# NGSS

THE NEW OREGON STANDARDS

# The Timeline

- 2014-2015 → K-2 – Use Only new standards
- 2015-2016 → Add grades 3, 6, and 9
- 2016-2017 → Add Grade 4, 7, and 10
- 2017-2018 – Field Test Year: All Other Grades - Full Implementation of Standards
- 2018-2019 – Normal State Testing

# What is different about NGSS?

- 3-Dimensional Learning
  - Engineering and Science Practices (ESPs)
  - Disciplinary Core Ideas (DCIs) – Content
  - Cross Cutting Concepts (CCCs)
- Performance Expectations (PE)
  - The standard
  - What should be assessed
  - Includes 3 dimensions

# Engineering & Science Practices (SEP)

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

# Crosscutting Concepts (CCC)

1. Patterns
2. Cause and Effect
3. Scale, Proportion, and quantity
4. Systems and system models
5. Energy and matter
6. Structure and function
7. Stability and Change

# Disciplinary Core Ideas (DCI)

**PHYSICAL SCIENCE**

- PS1: Matter and Its Interactions
- PS2: Motion and Stability: Forces and Interactions
- PS3: Energy
- PS4: Waves and their Applications in Technologies for Information Transfer

**EARTH & SPACE SCIENCE**

- ESS1: Earth's Place in the Universe
- ESS2: Earth's Systems
- ESS3: Earth and Human Activity

# Disciplinary Core Ideas (DCI) - continued

**LIFE SCIENCE**

- LS1: From Molecules to Organisms: Structures and Processes
- LS2: Ecosystems: Interactions, Energy, and Dynamics
- LS3: Heredity: Inheritance and Variation of Traits
- LS4: Biological Evolution: Unity and Diversity

**ENGINEERING, TECHNOLOGY, & APPLICATIONS OF SCIENCE**

- ETS1: Engineering Design
- ETS2: Links Among Engineering, Technology, Science, and Society

## 2-ESS1 Earth's Place in the Universe

Students who demonstrate understanding can:

**2-ESS1-1.** **Use observations from several sources to provide evidence that Earth events can occur quickly or slowly.** [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.] [Assessment Boundary: Assessment does not include quantitative measurements of timescales.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education:*

| Science and Engineering Practices | Disciplinary Core Ideas | Crosscutting Concepts |
|---|---|---|
| **Constructing Explanations and Designing Solutions**<br>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.<br>▪ Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (2-ESS1-1 | **ESS1.C: The History of Planet Earth**<br>▪ Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1) | **Stability and Change**<br>▪ Things may change slowly or rapidly. (2-ESS1-1) |

# 3 Dimensions in Performance Expectations

- 2-ESS1-1. **Use information from several sources to provide evidence** that **Earth events can occur quickly or slowly.** [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.]

- **Blue – Science and Engineering Practices**
- **Orange – Disciplinary Core Ideas**
- **Green - Crosscutting Concepts**

| |
|---|
| *Connections to other DCIs in second grade:* N/A |
| *Articulation of DCIs across grade-bands:* **3.LS2.C** (2-ESS1-1); **4.ESS1.C** (2-ESS1-1); **4.ESS2.A** (2-ESS1-1) |

*Common Core State Standards Connections:*

*ELA/Literacy –*

| | |
|---|---|
| **RI.2.1** | Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text. *(2-ESS1-1)* |
| **RI.2.3** | Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1) |
| **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-ESS1-1)* |
| **W.2.7** | Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-ESS1-1) |
| **W.2.8** | Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1) |
| **SL.2.2** | Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. (2-ESS1-1) |

*Mathematics –*

| | |
|---|---|
| **MP.2** | Reason abstractly and quantitatively. *(2-ESS1-1)* |
| **MP.4** | Model with mathematics. *(2-ESS1-1)* |
| **2.NBT.A** | Understand place value. (2-ESS1-1) |

# What we hope/would like to do

- Provide Training
- Bring ideas of how to accomplish NGSS
- Input from grade level teachers for grade-appropriate:
  - Informational texts
  - Fiction books

**QUESTIONS?**

# Where Information Can Be Found

- List of standards by grade level

http://www.ode.state.or.us/search/page/?id=1577

- NSTA HUB - http://ngss.nsta.org/
- Next Generation Science Standards

http://www.nextgenscience.org/next-generation-science-standards

- Links to NGSS resources from OSTA

http://www.oregonscience.org/NGSS@OSTA