’s financial decisions affect society and contribute to the overall economy.
- 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 (e.g., life guards, child care, medicine, education) and examples of these requirements.
- 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.
- 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).
- 9.4.5.TL.5:** Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).

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.

Additional opportunities to address 9.1, 9.2 & 9.4:

Philadelphia Mint

<https://www.usmint.gov/learn/kids/resources/educational-standards>

Different ways to teach Financial Literacy.

<https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/>

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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 when explaining what the text says explicitly and when drawing inferences from the text. (4-ESS3-2)
- RI.4.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. (4-ESS2-2)
- RI.4.9** Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. (4-ESS3-2)
- W.4.7** Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-ESS1-1)
- 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. (4-ESS1-1)
- W.4.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-ESS1-1)

Math Standards:

- 4.MD.A.1** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. (4-ESS1-1)
- 4.MD.A.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. (4-ESS2-1),(4-ESS2-2)
- 4.OA.A.1** Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. (4-ESS3-1),(4-ESS3-2)
- 4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (4-PS3-4)
- 4.G.A.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. (4-PS4-1),(4-PS4-2)

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Integration of Computer Science and Design Thinking NJSL 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.