

# Science Standards Revision



February 22, 2017

# Housekeeping

1. Sign in
2. Parking validation
3. Restrooms
4. Breaks/Lunch
6. Travel Questions – Fill out W9 if needed
7. Sign non-disclosure form – 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.***

# Thank you!!!

**Education**  
is the passport to the  
***FUTURE***  
for tomorrow belongs  
to those  
who prepare for it today.

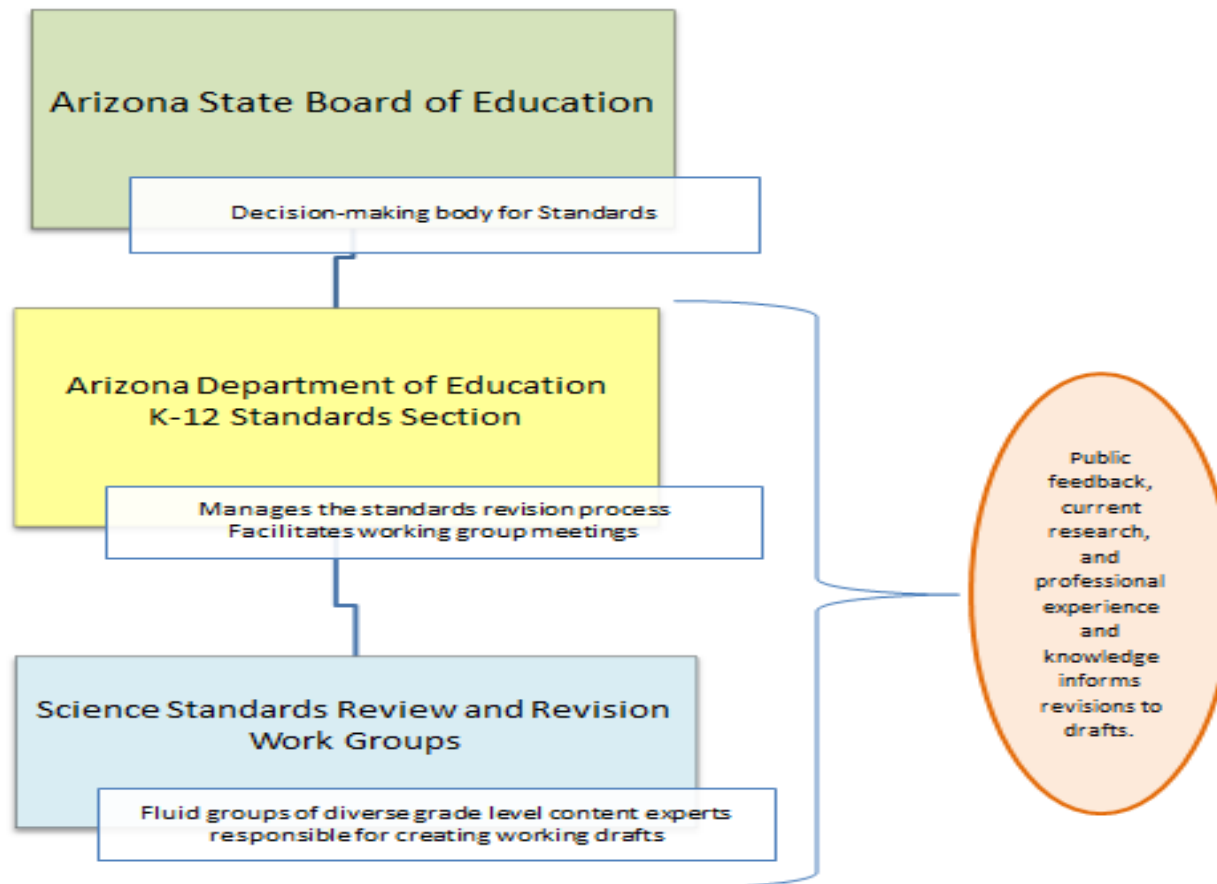
Malcolm X

# Introductions

Introduce yourself by telling everyone in the group:

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

# Standards Review - Structure



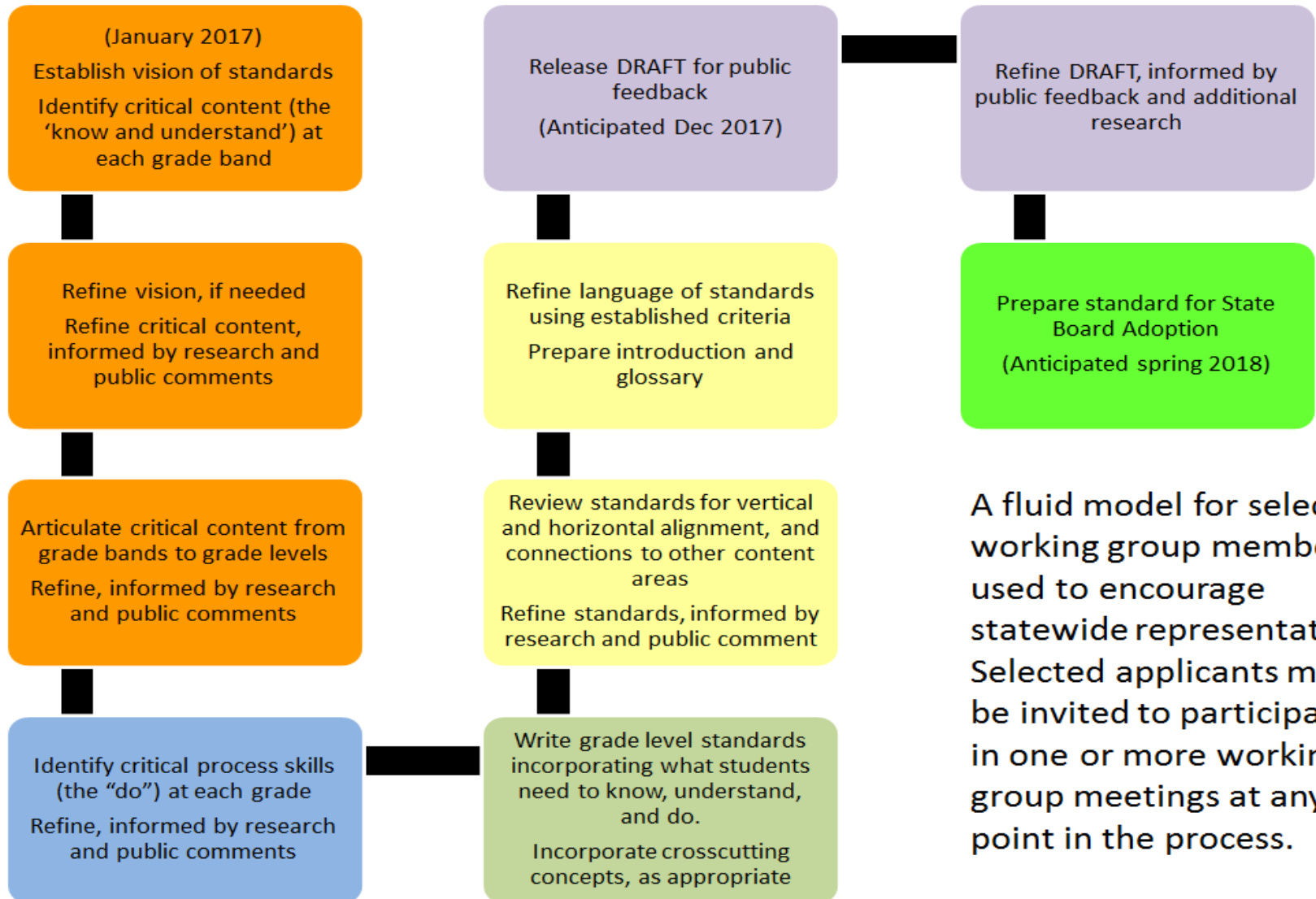
# Roles/Responsibilities: ADE K-12 Standards Staff

## ADE K-12 Standards Members

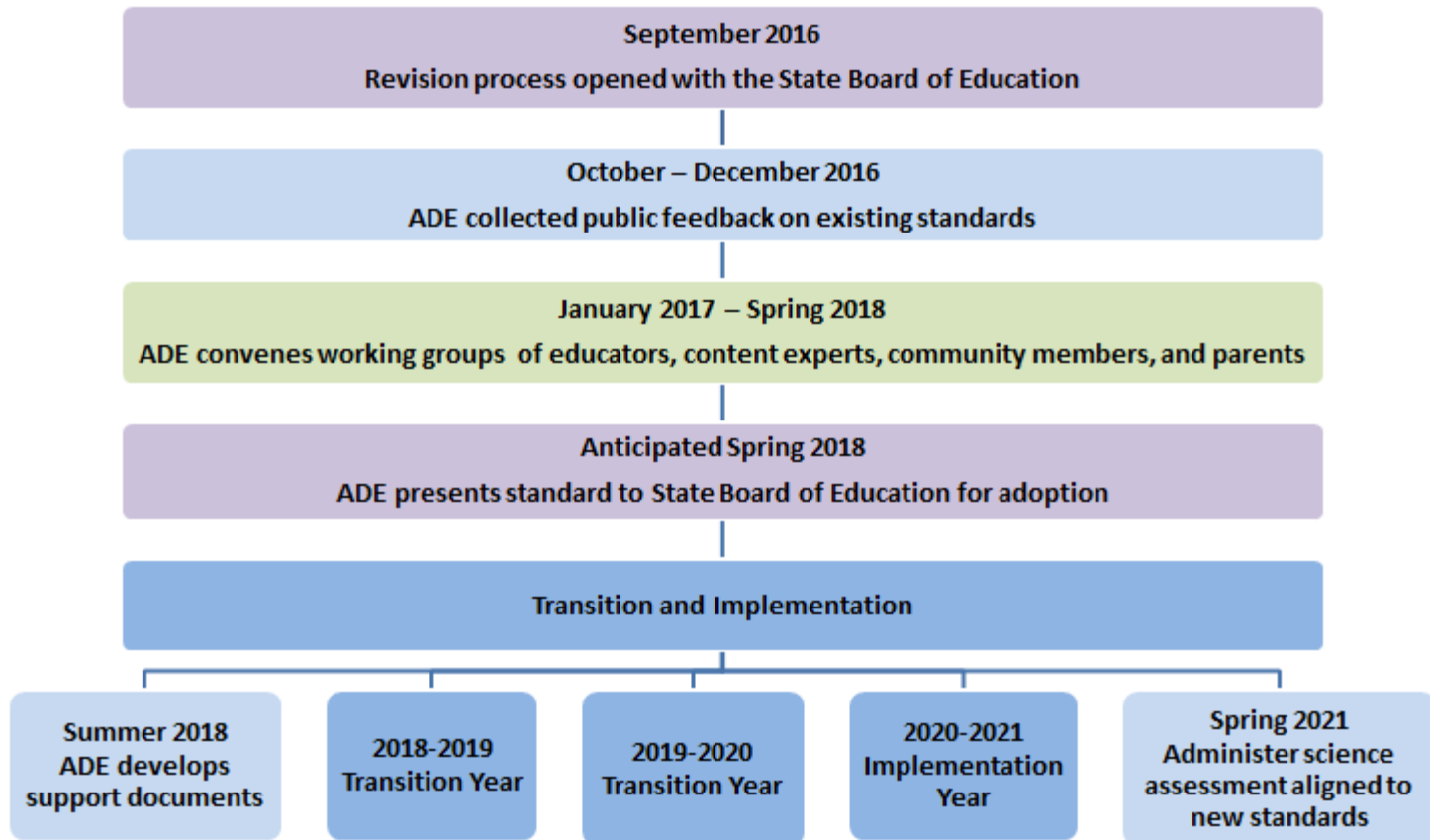
- Facilitate work group meetings
- Provide meeting goals, agendas, tasks, and instructions
- Provide needed materials
- Organize committee members into vertical, horizontal, and/or content groups, as appropriate.

# Standards Review - Structure

## Overview of Process for Science Standards Working Groups



# Science Standard Revision and Implementation Timeline





# Structure: Working Groups

Use a fluid membership model (“accordion model”) to include multiple voices and perspectives throughout the process

- K-12 teachers, coaches, curriculum directors, administrators
- Higher education: science education and science content instructors, professors, and/or researchers
- Content experts from the community
- Parents

# Roles/Responsibilities: Working Groups

- 1. Develop the vision for the revised Science Standards**
- 2. Develop drafts of K-12 Science Standards**
  - Make decisions about content and structure of grade level standards
  - Apply content knowledge, grade-level expertise, research, and public feedback to inform all decisions
- 3. Develop drafts of the introduction, glossary, and other appendices, as needed for the K-12 Science Standards**

# 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 (non-disclosure)**

# Questions on Structure



# ADE Directive for the Science Standards

- Arizona standards, written for Arizona teachers and students, by Arizona educators and content experts
- Write grade-level standards and not performance objectives

# 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.

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 the standards. Instructional techniques are employed by individual teachers in response to the needs of their students in their classes to help them progress through the curriculum in order to master the standards.

# Standards versus Performance Objectives

## Content Standards

Standards are what students need to know, understand, and be able to do **by** the end of each grade level. Standards build across grade levels in a progression of increasing understanding and through a range of cognitive demand levels.

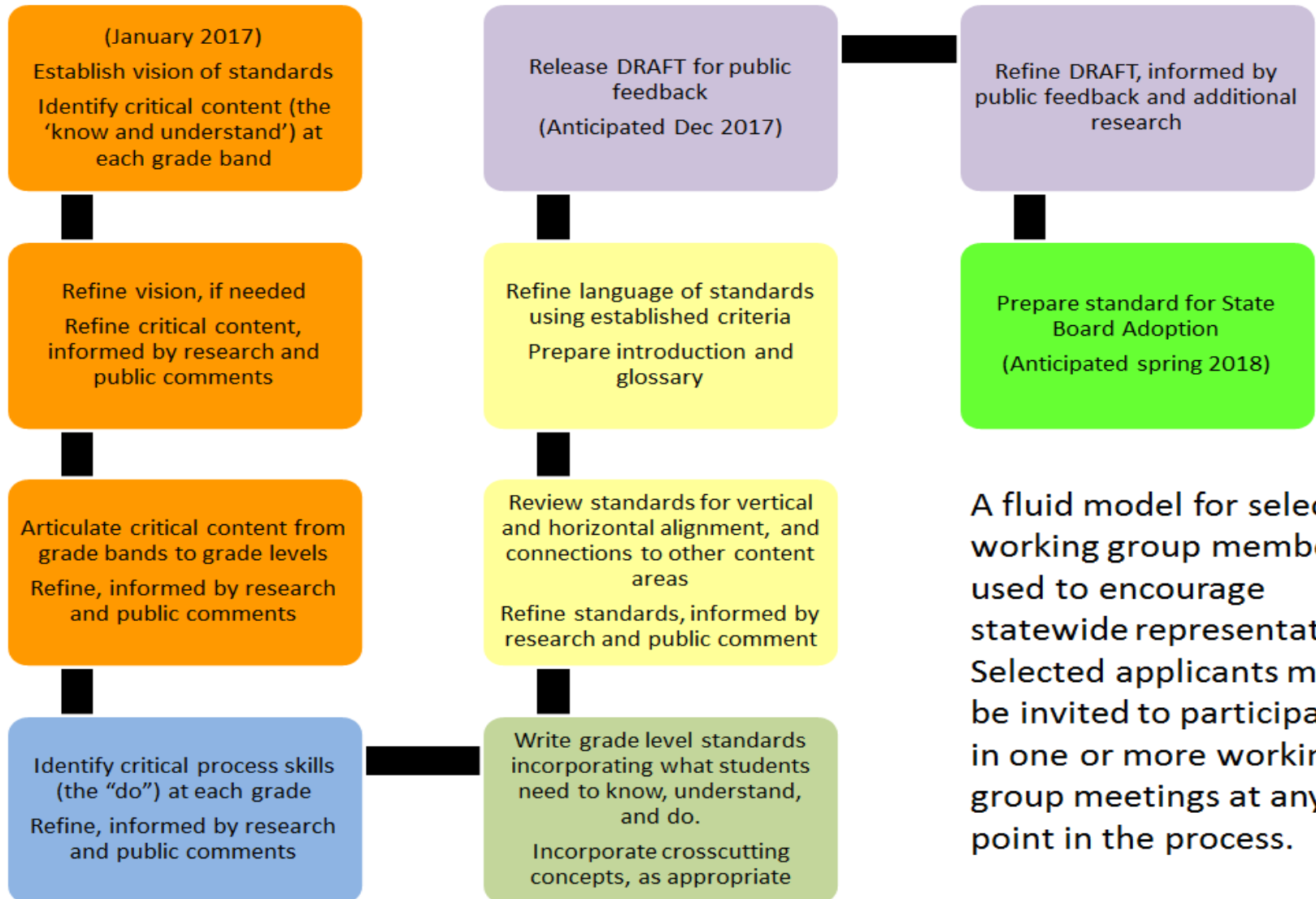
## Performance Objectives

Performance Objectives are **incremental steps** toward mastery of individual content standards. Performance Objectives are knowledge and skills that a student must demonstrate at each grade level. Performance objectives do not imply a progression of learning and, because they are discrete skills, reach a limited level of cognitive demand.



# Standards Review - Structure

## Overview of Process for Science Standards Working Groups



# Refining the Vision

- Read the key components of the vision from the January working group
- Identify any needed refinements
- Grade-band discussions about refinements
- Whole room discussion and building consensus on the vision



# Thinking About Big Ideas

Do we like the idea of organizing the standards around big ideas?

Read the publication: [Working with the Big Ideas in Science Education](#)

- Individually read pages 14-19 and
- Your grade band information on pages 20-33
  - K-2 group read ages 5-7
  - 3-5 group read ages 7-11
  - 6-8 group read ages 11-14
  - HS group read ages 14-17

# Thinking About Big Ideas

1. Do we like the idea of organizing the standards around big ideas?
2. Could they serve as anchor standards?

Grade band discussions

Whole group discussion



# Write Grade-Band Big Ideas

Work in grade band groups  
(K-2, 3-5, 6-8, HS)



Write grade-band big ideas based on expertise and research, including the [big ideas](#) publication and the [Framework](#)

