

## 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.<sup>1</sup>

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.

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

## GRADE 3 FOCUS OF INSTRUCTION (2020-2021)

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 skill and understanding and may leave students unprepared for the challenges of later grades.

Focus Areas of Instruction	PA Academic Standards
<p><b>Life Science</b></p> <ul style="list-style-type: none"> <li>• Develop a model to describe the commonalities of life cycles of different organisms.</li> <li>• Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.</li> <li>• Use evidence to compare characteristics inherited from parents, characteristics caused by the environment, and those resulting from both.</li> <li>• Use evidence to argue that when the environment changes in ways that affect a place's physical characteristics, organisms may survive, move to new locations, or die.</li> <li>• Use evidence to construct an explanation that some rocks and minerals record the remains of organisms.</li> </ul>	<p><b>3.1.4.B</b> <i>Know models as useful simplifications of objects or processes.</i></p> <p><b>3.2.4.A</b> <i>Identify and use the nature of scientific and technological knowledge.</i></p> <p><b>3.3.4.A</b> <i>Know the similarities and differences of living things.</i></p> <p><b>3.3.4.C</b> <i>Know that characteristics are inherited and, thus, offspring closely resemble their parents.</i></p> <p><b>3.3.4.D</b> <i>Identify changes in living things over time.</i></p> <p><b>3.5.4.A</b> <i>Know basic landforms and earth history.</i></p>
<p><b>Physical Science</b></p> <ul style="list-style-type: none"> <li>• Investigate the variables that may affect how objects move across a floor, down a ramp, etc.</li> <li>• Construct an explanation for why an object subjected to multiple pushes and pulls might stay in one place or move.</li> <li>• Through the use of objects, design an investigation and demonstrate that forces can cause changes on an object's speed or direction of motion.</li> <li>• Take measurements of objects in motion and represent the movement of objects in multiple representations.</li> <li>• Investigate the motion of objects to determine observable and measurable patterns to predict future motions.</li> <li>• Provide evidence that a pattern can be used to predict future motion.</li> <li>• Design and implement an investigation to demonstrate that objects in contact exert forces on each other.</li> </ul>	<p><b>3.1.4.C</b> <i>Illustrate patterns that regularly occur and reoccur in nature.</i></p> <p><b>3.1.4.D</b> <i>Know that scale is an important attribute of natural and human made objects, events and phenomena.</i></p> <p><b>3.2.4.C</b> <i>Recognize and use the elements of scientific inquiry to solve problems.</i></p> <p><b>3.4.4.C</b> <i>Observe and describe different types of force and motion.</i></p>
<p><b>Earth and Space Science</b></p> <ul style="list-style-type: none"> <li>• Organize simple weather data sets to record local weather data and identify day-to-day variations, as well as long-term patterns of weather.</li> <li>• Display simple data sets in tables and graphs to display previous weather conditions to make predictions for future seasons.</li> </ul>	<p><b>3.1.4.E</b> <i>Recognize change in natural and physical systems.</i></p> <p><b>3.5.4.C</b> <i>Know basic weather elements.</i></p> <p><b>3.1.4.C</b> <i>Illustrate patterns that regularly occur and reoccur in nature.</i></p>