# Alignment of Oregon Science Standards

Crosswalk of 2009 Oregon Science Standards to
2014 Oregon Science Standards (Next Generation Science Standards)

OREGON DEPARTMENT OF EDUCATION

# Alignment of Oregon Science Standards

*2014 Science Standards (Next Generation Science Standards) and 2009 Science Standards*

## Introduction

These pages show how the content, practices, and cross-cutting concepts (CCC) associated with the new Oregon Science Standards (NGSS) adopted in March 2014 align to the Oregon Science Standards adopted in February 2009. It is important to remember that the new Oregon Science Standards (NGSS) will be phased in so that districts can implement changes in local curriculum, provide appropriate professional development for teachers and administrators, and provide students with opportunities to learn the content, practices, and cross-cutting concepts prior to assessment. Oregon students will continue to be assessed on the Oregon 2009 Science Content Standards via OAKS Science until a new science assessment that aligns with the newly adopted standards is developed and becomes operational in 2018-2019.

## Purpose

The purpose of this document is to provide educators with a view of the alignment between the 2009 content standards currently required as part of each Oregon district's curriculum and instruction in the subject area of science, and those contained in the new 2014 Oregon Science Standards (NGSS). An examination of the content of these pages is meant to provide at least some clarification on the following issues:

- What content, practices, and cross-cutting concepts are new and have not previously been a part of Oregon's 2009 Science Standards?
- What content, practices, and cross-cutting concepts will now need to be part of the curriculum at an earlier (or later) grade level than where they are currently taught and assessed?
- In what instances are similar skills being addressed, but with a somewhat different emphasis or with different expectations regarding the degree of sophistication?

## Organization of the Alignment Tables

The rows in the table show whether there is a corresponding 2009 Oregon science standard(s) for each of the new 2014 Oregon science standards (NGSS) performance expectation (PE) in the areas of content, practices, and cross-cutting concepts (CCC). Codes designate the degree of alignment: S = Strong; P = Partial; D = Different Grade; N = New (not in any 2009 ORSS). The 2009 Oregon Science Standards that are not aligned to any new 2014 Oregon Science Standard (NGSS) are included at the end of the document. The bulleted statements at the beginning of the document provide summary information about the differences between the two sets of standards.

# Alignment of Oregon's 2014 Science Standards (NGSS) with 2009 Oregon Science Standards (2009 ORSS)

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## Grade: 3

- Weather and climate, forces and interactions, and life sciences (ecosystems) are more developed and rigorous in the NGSS than the 2009 ORSS.
- Study of matter in the 2009 ORSS moved to 2nd and 5th grade in the NGSS.
- Most 2009 ORSS in the 3-5 grade band remained intact, the greatest changes are the instructional approaches moving from content-based to more performance-based. In NGSS, students are asked to understand, use and apply scientific processes to a greater degree than in 2009 ORSS.
- In NGSS, the content is more integrated with scientific inquiry standards, increased rigor, and real-world connections.

| NGSS PE | 2009 ORSS | NGSS Content | NGSS Practice | NGSS CCC | Notes on Alignment |
|---|---|---|---|---|---|
| *3-PS2 Motion and Stability: Forces and Interactions* | | | | | |
| 3-PS2-1.<br>Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. | 3.2P.1<br>5.2P.1<br>3.3S.1<br>3.3S.2 | S<br>D/S | <br><br>S<br>S | N | CCC changed from interaction and change to cause and effect and patterns. |
| 3-PS2-2.<br>Make observations and/or measurements of an object's motion to provide evidence that that a pattern can be used to predict future motion. | 3.3S.1<br>3.3S.2<br>3.3S.3<br>3.2P.1 | <br><br><br>S | S<br>S<br>S | N | CCC changed from interaction and change to cause and effect and patterns. |
| 3-PS2-3.<br>Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. | 2.2P.1<br>5.2P.1<br>3.2P.1<br>4.3S.1 | D/S<br>D/P<br>S | <br><br><br>D | N | CCC changed from interaction and change to cause and effect and patterns. |
| 3-PS2-4.<br>Define a simple design problem that can be solved by applying scientific ideas about magnets. | 3.4D.1<br>2.2P.1<br>5.2P.1 | <br>D/S<br>D/P | S | N | CCC changed from interaction and change to cause and effect and patterns. |
| *3-LS1 From Molecules to Organisms: Structures and Processes* | | | | | |
| 3-LS1-1.<br>Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. | 3.1L.1<br>3.2L.1 | S<br>S | | N<br>N | CCC is patterns. |
| *3-LS2 Ecosystems: Interactions, Energy, and Dynamics* | | | | | |
| 3-LS2-1.<br>Construct an argument that some animals form groups that help members survive. | 5.2L.1 | D/P | | N | CCC is cause and effect. |

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## Grade: 3

| NGSS PE | 2009 ORSS | NGSS Content | NGSS Practice | NGSS CCC | Notes on Alignment |
|---|---|---|---|---|---|
| *3-LS3 Heredity: Inheritance and Variation of Traits* | | | | | |
| 3-LS3-1.<br>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. | 3.1L.1<br>3.3S.2 | S | <br>S | N | Moved to a higher level of thinking.<br>CCC are cause and effect and patterns. |
| 3-LS3-2.<br>Use evidence to support the explanation that traits can be influenced by the environment. | 4.2L.1 | D/S | | N | CCC are cause and effect and patterns |
| *3-LS4 Biological Evolution: Unity and Diversity* | | | | | |
| 3-LS4-1.<br>Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. | 4.1L.1<br>4.2L.1 | D/S<br>D/P | | N | Moved to a higher level of thinking<br>CCC are cause and effect; scale, proportion, and quantity; and systems and system models. |
| 3-LS4-2.<br>Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. | 3.1L.1 | P | | N | CCC are cause and effect; scale, proportion, and quantity; and systems and system models. |
| 3-LS4-3.<br>Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. | 4.2L.1<br>5.2L.1 | D/P<br>D/S | | N | CCC are cause and effect; scale, proportion, and quantity; and systems and system models. |
| 3-LS4-4.<br>Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. | 4.3S.3 | | D/S | N | CCC are cause and effect; scale, proportion, and quantity; and systems and system models. |
| *3-ESS2 Earth's Systems* | | | | | |
| 3-ESS2-1.<br>Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. | 3.2E.1 | S | | N | Deeper thinking.<br>CCC is patterns. |
| 3-ESS2-2.<br>Obtain and combine information to describe climates in different regions of the world. | 3.2E.1 | P | | N | CCC is patterns. |

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## Grade: 3

| NGSS PE | 2009 ORSS | NGSS Content | NGSS Practice | NGSS CCC | Notes on Alignment |
|---|---|---|---|---|---|
| *3-ESS3 Earth and Human Activity* | | | | | |
| 3-ESS3-1.<br>Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. | | N | N | N | No connection to a 2009 ORSS. |
| *3-5-ETS1 Engineering Design* | | | | | |
| 3-5-ETS1-1.<br>Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. | 3.4D.1 | | S | N | CCC is influence of engineering, technology, and science on society and the natural world. |
| 3-5-ETS1-2.<br>Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. | 5.4D.1 | | D/P | N | CCC is influence of engineering, technology, and science on society and the natural world. |
| 3-5-ETS1-3.<br>Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. | 3.4D.1 | | P | N | CCC is influence of engineering, technology, and science on society and the natural world. |
| **2009 ORSS not aligned to any NGSS:** | | | | | |
| 3.4D.2 Describe how recent inventions have significantly changed the way people live. | | | | | |
| 3.4D.3 Give examples of inventions that enable scientists to observe things that are too small or too far away. | | | | | |