

Swedesboro-Woolwich School District's Science Curriculum Guidance Document

Grade 2 - Unit 3 - Materials and Matter

Mission Statement

The primary goal of the Swedesboro-Woolwich School District is to prepare each student with the real life skills needed to compete in a highly competitive global economy. This will be achieved by providing a comprehensive curriculum, the integration of technology, and the professional services of a competent and dedicated faculty, administration, and support staff.

Guiding this mission will be Federal mandates, including No Child Left Behind, the New Jersey Core Curriculum Content Standards, and local initiatives addressing the individual needs of our students as determined by the Board of Education. The diverse resources of the school district, which includes a caring PTO and active adult community, contribute to a quality school system. They serve an integral role in supporting positive learning experiences that motivate, challenge and inspire children to learn.

Unit/Module Overview

- In this unit of study, students explore the properties of materials and matter! They describe and classify different types of materials by properties like hardness, flexibility, and absorbency, and they investigate how those properties are useful in meeting basic human needs (such as clothing and cooking). They also investigate how heating and cooling affect the properties of materials. The crosscutting concepts of patterns, cause and effect, interdependence of science, engineering, and technology, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate age appropriate proficiency in asking questions, analyzing and interesting data, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Standards Covered in Current Unit/Module

Related Standards and Learning Goals

- 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- 2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a

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- new object.
- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
- K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Learning Targets	Essential Questions
● I can classify materials based on their properties. ● I can identify which materials are best suited for various purposes. ● I can describe how objects can be disassembled and reassembled into new products. ● I can determine which changes by heating and cooling can be reversed and which can not.	● How do the properties of materials determine their use? ● How can we sort objects into groups that have similar patterns? ● Can some materials be a solid or a liquid? ● How can objects change? ● Are all changes reversible? ● In what ways can an object made of a small set of pieces be disassembled and made into a new object? ● Can all changes caused by heating or cooling be reversed?

Unit/Module Weekly Learning Activities and Pacing Guide

Topic & # Days	NJ Standards	Critical Knowledge & Skills	Possible Resources & Activities
1 day	● 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their	Obj. We are learning to: ● Understand how people in foundries can stay safe.	Topic: ● Anchor Phenomenon

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	observable properties. • 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. • 2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.	• Identify different properties of clothing such as texture, flexibility, and absorbency. • Identify the insulating and conducting properties of different materials • Understand the melting process and the changes from solid and liquid states. • Determine and identify how new materials are made. • Examine how large structures are composed of smaller pieces. Ex. A house. • Examine how mud can be used to build depending on the properties of the soil it is made from. • Compare and contrast how fire can be used to recycle materials. • Identify how changes caused by melting are reversible but changes caused by burning are nonreversible.	• Melting Metal Materials: • Mystery Science Lessons • Read Alouds • Cross Cut Weather Reading Activities • Mystery Labs • Additional Hands on Activities • Mystery Science Assessments
4 days	• 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. • K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. • K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Objectives same as above	Topic: • Lesson 1 • Why do we wear clothes? Materials: • Mystery Science Lessons • Read Alouds • Cross Cut Weather Reading Activities • Mystery Labs • Additional Hands on Activities • Mystery Science Assessments

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4 days	● 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. ● 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Objectives same as above	Topic: ● Lesson 2 ● Can you really fry an egg on a hot sidewalk? Materials: ● Mystery Science Lessons ● Read Alouds ● Cross Cut Weather Reading Activities ● Mystery Labs ● Additional Hands on Activities ● Mystery Science Assessments
4 days	● 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. ● 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Objectives same as above	Topic: ● Lesson 3 ● Why are so many toys made out of plastic? Materials: ● Mystery Science Lessons ● Read Alouds ● Cross Cut Weather Reading Activities ● Mystery Labs ● Additional Hands on Activities ● Mystery Science Assessments
4 days	● K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Objectives same as above	Topic: ● Lesson 4 ● What materials might be invented in the future? Materials: ● Mystery Science Lessons ● Read Alouds ● Cross Cut Weather Reading Activities ● Mystery Labs

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			• Additional Hands on Activities • Mystery Science Assessments
4 days	• 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. • 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Objectives same as above	Topic: • Lesson 5 • Could you build a house out of paper? Materials: • Mystery Science Lessons • Read Alouds • Cross Cut Weather Reading Activities • Mystery Labs • Additional Hands on Activities • Mystery Science Assessments
5 days	• 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. • 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Objectives same as above	Topic: • Lesson 6 • How do you build a city out of mud? Materials: • Mystery Science Lessons • Read Alouds • Cross Cut Weather Reading Activities • Mystery Labs • Additional Hands on Activities • Mystery Science Assessments
1 day	All standards listed above	Objectives same as above	Topic: • Unit Assessment Materials: • Mystery Science Lessons • Read Alouds • Cross Cut Weather Reading Activities • Mystery Labs • Additional Hands on Activities

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			• Mystery Science Assessments
1 day	• 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Objectives same as above	Topic: • Performance Task • How do we recycle metal? Materials: • Mystery Science Lessons • Read Alouds • Cross Cut Weather Reading Activities • Mystery Labs • Additional Hands on Activities • Mystery Science Assessments

Interdisciplinary Connections	Career Ready, Life Literacies, and Key Skills
NJSLS ELA W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (2-ESS2-3) W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-ESS2-3) SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-ESS2-2) NJSLS Mathematics MP.2 Reason abstractly and quantitatively. (2-ESS2-2) MP.4 Model with mathematics. (2-ESS2-2) 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (2-ESS2-2) English Language Arts Students gather information about the types of landforms and bodies of water from experiences or from text and digital resources. They can use this information to	CS.K-2.8.1.2.DA.3 Identify and describe patterns in data visualizations. CS.K-2.8.1.2.DA.4 Make predictions based on data using charts or graphs. CAEP.9.2.4.A.2 Identify various life roles and civic and work - related activities in the school, home, and community. CAEP.9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. TECH.9.4.2.CI.1 Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). TECH.9.4.2.CI.2 Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). TECH.9.4.2.IML.3 Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). TECH.9.4.2.IML.4 Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9).

answer questions such as, “Where can water be found as solid ice or snow year round?” Students should also have the opportunity to use their research to publish a writing piece, with guidance and support from adults or collaboratively with peers, based on their findings about various landforms and bodies of water. Diagrams, drawings, photographs, audio or video recordings, poems, dioramas, models, or other visual displays can accompany students’ writing to help recount experiences or clarify thoughts and ideas

Mathematics

As students collect data about the size of landforms and bodies of water, these numbers can be used to answer questions, make comparisons, or solve problems. For example, If students know that a mountain is 996 feet in height, a lake is 550 feet deep, a river is 687 miles long, and a forest began growing about 200 years ago, have students show each number in three ways using base-ten blocks, number words, and expanded form. A stream was 17 inches deep before a rainstorm and 33 inches deep after a rainstorm. How much deeper did it get during the rainstorm? As students engage in these types of mathematical connections, they are also modeling with mathematics and reasoning abstractly and quantitatively. When modeling with mathematics, students diagram situations mathematically (using equations, for example) and/or solve addition or subtraction word problems. When students reason abstractly and quantitatively, they manipulate symbols (numbers and other math symbols) abstractly and attend to the meaning of those symbols while doing so.

Climate Change

Students will continue participation in the Philadelphia Zoo UNLESS contest.

[Link to Additional Components including Cross Curricular Connections, Accommodations, Assessments, Etc](#)

[ELA Enduring Understanding Statements](#)