



Grade K Science Unit # 1 Physical Science

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Topic 1 (27 days) – Pushes and Pulls

Topic 2 (27 days) – Matter

Unit Overview: In this unit students will connect and expand on their ideas of physical science. Topic 1 will have students using their basic experiences in science to help students understand pushes and pulls. Students will investigate and describe the movement of objects; learn about the various types of motion; predict, explore, and describe changes in motion and what caused the changes. Topic 2 is matter. Students will learn their senses to observe and describe matter. Students will progress to learn about different types of matter and that objects are matter. Finally, students will learn about the three states of matter and will recognize objects in these states in the world around them.

Unit 1 NYSSLS Performance Expectations (PE)

K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. [Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.] [Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.]

K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. * [Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]

K-PS1-1. Plan and conduct an investigation to test the claim that different kinds of matter exist as either solid or liquid, depending on temperature. [Clarification Statement: Emphasis should be on solids and liquids at a given temperature and that a solid may be a liquid at higher temperature and a liquid may be a solid at a lower temperature.] [Assessment Boundary: Only a qualitative description of temperature, such as hot, warm, and cool, is expected]

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.

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.

Unit 1 NYSSLS Science and Engineering Practices (SEP)

- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Asking Questions and Defining Problems

Unit 1 NYSSLS Disciplinary Core Ideas (DCI)

- **PS2.A: Forces and Motion**
 - Pushes and pulls can have different strengths and directions. (K-PS2-1),(K-PS2-2)
 - Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1),(K-PS2-2)
- **PS3.C: Relationship Between Energy and Forces**
 - (NYSED) A push or a pull may cause stationary objects to move, and a stronger push or pull in the same or opposite direction makes an object in motion speed up or slow down more quickly. (secondary to K-PS2-1)
- **PS2.B: Types of Interactions**
 - When objects touch or collide, they push on one another and can change motion. (K-PS2-1)
- **PS1.A: Structure and Properties of Matter**
 - Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (K-PS1-1)
- **ETS1.A: Defining and Delimiting Engineering Problems**
 - A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)
 - Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)
 - Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)

Unit 1 NYSSLS Cross Cutting Concepts (CCC)

- **Cause and Effect**
- **Energy and Matter**

Resources

- **Pearson Elevate Science Book NY Grade K Topics 1-2**
- **[PearsonRealize.com](https://www.pearsonrealize.com)**
- **Pearson Lab materials**
- **<http://ngss.nsta.org/Classroom-Resources.aspx>**
- **<http://newyorkscienceteacher.com/sci/>**

Measurement of Student Learning

- Lesson Quiz
- Topic Assessment and Remediation
- Evidence-Based Assessment
- Quest Rubrics

Step Up to Writing

SUTW Strategy

Connect, Case Studies

Easy 2-Column Notes

Content Vocabulary

Breaking Down Definitions

Investigate/Synthesize/Quest

IVF Summary Sentences

Investigate/Synthesize/Quest

Four Step Summary Paragraph

Investigate/Synthesize/Quest

Color-Coding the Elements of Informative

Investigate/Synthesize/Quest

Explanatory Writing Informal Outlines

ELL Enhancements

Pearson Elevate Science Supports

Topic Differentiated Instruction in TE

Topic Remediation Summary in TE

Leveled Readers

ELL Support in TE

ELL Vocabulary Support in TE

Listening	Speaking	Reading	Writing	Accommodations
Build Background Knowledge Audio	Sentence Frames Academic conversation Starters	Supplementary Texts Visual Aids Video Standards-based questions	Sentence Frames Graphic Organizers Standards-based sentence stems	Extended time Directions read 3x Oral interpretation Translated version of test (may have both English and other) Responses in home language

Special Education Modifications

Pearson Elevate Science Supports

Topic Differentiated Instruction in TE

Topic Remediation Summary in TE

Leveled Readers

Instructional	Assistive technology	Assessment:
Pre-teach vocabulary Use picture vocabulary	Computer for lengthy writing tasks Audio textbook	Scaffold written assignments Individual criteria for success Provide with review packet

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<p>Picture examples of safety measures posted Pictures for each category of science Scaffold Depth of Knowledge questions Provide copy of notes/notes in "cloze" form Peer partner Extended time for written tasks/verbal response Break long tasks over multiple days Allow for multiple ways to respond (verbal, written, response board, scribe) Provide mock/model of performance task Model use of graphic organizers (fade until mastery) Modify informational text to shorter passages Provide model of exemplar lab write-up Provide interactive notebook Present complex tasks in multiple ways Model steps to read, interpret, and construct graphs Multiple opportunities to perform to repeat labs Provide advance organizer of class tasks</p>	<p>Videos to clarify concepts Recording device to record class lecture/discussions</p> <p>Other Arrange seating for maximum engagement and minimum distraction Accessible lab space (counter level)</p>	<p>Modify the number of questions Provide model of the task Provide multiple options for project Practice calculating density with sample problem before assessing student.</p>	
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Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom

Pearson Elevate Science Supports
[Pearson Elevate Science Resources](#)

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<ul style="list-style-type: none">• Materials, resources, and/or discussions address diverse cultural backgrounds and real world applications
<ul style="list-style-type: none">• Artifacts (posters, charts, etc.) in the science classroom are representative of the cultures of the student population
<ul style="list-style-type: none">• All students are given an opportunity to engage in science discourse
<ul style="list-style-type: none">• Teacher demonstrates high expectations for all students