

PA Core Standards: Science

Introduction

The 2020–21 school year presents a unique set of opportunities and challenges due to the disruption to instruction in spring 2020 as well as the uncertainty as the school year unfolds. Educators know that every school year there are students who require support in addressing unfinished learning from prior grades; a challenge that will be felt more prominently in the 2020–21 school year. It is vitally important that educators are supported to make deliberate instructional choices that allow all students to effectively engage with grade-level work.

The most effective and equitable way to support students in their learning is to ensure that the vast majority of time is spent engaging with grade-level content and accelerating as needed. It is entirely possible to hold high expectations for all students while addressing unfinished learning in the context of grade-level work. Since time is a scarce commodity in classrooms — made more limited by anticipated closures and remote or hybrid learning models in the fall of 2020 — strategic instructional choices about which content to prioritize must be made.¹

Assessing students at the start of the year will identify learning gaps and provide data to inform instruction. Diagnostic Assessments determine student strengths, weaknesses, knowledge, and skills. Administering diagnostic assessments permits the instructor to intervene at the point where students begin to struggle or when they are performing below grade level expectations (running record, Classroom Diagnostic Tests [CDT]). Diagnostic assessments allow teachers to adjust the curriculum to meet the unique needs of all students. While some concepts have greater emphasis in a particular year, all standards deserve a defined level of instruction. Neglecting concepts may result in learning gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

This guidance document is designed to identify and define areas of high-level focus in Science instruction supported by key PA Academic Standards. Note that while all standards deserve a defined level of instruction, neglecting key concepts may result in learning gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade. Not all content in a given grade is emphasized equally in the standards. Some focus areas require greater emphasis than others based on the depth of the ideas, the time taken to master, and/or their importance to the future science grade levels. More time in these areas is also necessary for students to meet the Standards for Inquiry and Design and Unifying Themes.

¹ Adapted from 2020–21 Priority Instructional Content in English Language Arts/literacy and Mathematics, Student Achievement Partners/Achieve the Core. May 2020

GRADE 2 FOCUS OF INSTRUCTION (2020-2021)

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Focus Areas of Instruction	PA Academic Standards
<p>Life Science</p> <ul style="list-style-type: none"> • Develop a model to demonstrate different modes of seed dispersal. Plan and investigate effectiveness of different types of seed dispersal. • Plan and conduct an investigation to determine if plants need sunlight and water to grow. • Plan and carry out investigations to test whether plants from different settings have different needs for water, sunlight, and type of soil. <p>Physical Science</p> <ul style="list-style-type: none"> • Observe, describe, and classify matter by properties and uses (e.g., size, shape, weight, solid, liquid, gas). • Plan and carry out investigations to test the idea that warming some materials causes them to change from solid to liquid and cooling causes them to change from liquid to solid. • Construct an argument and provide evidence that some changes caused by heating or cooling can be reversed and some cannot. • Analyze data from testing objects made from different materials to determine if a proposed object functions as intended. • Design an object built from a small set of pieces to solve a problem and compare solutions designed by peers given the same set of pieces. • Make observations of how an object made of small set of pieces can be disassembled and made into a new object. <p>Earth and Space Science</p> <ul style="list-style-type: none"> • Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. • Make observations from multiple sources to provide evidence that Earth's events can occur quickly or slowly. • Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. • Describe kinds and shapes of patterns of landforms and bodies of water. • Develop a model to represent the shapes and kinds of land and bodies of water in an area. 	<p>3.1.4.A <i>Know that natural and human-made objects are made up of parts.</i></p> <p>3.2.4.A <i>Identify and use the nature of scientific and technological knowledge.</i></p> <p>3.2.4.B <i>Describe objects in the world using the five senses.</i></p> <p>3.2.4.C <i>Recognize and use the elements of scientific inquiry to solve problems.</i></p> <p>3.3.4.A <i>Know the similarities and differences of living things.</i></p> <p>3.2.4.C <i>Recognize and use the elements of scientific inquiry to solve problems.</i></p> <p>3.4.4.A <i>Recognize basic concepts about the structure and properties of matter.</i></p> <p>3.4.4.C <i>Observe and describe different types of force and motion.</i></p> <p>3.5.4.A <i>Know basic landforms and earth history.</i></p> <p>3.5.4.D <i>Recognize the earth's different water resources.</i></p> <p>3.1.4.E <i>Recognize change in natural and physical systems.</i></p> <p>3.5.4.C <i>Know basic weather elements.</i></p> <p>3.1.4.C <i>Illustrate patterns that regularly occur and reoccur in nature.</i></p>