Morrow County
Science Adoption Process
2016-2017

Committee Members:

Heppner High- Jason Palmer	**Riverside High- Rhonda Fox Brennan; Rebecca Renfro**	**Irrigon High- Devin Bailey**	**Principal Ryan Keefauver**
Heppner Elementary Melissa Coiner; Sarah Matheny	**Windy River Dr. Cathie Prindle**	**Irrigon Elementary Danielle Wardle**	**Sam Boardman** Mike Jeppeson
ACH- Stacey Wainwright	**Principal Tracey Johnson**	**George Mendoza Assistant Superintendent**	**Heppner Elementary Administrator Dieter Waite**

Materials Met The Following Criteria:

Materials focus on in-depth learning of the NGSS disciplinary core ideas while engaging students in the scientific and engineering practices and connecting to crosscutting concepts in the context of authentic and content-appropriate science, and facilitate students developing a deeper understanding and application of scientific knowledge and the ability to think and reason scientifically while investigating complex ideas and solving problems	**RIGOR: Materials support and guide in-depth instruction in the three intertwined NGSS dimensions*, support the integration of conceptual understanding linked to explanations and empirical investigations that allow students to evaluate knowledge claims and develop procedural skills while engaging in authentic and content-appropriate scientific inquiry and engineering design learning experiences, and provide opportunities for students to engage in practice, discourse, and reflection in multiple interconnected and social contexts. *The three intertwined NGSS dimensions refer to the Disciplinary Core Ideas, Crosscutting Concepts, and Science and Engineering Practices.**	**COHERENCE: Learning experiences form a coherent learning progression in which each K-5 student builds competencies in the performance expectations through actively engaging in science and engineering practices and applying crosscutting concepts to continually build on and revise their knowledge and skills in disciplinary core ideas. Student opportunities are directly connected to the grade-level performance expectations to develop and use specific grade-appropriate elements of three-dimensional learning that are integrated to develop and support students' sense-making of phenomena and design solutions to problems.**
Provides opportunities for students to focus on NGSS disciplinary core ideas.	**Use scientifically accurate and grade-appropriate scientific information, vocabulary, phenomena, models, and representations to support students' three-dimensional learning.**	**Includes grade-level appropriate academic and content-specific vocabulary in the context of the learning experience that is accessible, introduced, reinforced, reviewed and augmented with visual representations when appropriate.**
Teacher materials are organized and easy to use.	**Available in digital/non-digital formats and are accessible to all students.**	**Materials support and guide in-depth instruction in the three intertwined NGSS dimensions, with relevant and clear connections to multiple science disciplines, the Common Core State Standards (CCSS) in Mathematics, English Language Arts & Literacy, and the Oregon English Language Proficiency Standards.**

K-5 Curriculum Reviewed:

Accelerate Learning: *STEMscopes Oregon (Kit based)	**Cengage Learning: *Exploring Science**	**McGraw Hill School Education *Inspire Science**
Carolina Biological Supply: *Building Blocks of Science (Kit based)		

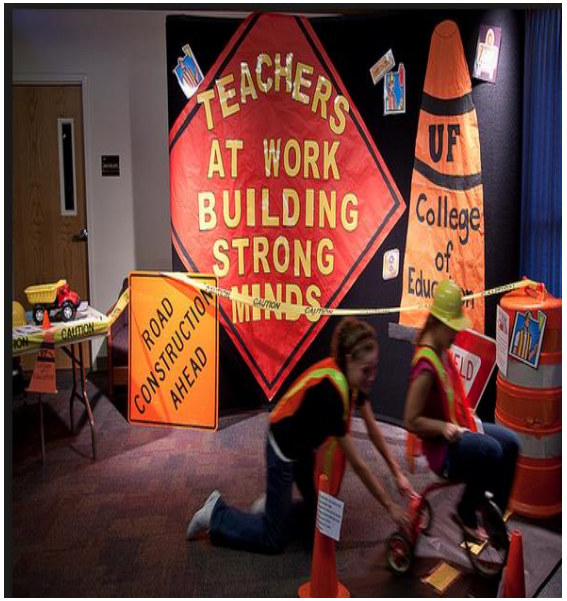
K-5 Conversation: When do we teach?

Teachers:

- Do we have time to teach? When?
- Must be easy to prep for-Just grab it
- We should only spend 30 minutes a day or 2 hours per week
- We like the concept of integrated with literacy/thematic integration
- We need to align instruction by grade levels
- We need to learning new strategies and standards

such as science inquiry and understanding NGSS.

- Needs to be easily accessible/not overwhelming
- We like kits- Something different than reading
- We want more kit…Less reading and writing
- Needs to be engaging and hands on
- Science Journal is better than workbook
- We want online resources and resources in hand



6-12 Curriculum Reviewed:

McGraw Hill School Education (6-8) ***Glencoe iScience**	**Pearson Education: *Oregon Interactive Science (6-8)**	**McGraw Hill School Education** ****Glencoe Biology, Glencoe Chemistry Matter & Change, Glencoe Physics Principles & Problems, Glencoe Earth Science (9-12)
McGraw-Hill School Education *Glencoe Biology, Glencoe Physical Science, Glencoe Earth Science (9-12)	**Pearson Education, Inc** Biology, Chemistry, Earth Science (9-12)	

6-12 Conversation: We Need Better Material

Teachers:

- **We want a curriculum that has a phenomena; a wow factor that kids can focus on;**
- **We want a balance of digital and non digital print material**
- **We want books vs kits; a hands on lab is a good once in awhile**
- **We want a curriculum that is aligned to NGSS**
- **We want a middle school science complete curriculum, consumables, online, ELL, and below level resources;**
- **Same for high school: Physical Science, Biology, Chemistry, Forensics- Keep Eastern Promise textbooks and EP resources**
- **We prefer workbooks; we will consider using science journals**
- **We should have kids mentoring younger kids in science; a cadet program**

MCSD Action Plan to implement NGSS

- **Communication**:

Goal: By the end of the 2016-17 school year, all stakeholder groups will have access to NGSS grade level standards, parameters for instruction, district implementation plan, and rollout of implementing the NGSS.

- **Professional Development Infrastructure**

Goal: During the 2017-18 school year, MCSD will work in collaboration with state and other districts to meet the vision of implementing NGSS aligned instruction; Curriculum based PD, Instructional Coaching, Modeling, unit development lesson planning and instructional practice PD

- **Instructional Practices:**

Goal: By the end of the 2017-18 school year, science instruction in all classrooms will demonstrate the blend of the science & engineering practices, disciplinary core ideas, and crosscutting concepts as outlined in the Frameworks. School leaders will take steps to ensure that all educators receive high-quality, research-based professional development.

- **Curricular and Instructional Materials:**

Goal: During 2017-2018 school year all schools will implement materials that are aligned to the Next Generation Science Standards (NGSS), to ensure the quality teaching of science in all elementary classrooms and 7-12 science classes.

- **Assessment:**

Goal: By the end of the 2017-18 school year, course level assessments will be aligned to curriculum and use of state assessment resources/materials will be implemented.

Implementation Timeline

- Now & Year 1 (2016-2017 & 2017-2018)
  - Communications related to implementation parameters- upcoming PD
  - Implementation of NGSS aligned curriculum
  - **High Schools will revise 9-12 course pathways;**
  - Awareness of the NGSS Frameworks (**Disciplinary Core Ideas & Cross Cutting Concepts)**
  - PD to Incorporate NGSS aligned instructional Practices **(Science Inquiry and Engineering Practices)**
  - **K-8 Developing Year Long curriculum Map for each grade level;**
- Year 2 (2018-2019)
  - Continued PD on NGSS and NGSS-aligned materials/resources
  - Curricular alignment of Literacy and math materials
  - Assessment development-formative and benchmark
  - **Embedding/integrating Science in ELA and Math;**
  - **Science Coaching PD;**

Implementation Timeline

- Year 3 (2019-2020)
  - On-going Curricular alignment of materials/resources
  - On going PD on NGSS and new materials/resources
  - Focus on Assessment results/program development
  - **Embedding/integrating Science in ELA and Math;**
  - **Science Coaching PD;**

- Year 4 (2020-2021)
  - On-going Curricular alignment of materials
  - On going PD on NGSS and new materials/resources
  - Focus on Assessment results/program development
  - Full NGSS alignment of curricular materials, assessment and professional development.
  - **Science Coaching PD;**

Final Steps:

- Share Curriculum and get Evaluation feedback from each school site;
- Share Science Adoption PPT and NGSS information resources with school staff
- After all curriculum has been shared with schools I will ask us to meeting again; March 14; MEC will be location; 4:00 PM.
- Committee to review findings, agree on curriculum to be adopted; discuss future PD and implementation parameters.
- April Board Meeting; Science adoption team to make presentation and recommendation to school board for science curriculum adoption.

Science Curriculum Public Viewing

For all Families and Patrons of Morrow County School District:

PLEASE VIEW SCIENCE CURRICULUM AND GIVE US YOUR INPUT!

Parents, guardians, and community stakeholders are invited to give us input. Contact each school listed for viewing location: Books may be located in staff lounge, library or in the office. Please check in at the main office.

LOCATION	PUBLIC VIEWING DATES	TIME
K-12 Heppner Schools	**Feb 6-10**	**9:00-3:00**
Grades K-6 Heppner Elementary	Grades 7-12 Heppner Jr/Sr High	
K-12 Boardman Schools	**Feb 14-20**	**9:00-3:00**
Grades K-3 Sam Boardman Elementary	Grades 4-6 Windy River Elementary	Grades 7-12 Riverside Jr/Sr High
K-12 Irrigon Schools	**Feb 21-28**	**9:00-3:00**
Grades K-3 A.C. Houghton Elementary	Grades 4-6 Irrigon Elementary	Grades 7-12 Irrigon Jr/Sr High

Next Generation Science Standards (NGSS) Big Ideas

What Are Disciplinary Core Ideas?

Disciplinary core ideas are the big ideas of science that provide scientists and engineers with the concepts and foundations to make sense of phenomena and/or design solutions to problems.

What Are the Core Ideas in . . .?

PHYSICAL SCIENCE

- Matter & Its Interactions
- Motion & Stability: Forces & Interactions
- Energy
- Waves & Their Applications in Technologies for Information Transfer

What Are the Core Ideas in . . .?

LIFE SCIENCES

- From Molecules to Organisms: Structures & Processes
- Ecosystems: Interactions, Energy, & Dynamics
- Heredity: Inheritance & Variation of Traits
- Biological Evolution: Unity & Diversity

What Are the Core Ideas in . . .?

EARTH & SPACE SCIENCES

- Earth's Place in the Universe
- Earth's Systems
- Earth & Human Activity

What Are the Core Ideas in . . .?

ENGINEERING, TECHNOLOGY, & APPLICATIONS OF SCIENCE

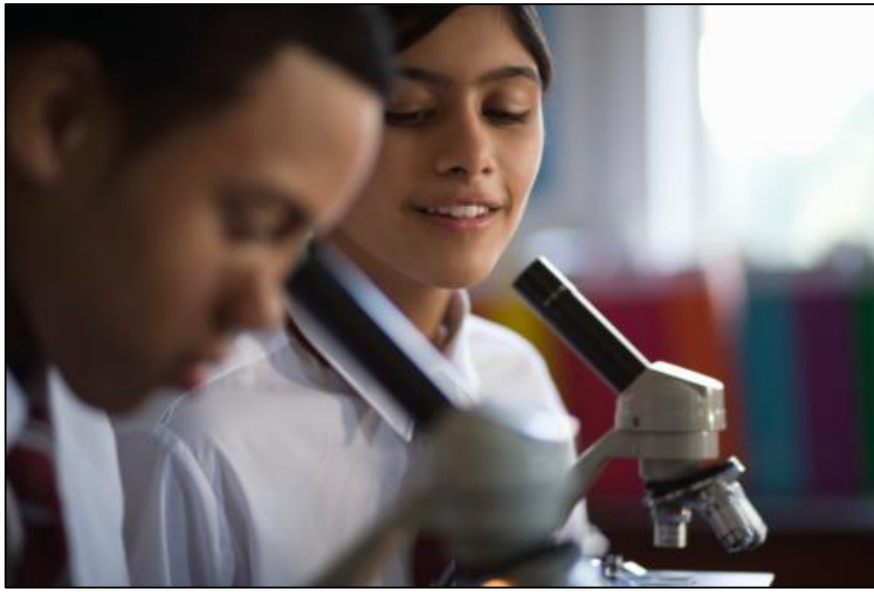
- Engineering Design
- Links Among Engineering, Technology, Science, & Society

Scientific & Engineering Practices

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

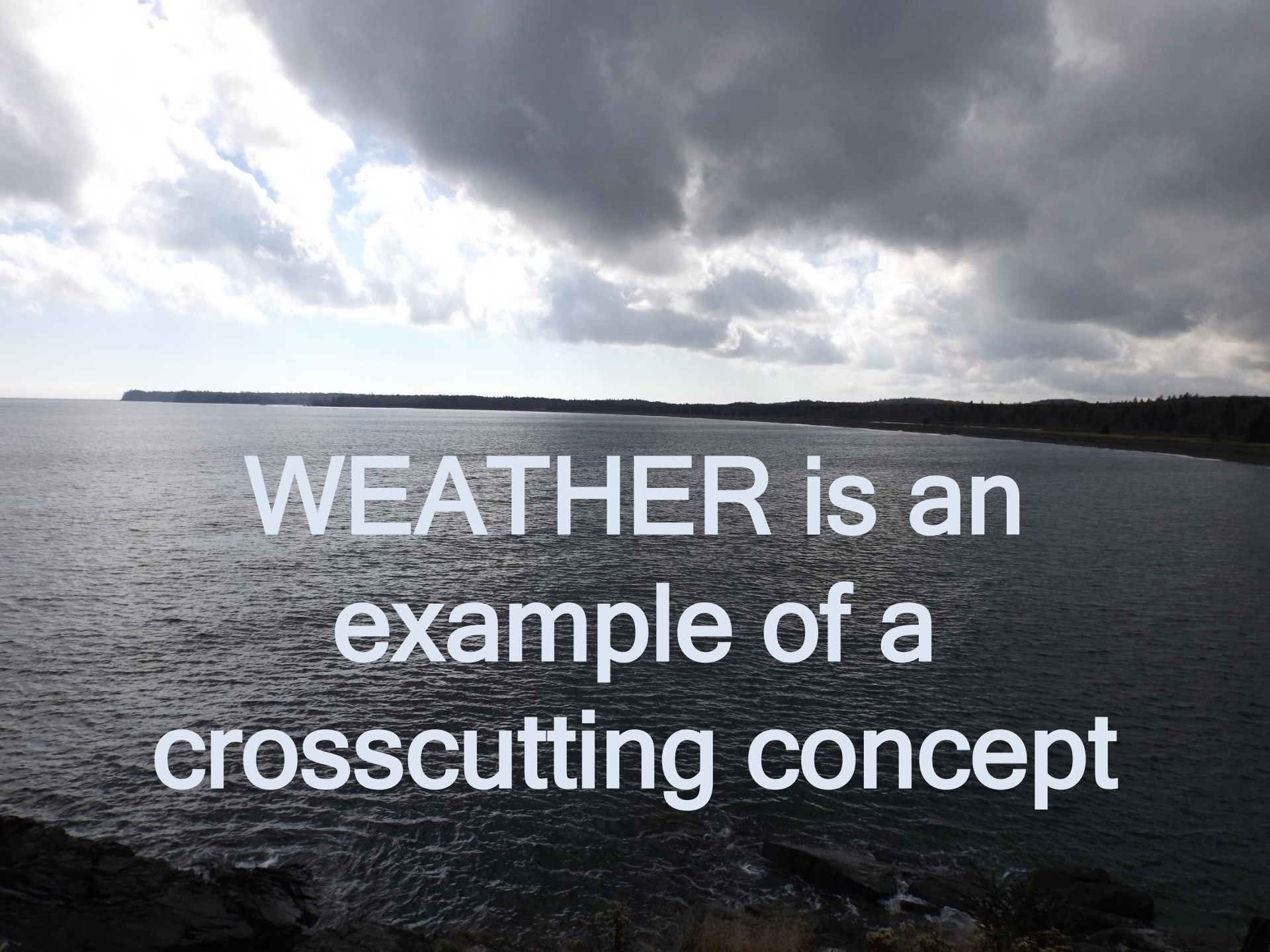
What Are Science and Engineering Practices?

Practices are the behaviors that scientists engage in as they investigate and build models and theories about the natural world and the key set of engineering practices that engineers use as they design and build models and systems.



What Are Crosscutting Concepts?

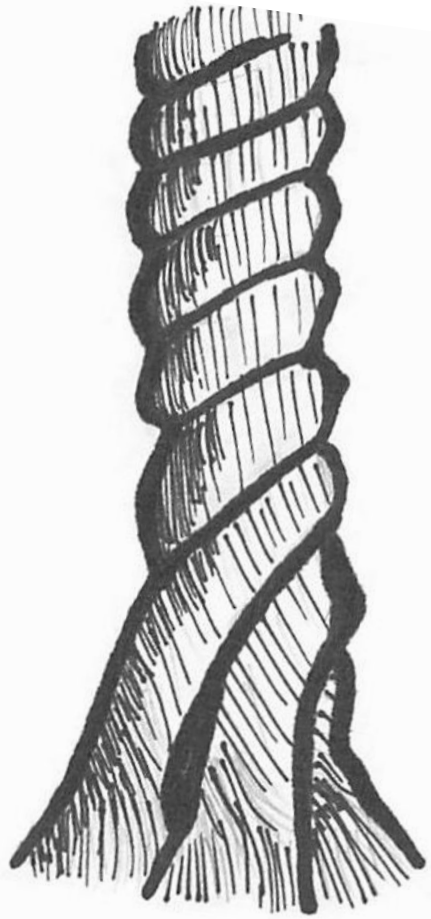
Crosscutting concepts are concepts that have application across all disciplines of science. As such, they provide a way of linking the different disciplines of science.


WEATHER is an example of a crosscutting concept

What is Three-dimensional learning?

Three-dimensional learning shifts the focus of the science classroom to environments where students use practices, disciplinary core ideas, and crosscutting concepts to make sense of phenomena and/or to design solutions to problems.

What Does Three-dimensional learning Look Like?



Practices

Core Ideas

Crosscutting Concepts