

Arizona Science Standards Revision Working Group



June 13, 2018

welcome

Introductions

- Brea Rivera
 - Science Specialist
- Sarah Sleasman
 - STEM Specialist
- Jonathan Moore, Ed. D.
 - Deputy Associate Superintendent
- Carol Lippert
 - Associate Superintendent

Arizona Science Standards Revision Working Group



1 Task

Today we will review technical feedback and make changes to the standards document

Housekeeping

1. Sign in
2. Parking validation
3. Restrooms
4. Breaks/Lunch
5. Travel Questions – Fill out W9 if needed
6. Sign forms – All members

Cell phones should only be used during breaks and lunch. If you need to take a call, please go to the break room. Please check text and email only during break due to non-disclosure.

Biggest Thank You!

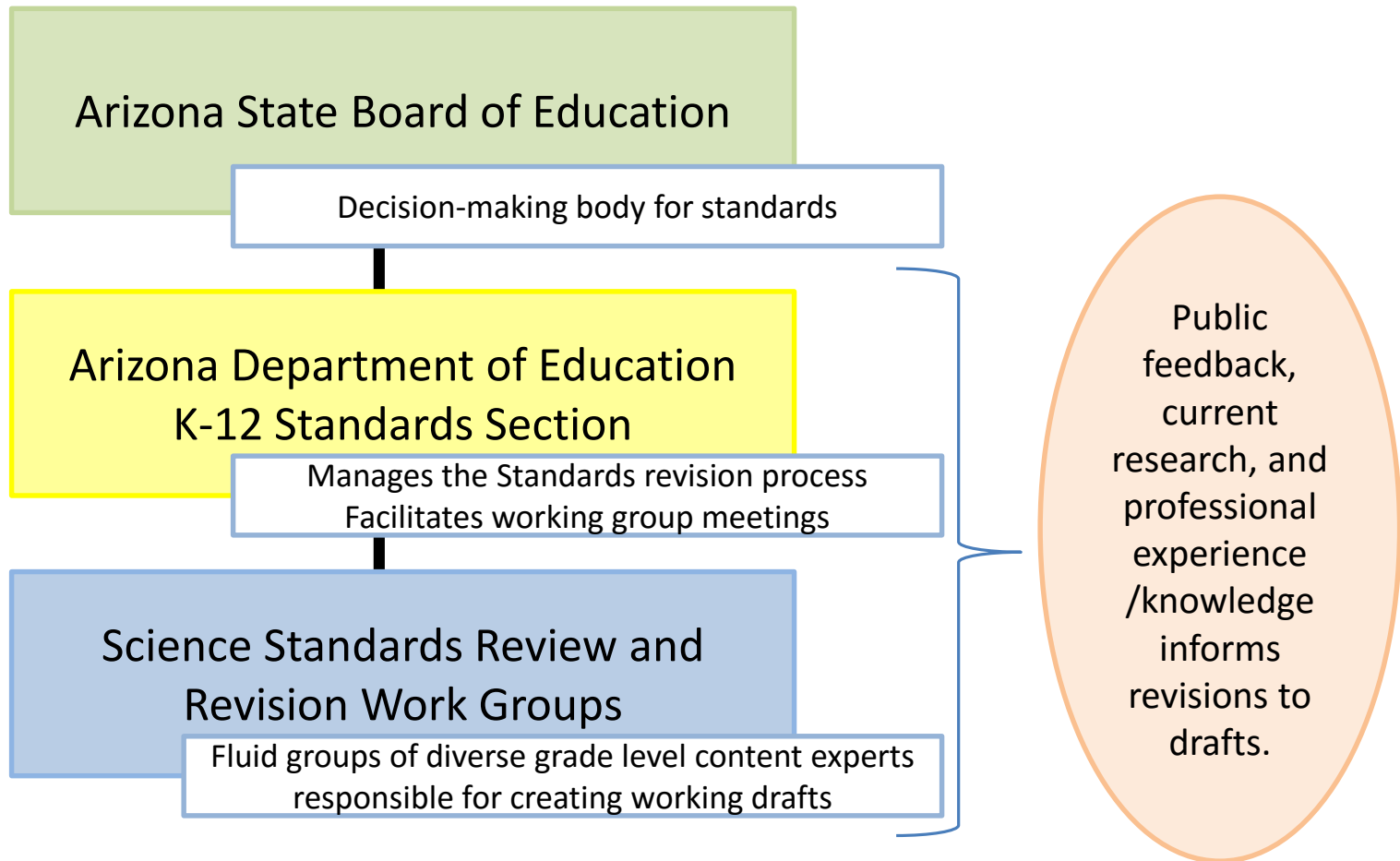
thank
YOU
SO
much

Introductions

Introduce yourself by telling everyone in the group:

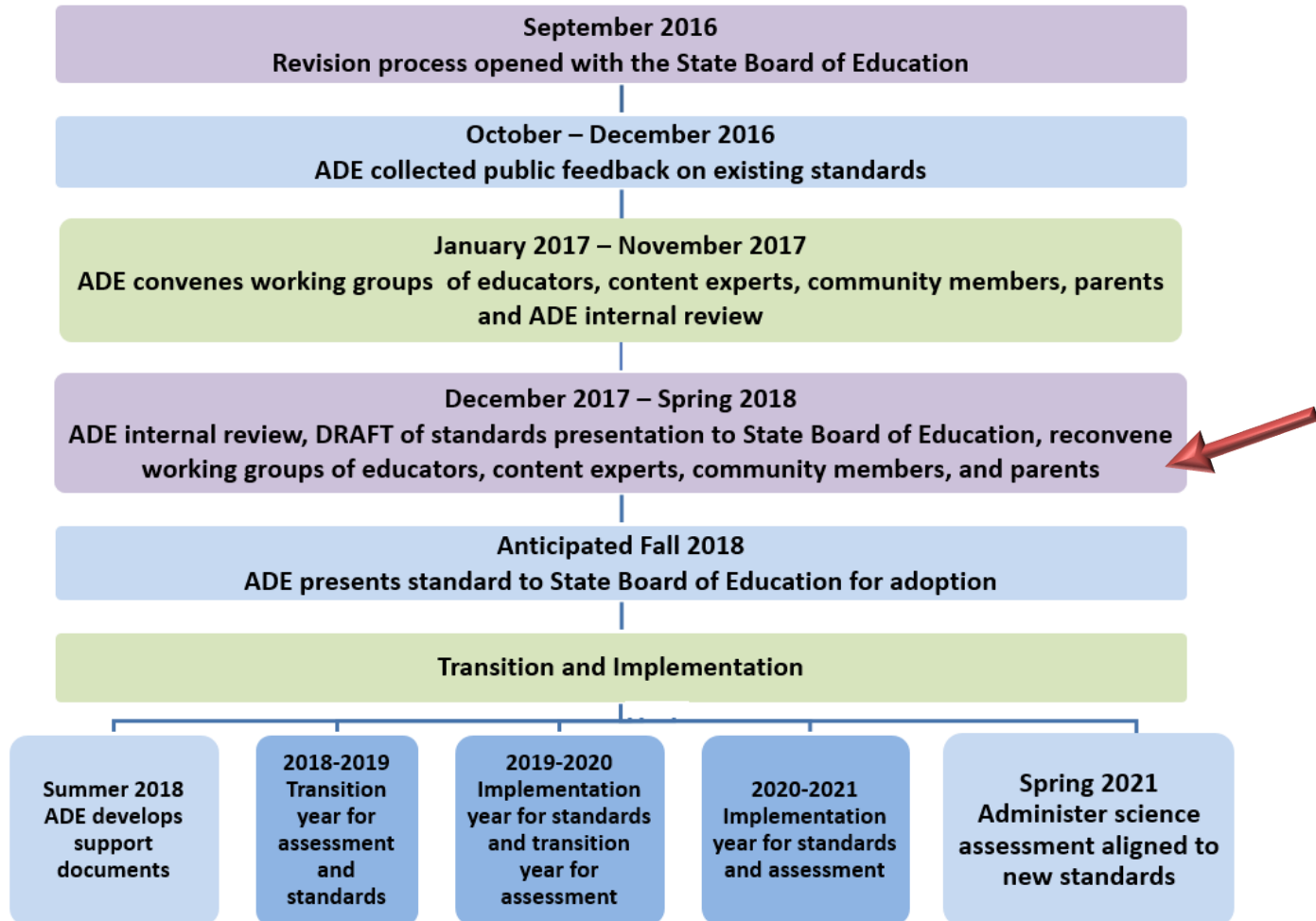
1. Your name
2. Your school/district
3. Your current position

Standards Review - Structure



Science Standard Revision and Implementation Timeline

Science Standards Revision and Tentative Implementation Timeline



Working Group Norms

- Actively engage in all discussions
- Be open-minded
- Have an attitude that fosters collaboration, agreement, and consensus
- Be mindful of timelines and scope of work
- **Cell phone/email checks are limited to breaks**

Standards, Curriculum, & Instruction

Standards – What a student needs to know, understand, and be able to do by the end of each grade. Standards build across grade levels in a progression of increasing understanding and through a range of cognitive demand levels.

Standards are adopted at the state level by the State Board of Education.



This is the “WHAT”



Standards, Curriculum, & Instruction

Curriculum – The resources used for teaching and learning the standards. **Curricula are adopted at a local level by districts and schools.**

Instruction – The methods used by teachers to teach their students. **Instructional techniques are employed by individual teachers** in response to the needs of the students in their classes to help them progress through the curriculum in order to master the standards.



This is the “HOW”



Working Group Norms

No "I" Statements



Learning Progressions

Physical Science Standards	Learning Progressions, Key Terms, and Crosscutting Concepts
<p>2.P1U2.1</p> <p>Plan and carry out an investigation to determine that matter has mass, takes up space, and is recognized by its observable properties; use the collected evidence to develop and support an explanation.</p>	<p>All the ‘stuff’ encountered in everyday life, including air, water and different kinds of solid substances, is called matter because it has mass, and therefore weight on Earth, and takes up space. Different materials are recognizable by their properties, some of which are used to classify them as being in the solid, liquid or gas state.</p>
<p>2.P1U2.2</p> <p>Plan and carry out investigations to gather evidence to support an explanation on how heating or cooling can cause a transformation (solid, liquid, gas).</p>	<p>Crosscutting Concepts: energy and matter, systems and system models, patterns, cause and effect, stability and change</p>
<p>2.P4U1.3</p> <p>Gather, reason, and communicate information about ways heat energy can cause change in objects or materials.</p>	<p>There are various ways of causing an event or bringing about change in objects or materials. Heating can cause change, as in cooking, melting solids or changing water to vapor.</p> <p>Crosscutting Concepts: energy and matter, systems and system models, patterns, cause and effect, stability and change, structure and function</p>

Format of HS + Standards

	Physical Science Essential Standards HS Essential Standards are intended for ALL students to have learned by the end of 3 credits of high school science courses and are on the state assessment.	Learning Progressions, Key Terms and Crosscutting Concepts
Chemistry	Essential HS.P1U2.1	<p>Atoms themselves have an internal structure, consisting of a heavy nucleus, made of protons and neutrons, surrounded by light electrons. The electrons and protons have electric charge – that of an electron being called negative and that of a proton called positive. Atoms are neutral, charges balancing exactly. Electrons move rapidly in matter, forming electric currents and causing magnetic forces. Their net effect is a force of attraction holding atoms and molecules together in compounds. When some electrons are removed or added, the atoms are left with a positive or negative charge and are called ions. In some atoms the nucleus is unstable and may emit a particle, a process called radioactivity. This process involves the release of radiation and an amount of energy far greater than any reaction between atoms. The behavior of matter at the scale of nuclei, atoms and molecules is different from that observed at the scale of ordinary experience.²</p> <p>Crosscutting Concepts: Crosscutting Concepts: system and system models; stability and change; cause and effect; energy and matter; patterns; structure and function⁴</p>
	Use the structure of atoms and their properties to explain patterns in the Periodic Table and describe how these models are revised with new evidence.	
	Connections: 6.P1U2.3 , HS.E2U1.15 , HS.L2U1.25	
	<p>Plus HS+C.P1U1.1</p> <p>Use the quantum mechanical model to explain how valence electrons can be used to predict properties and behaviors of elements and compounds.</p>	
	<p>Plus HS+C.P1U3.2</p> <p>Engage in argument, from evidence, to explain how changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay have been used to positively and negatively serve human ends.</p> <p>Connection: 8.E1U1.6, HS.E1U2.13</p>	
Physical Science Plus (+) Standards HS+ Standards are designed for students taking a high school general chemistry (C) or honors chemistry	<p>Plus HS+C.P1U2.3</p> <p>Use a historical model of the atom to evaluate qualitatively the evidence supporting claims about how atoms absorb and emit energy in the form of electromagnetic radiation.</p>	
	<p>Plus HS+C.P1U1.4</p> <p>Use mathematical representation to determine stoichiometric relationships in all phases of matter in chemical reactions.</p>	
	Essential HS.P1U1.2	
Chemistry	Describe patterns in the transfer or sharing of electrons to predict the formation of ions, molecules, and compounds in both natural and synthetic processes.	Chemical processes, their rates, and <u>whether or not energy</u> is stored or released can be understood in terms of the collisions of molecules and the rearrangements of atoms into new molecules, with consequent changes in total binding energy (i.e., the sum of all bond energies in the set of molecules) that are matched by changes in kinetic energy . In many situations, a dynamic and condition-
	Connections: 5.P1U1.2 , 8.P1U1.2 , HS.E2U1.15 , HS.L2U1.25	

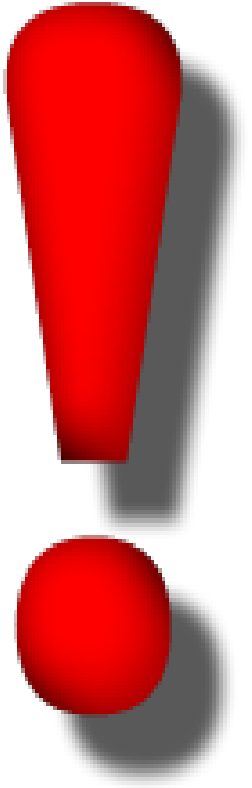
Today's Tasks



Reminder:

Keep in mind our work product is public record.

Today's Tasks



Items that are not actionable:

- Curriculum
- Instruction
- Funding/Budget
- Assessment

Actionable:

Specific actionable comments related to

- Standard
- Organization
- Introduction

Etc....

Today's Tasks

Technical Review/Edits



1. If not already, sign into your groups google account (example: azscigroup1@gmail.com)
1. Go to mail, and open the link of the google doc
2. When editing, please check that you can see other groups editing at the same time 😊
3. Go to your assigned section. Read the technical review comments. If the comment is valid, make changes to your section based off of technical review.

Grade Level Standards

Read your grade level draft standards that correspond with your working group today.



Begin when your group is ready on your assigned section!

Note: Let us know when you are done to...

Celebrate!

A cartoon-style illustration of a wooden sign. The sign is rectangular with a light brown wood grain texture and a darker brown shadow on its right side, giving it a 3D appearance. It is held up by a dark grey pushpin at the top center, with two thin grey lines extending from the pushpin to the top corners of the sign. The text on the sign is written in a bold, dark brown, sans-serif font. The words "Out to" are on the top line, and "LUNCH!" is on the bottom line in a larger font size. The letters have a slight white drop shadow, making them stand out against the wood grain.

**Out to
LUNCH!**

Final Thoughts

