Considerations for Implementation of Arizona's Common Core Standards

K-12 Academic Standards

Arizona Department of Education

The new reality…

ARIZONA'S
COMMON CORE STANDARDS

The U.S. Department of Labor estimates that today's learner will have 10-14 jobs . . .

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By the age of 38.

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According to the U.S. Department of Labor . . .

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1 out of 4 workers today is working for a company they have been employed by for less than one year.

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More than 1 out of 2 are working for a company they have worked for for less than five years.

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The top 10 in-demand jobs in 2010 didn't exist in 2004.

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We are currently preparing students for jobs that don't yet exist . . .

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Using technologies that haven't been invented . . .

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In order to solve problems we don't even know are problems yet.

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Our new reality…

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COMMON CORE STANDARDS

We are living in *exponential* times.

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There are over 2.7 billion searches performed on Google each month.

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COMMON CORE STANDARDS

To whom were these questions addressed before Google?

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COMMON CORE STANDARDS

There are over 800 million registered users of Facebook (as of December, 2011)

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COMMON CORE STANDARDS

If Facebook were a country, it would be the 3rd largest in the world.

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The number of text messages sent and received every day exceeds the population of the planet.

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Our new reality…

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There are about 540,000 words in the English language . . .

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About 5 times as many as during Shakespeare's time.

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COMMON CORE STANDARDS

More than 4,000 new books are published . . .

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COMMON CORE STANDARDS

Daily.

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COMMON CORE STANDARDS

It’s estimated that a week’s worth of New York Times . . .

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COMMON CORE STANDARDS

Contains more information than a person was likely to come across in a *lifetime* in the 18th century.

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COMMON CORE STANDARDS

It's estimated that 40 exabytes (that's 4.0×10^{19}) of unique new information will be generated worldwide this year.

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That's estimated to be more than in the previous 5,000 years.

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Our new reality…

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COMMON CORE STANDARDS

The amount of new technical information is doubling every 2 years.

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That means for a student starting a four-year technical or college degree . . .

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Half of what they learn in their first year of study will be outdated by their third year of study.

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What does it all mean?

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Shift Happens.

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Whether we're ready or not.

ARIZONA'S
COMMON CORE STANDARDS

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ARIZONA'S COMMON CORE STANDARDS

Consider this…

Rate of Change…

- 2003 – Skype
- 2004 – Facebook
- 2006 – Twitter
- 2007 – iPhone
- 2008 – Android
- 2010 – iPad

CURRENT WORKFORCE DEMANDS…

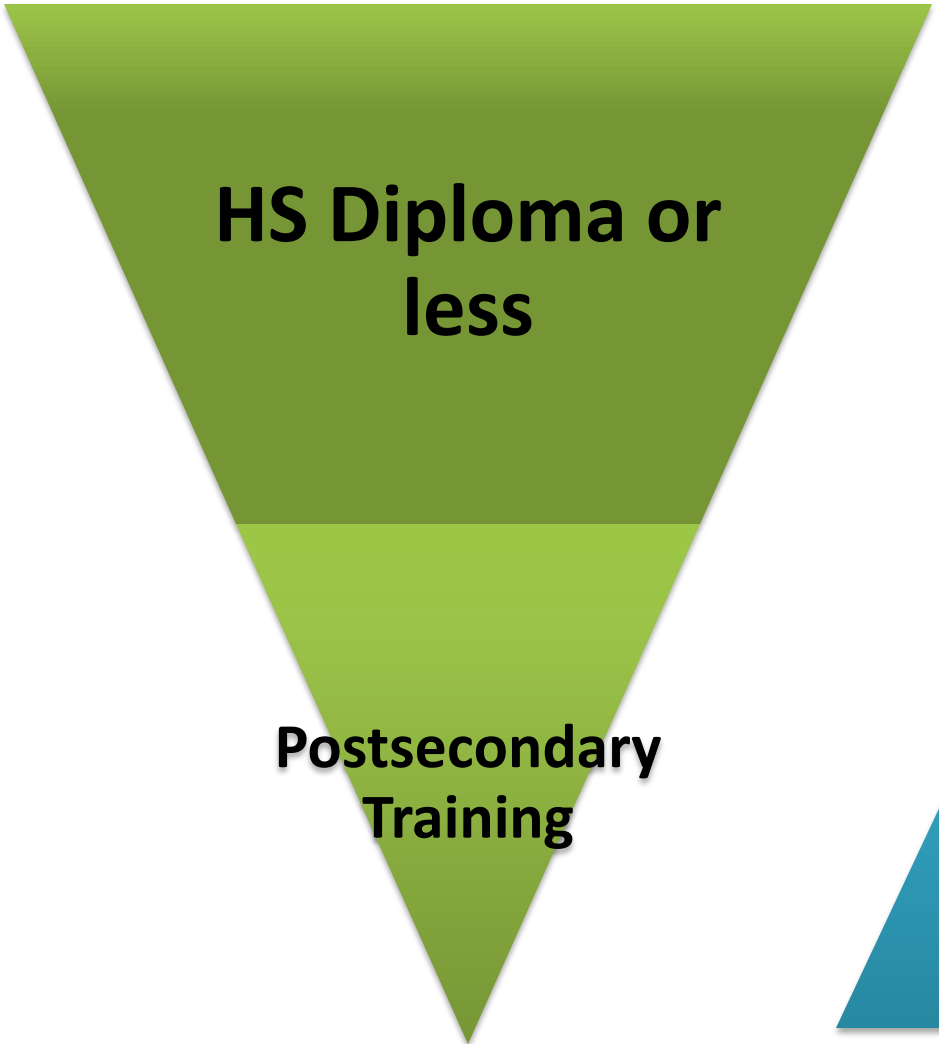
Trends in the Workforce

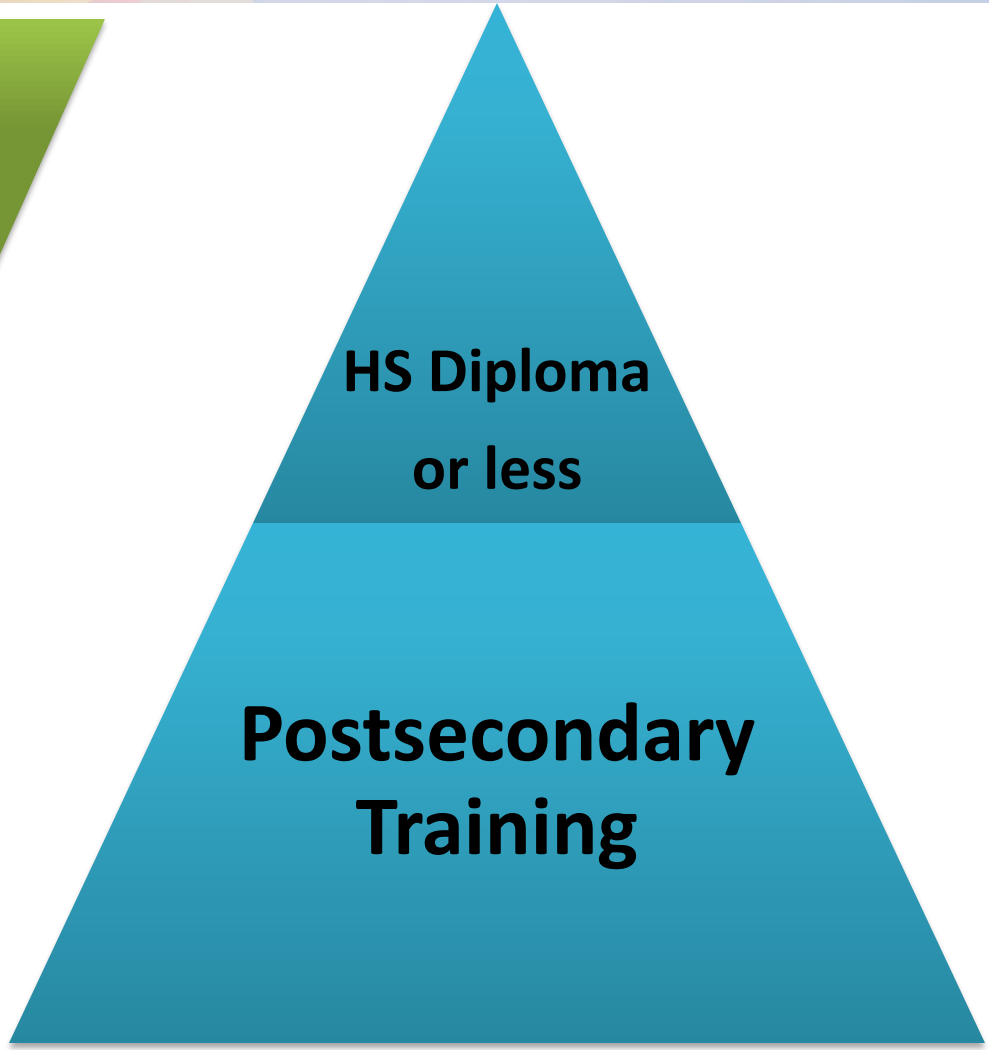
ARIZONA'S COMMON CORE STANDARDS

- 40 years ago 72% of jobs were held by people with a high school diploma or less
- In 2018 38% of jobs will be available to high school graduates
- Over 4.4 million jobs requiring only basic literacy skills are gone
- Information and technology skills are identified as 2 essential competencies for employment

Workforce needs are reversed…

ARIZONA'S COMMON CORE STANDARDS





What has changed?

ARIZONA'S COMMON CORE STANDARDS

- Employers are seeking workers who are prepared to:
  - acquire new skills quickly
  - work with less supervision
  - identify sophisticated problems and make crucial decisions

- "Employers are seeking employees skilled in problem solving, listening, negotiating, and knowing how to learn."

Jerry Yaffe; Public Personnel Management, Vol. 21

CONSIDERATIONS FOR IMPLEMENTATION OF ARIZONA'S COMMON CORE STANDARDS…

We believe that…

ARIZONA'S COMMON CORE STANDARDS

- **ALL** children can learn and achieve high standards as a result of effective teaching.

- **ALL** students must have access to a rigorous, standards-based curriculum and research-based instruction.

- Effective leadership at **all** levels is crucial for the implementation of a tiered system of support for academic success.

Professional Development

ARIZONA'S COMMON CORE STANDARDS

Aligned to the Common Core for

- District and Site Leadership
- Teachers

Phase 1, 2, and 3

- What does this mean
- What do these look like

SHIFTS IN THE STANDARDS…

ELA/Literacy Shifts

ARIZONA'S COMMON CORE STANDARDS

- **Building knowledge** through **content-rich nonfiction**
- Reading, writing, and speaking grounded in **evidence from text**, both literary and informational
- Regular practice with **complex text** and its **academic language**

ELA/Literacy: Shift #1

ARIZONA'S COMMON CORE STANDARDS

Building knowledge through content-rich nonfiction.

- ELA classes place much greater attention on literary nonfiction and other informational text than has been traditional.

- Standards require substantial attention to literature as the core of the work of 6-12 ELA teachers.

ELA/Literacy: Shift #1

ARIZONA'S COMMON CORE STANDARDS

Building knowledge through content-rich nonfiction.

- Standards for literacy in history/social studies, science and technical subjects ensure that students can independently build knowledge through reading and writing in these disciplines.

ELA/Literacy: Shift #2

ARIZONA'S COMMON CORE STANDARDS

Reading, writing and speaking grounded in evidence from text, both literary and informational.

- Standards place a premium on students writing to sources, i.e., using evidence to present careful analysis, well-defended claims, and clear information.

- Standards expect students to answer questions that depend on their having read the text(s) with care, sometimes requiring inference.

ELA/Literacy: Shift #2

ARIZONA'S COMMON CORE STANDARDS

Reading, writing and speaking grounded in evidence from text, both literary and informational.

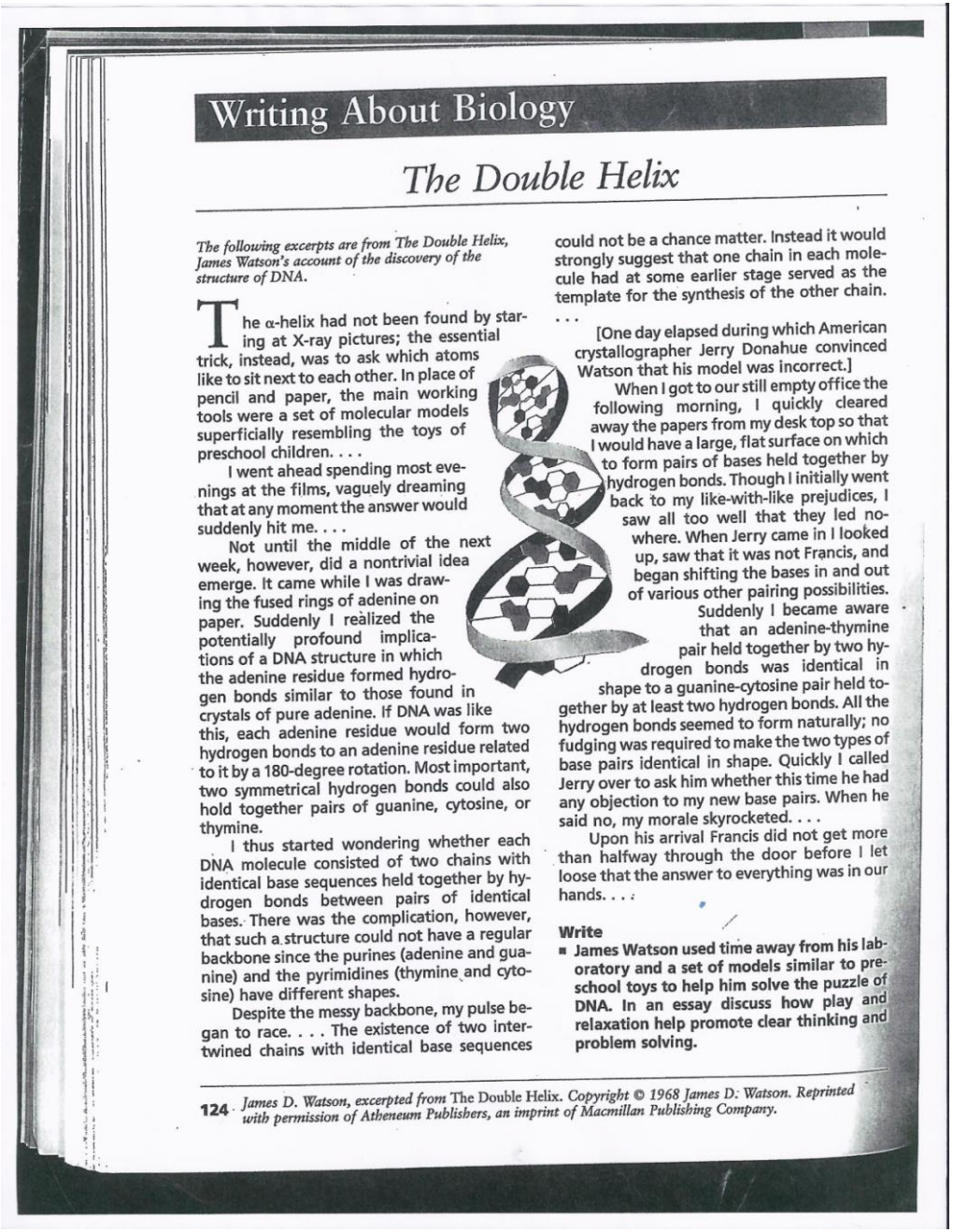
- Cultivation of narrative, argumentative, and informational writing.

- Argument, and the importance placed on Speaking and Listening are specific shifts for Arizona educators.

Non-Examples and Examples

Not Text-Dependent	Text-Dependent
• In “Casey at the Bat,” Casey strikes out. Describe a time when you failed at something.	What makes Casey’s experiences at bat humorous?
• In “Letter from a Birmingham Jail,” Dr. King discusses nonviolent protest. Discuss, in writing, a time when you wanted to fight against something that you felt was unfair.	Based on evidence from the text, what can you infer from King’s writing about the letter he received?
• In “The Gettysburg Address” Lincoln says the nation is dedicated to the proposition that all men are created equal. Why is equality an important value to promote?	“The Gettysburg Address” mentions the year 1776. According to Lincoln’s speech, why is this year significant to the events described in the speech?

Example?



Writing About Biology

The Double Helix

The following excerpts are from The Double Helix, James Watson's account of the discovery of the structure of DNA.

The α-helix had not been found by staring at X-ray pictures; the essential trick, instead, was to ask which atoms like to sit next to each other. In place of pencil and paper, the main working tools were a set of molecular models superficially resembling the toys of preschool children. . . .

I went ahead spending most evenings at the films, vaguely dreaming that at any moment the answer would suddenly hit me. . . .

Not until the middle of the next week, however, did a nontrivial idea emerge. It came while I was drawing the fused rings of adenine on paper. Suddenly I realized the potentially profound implications of a DNA structure in which the adenine residue formed hydrogen bonds similar to those found in crystals of pure adenine. If DNA was like this, each adenine residue would form two hydrogen bonds to an adenine residue related to it by a 180-degree rotation. Most important, two symmetrical hydrogen bonds could also hold together pairs of guanine, cytosine, or thymine.

I thus started wondering whether each DNA molecule consisted of two chains with identical base sequences held together by hydrogen bonds between pairs of identical bases. There was the complication, however, that such a structure could not have a regular backbone since the purines (adenine and guanine) and the pyrimidines (thymine and cytosine) have different shapes.

Despite the messy backbone, my pulse began to race. . . . The existence of two intertwined chains with identical base sequences could not be a chance matter. Instead it would strongly suggest that one chain in each molecule had at some earlier stage served as the template for the synthesis of the other chain. . . .

[One day elapsed during which American crystallographer Jerry Donahue convinced Watson that his model was incorrect.]

When I got to our still empty office the following morning, I quickly cleared away the papers from my desk top so that I would have a large, flat surface on which to form pairs of bases held together by hydrogen bonds. Though I initially went back to my like-with-like prejudices, I saw all too well that they led nowhere. When Jerry came in I looked up, saw that it was not Francis, and began shifting the bases in and out of various other pairing possibilities. Suddenly I became aware that an adenine-thymine pair held together by two hydrogen bonds was identical in shape to a guanine-cytosine pair held together by at least two hydrogen bonds. All the hydrogen bonds seemed to form naturally; no fudging was required to make the two types of base pairs identical in shape. Quickly I called Jerry over to ask him whether this time he had any objection to my new base pairs. When he said no, my morale skyrocketed. . . .

Upon his arrival Francis did not get more than halfway through the door before I let loose that the answer to everything was in our hands. . . .

Write

- **James Watson used time away from his laboratory and a set of models similar to preschool toys to help him solve the puzzle of DNA. In an essay discuss how play and relaxation help promote clear thinking and problem solving.**

124 *James D. Watson, excerpted from* The Double Helix. *Copyright © 1968 James D. Watson. Reprinted with permission of Atheneum Publishers, an imprint of Macmillan Publishing Company.*

James Watson used time away from his laboratory and a set of models similar to preschool toys to help him solve the puzzle of DNA. In an essay discuss how play and relaxation help promote clear thinking and problem solving.

ELA/Literacy: Shift #3

ARIZONA'S COMMON CORE STANDARDS

Regular practice with complex text and its academic language.

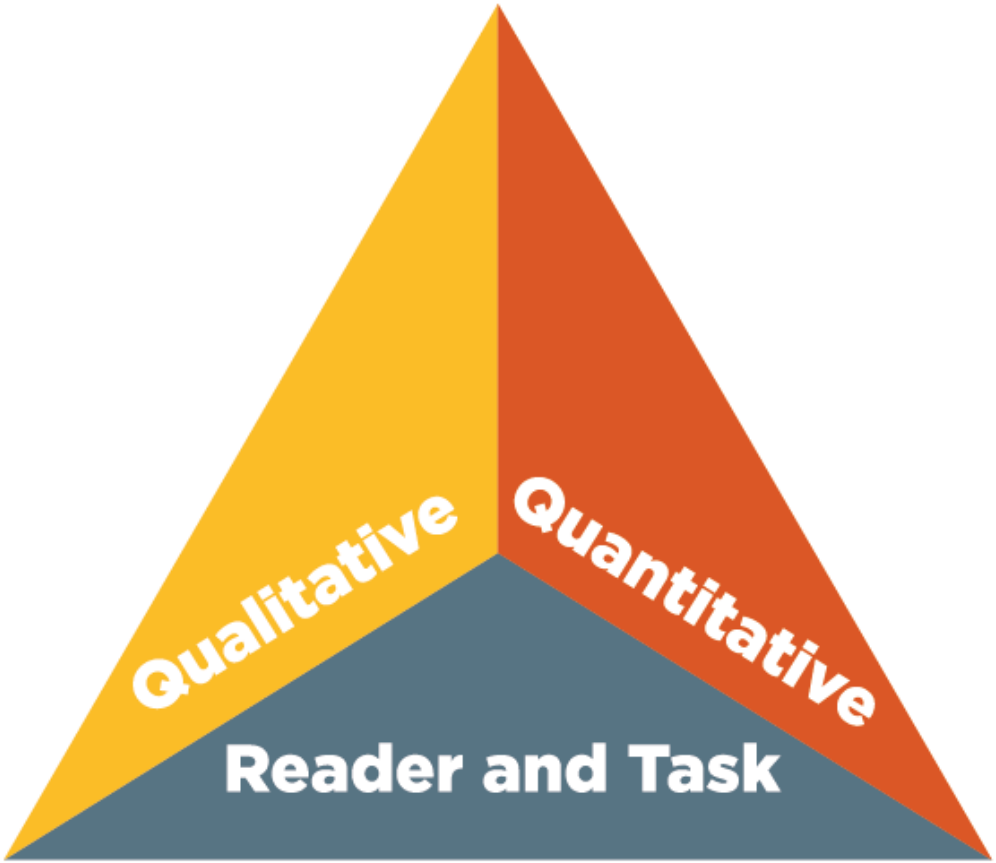
- Standards highlight the growing complexity of texts students must read to be ready for the demands of college and careers.

- Standards build a staircase of text complexity (increasingly complex, grade appropriate text).

Text Complexity

ARIZONA'S COMMON CORE STANDARDS

- Qualitative
- Quantitative
- Reader and Task



What does teaching look like under the Common Core?

ARIZONA'S COMMON CORE STANDARDS

America Achieves:
http://commoncore.americaachieves.org/

5th Grade – Close Reading

- This lesson shows a fifth grade class undertaking a close reading of Richard Feynman's "The Making of a Scientist."

Pick one of the examples that Feynman uses in his piece (the dinosaur, the birds, or the wagon) and in 2-3 paragraphs explain both the example and the lesson Feynman's father was trying to teach him with it.

The example I choose is about the dinosaur. Feynmans father was trying to show Feynman a realistic way to show him about how tall the dinosaur would be Feynmans father told him ("the Tyrannosourus rex if it stood in our front yard it would be tall enough to put it head through the window on the second floor, But its head would be to big and to wide to fit through the window.") Feynmans Father also told him that they also died and nobody Knows why. his father also wants Feynman to translate all the Things he cannt under stand into reality. So Feynman can understand what the thing would be like in real life or reality. Feynmans father would try to explain question and stuff he would read to Feynman to him in a realistic life example.

Mathematics “shifts”

- Focus
- Coherence
- Rigor

Focus

ARIZONA'S COMMON CORE STANDARDS

- **Focus**
  - attending to fewer topics in greater depth at any given grade level, giving teachers and students time to complete that grade's learning.
- **Coherence**
- **Rigor**

Focus

ARIZONA'S COMMON CORE STANDARDS

<table>
<tr><th>K</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>HS</th></tr>
<tr><td colspan="9">Geometry</td><td>Geometry</td></tr>
<tr><td colspan="6">Measurement and Data</td><td colspan="3">Statistics and Probability</td><td>Statistics & Probability</td></tr>
<tr><td colspan="6">Number and Operations in Base Ten</td><td colspan="3">The Number System</td><td>Number & Quantity</td></tr>
<tr><td colspan="6">Operations and Algebraic Thinking</td><td colspan="3">Expressions and Equations</td><td>Algebra</td></tr>
<tr><td>Counting and Cardinality</td><td></td><td></td><td colspan="3">Number and Operations - Fractions</td><td colspan="2">Ratios and Proportional Relationships</td><td>Functions</td><td>Functions</td></tr>
<tr><td colspan="9"></td><td>Modeling</td></tr>
</table>

- For example: four out of the six domains in K-5 deal with numbers and operations. Many standards in the other domains support this focus.

The Payoff for Focus

Taking focus seriously means delaying favored topics until their time, which will be a difficult shift for the educational system in the U.S.

Coherence

ARIZONA'S COMMON CORE STANDARDS

- **Focus**
- **Coherence:**
  - **Connect** major topics within grades and across grades
  - **Build** new understanding onto foundations built in previous years
- **Rigor**

Breaking with the Tradition of "Equal Grain Size"

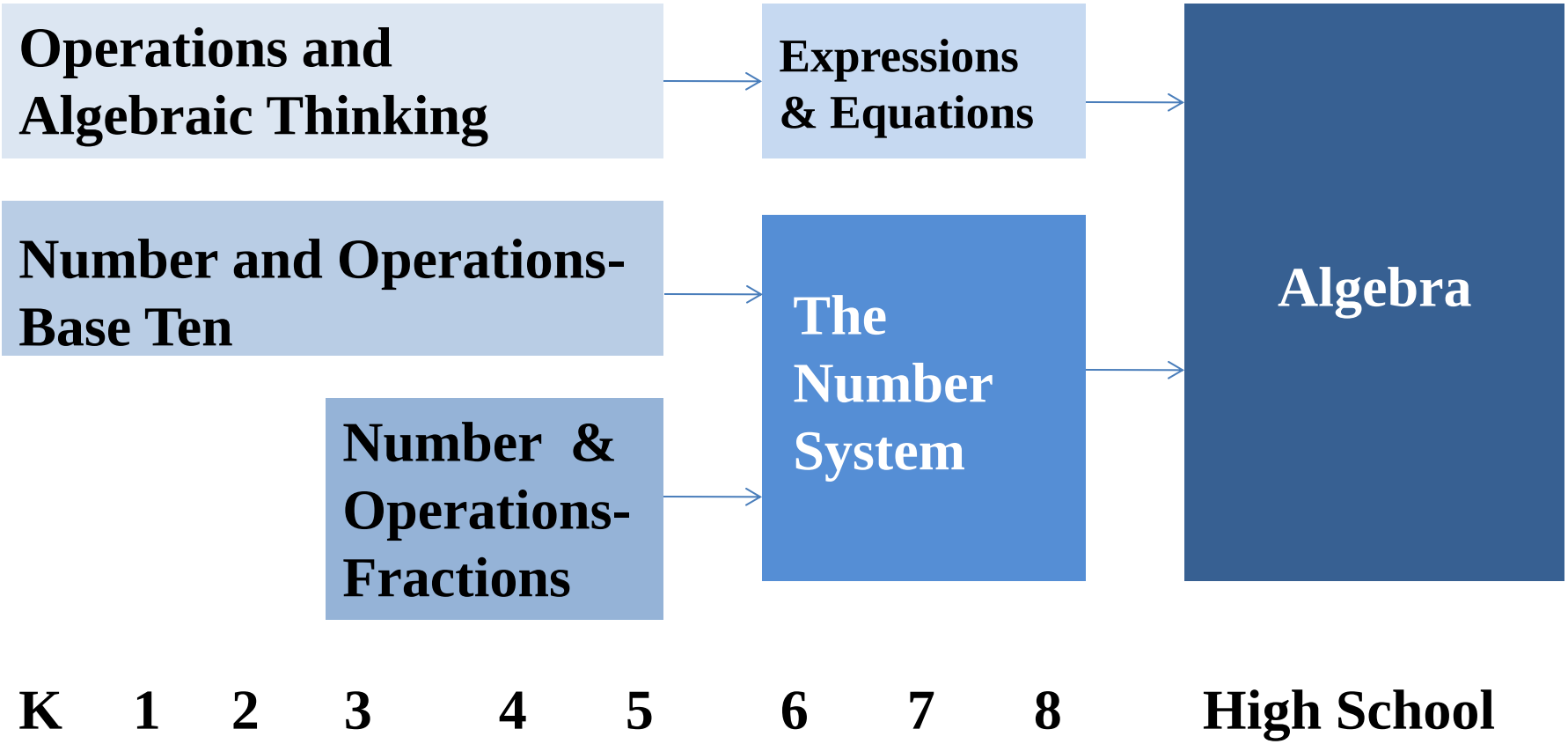
ARIZONA'S COMMON CORE STANDARDS

Number and Operations in Base Ten 2.NBT

Understand place value.

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
   a. 100 can be thought of as a bundle of ten tens — called a "hundred."
   b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2. Count within 1000; skip-count by 5s, 10s, and 100s.
3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Coherence Flows from Focus



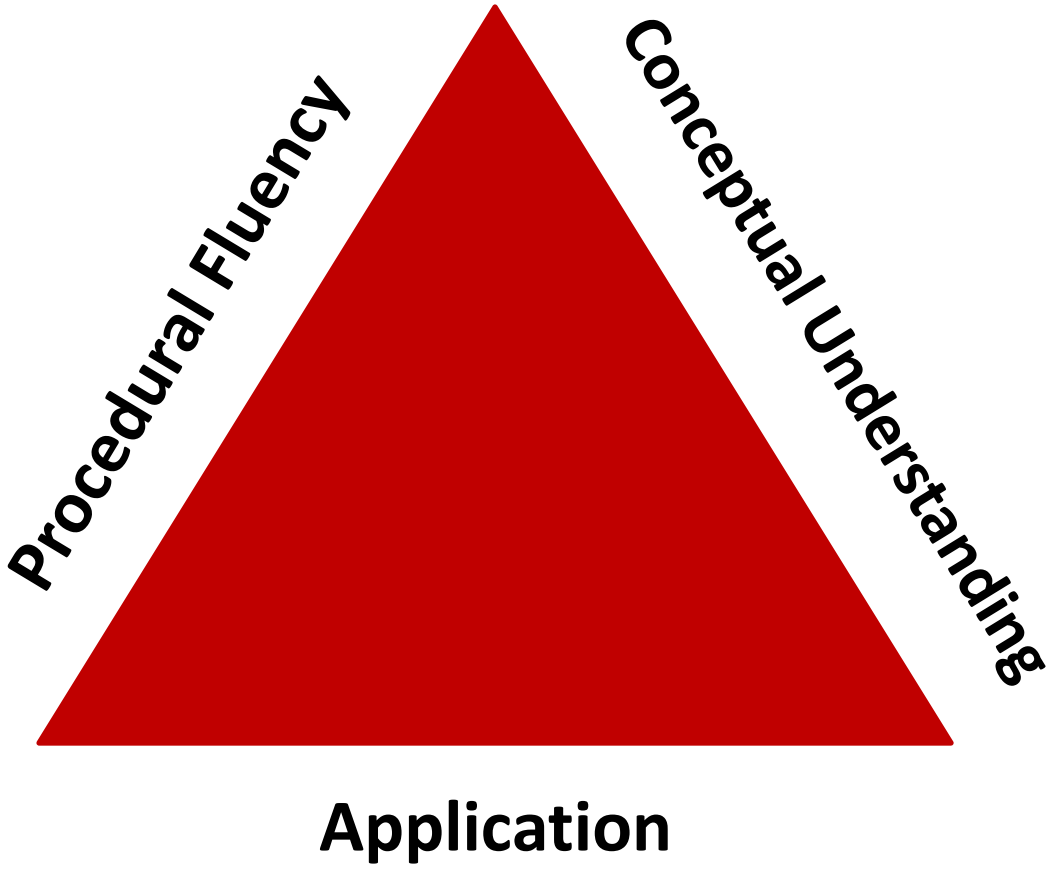
Rigor

ARIZONA'S COMMON CORE STANDARDS

- **Focus**
- **Coherence**
- **Rigor:**
  - balancing conceptual understanding, procedural fluency, and meaningful applications of mathematics.

Rigor

ARIZONA'S COMMON CORE STANDARDS



Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

What does teaching look like under the Common Core?

ARIZONA'S COMMON CORE STANDARDS

First Grade – Leprechaun Traps: Addition Within 100

Teaching Channel

https://www.teachingchannel.org/videos/grade-1-math

Fourth Grade – Crazy Cakes

Illustrative Mathematics

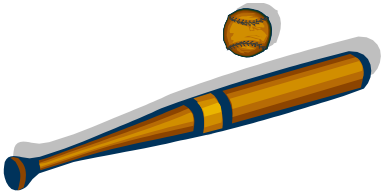
http://vimeo.com/66201779

High School – Proof of the properties of Quadrilaterals.

Inside Mathematics

http://insidemathematics.org/index.php/standard-3

Quality is more important than quantity. One home run is much better than two doubles.



- Steve Jobs

Considerations for Implementation of ACCS

ARIZONA'S COMMON CORE STANDARDS

- **Collaborative Opportunities**
  - Vertical discussions
  - Horizontal discussions
  - Cross-disciplinary discussions

- **Ongoing Support and Coaching**
  - Collaborative Team Questions

Considerations for Implementation of ACCS

ARIZONA'S COMMON CORE STANDARDS

- **Instructional Planning/Curriculum Mapping/ Scope and Sequence Development**
  - Curriculum Guidelines
  - Teachers Toolkit
    - PARCC Model Content Frameworks for ELA and Mathematics
    - Sample Maps from national and local agencies
    - Lesson Plans

Considerations for Implementation of ACCS

ARIZONA'S COMMON CORE STANDARDS

- **Instructional Materials**
  - Publishers Criteria for ELA/Literacy and Mathematics
    - Achieve the Core www.achievethecore.org

- **EQuIP Rubrics**
  - ELA K-2 and 3-12
  - Mathematics 3-12

EQuIP

ARIZONA'S COMMON CORE STANDARDS

EQuIP: *Educators Evaluating the Quality of Instructional Products*

- An initiative of the American Diploma Project (ADP) Network
- A rubric designed to identify high-quality materials aligned to the Common Core State Standards (CCSS).

EQuIP Rubric - Purpose

ARIZONA'S COMMON CORE STANDARDS

1) Provide clear, descriptive criteria for CCSS lessons/units
2) Provide meaningful, constructive feedback to developers of lessons/units
3) Identify lessons/units that can serve as models
4) Guide collegial review and jurying processes

Criteria define quality across four dimensions

EQuIP Rubric for Lessons & Units: Mathematics

Grade: **Mathematics Lesson/Unit Title:** **Overall Rating:**

Criteria that define the rubric are organized as a **list** describing quality in **four dimensions**

I. Alignment to the Depth of the CCSS	II. Key Shifts in the CCSS	III. Instructional Supports	IV. Assessment
The lesson/unit aligns with the letter and spirit of the CCSS: ○ Targets a set of grade- level CCSS mathematics standard(s) to the full depth of the standards for teaching and learning. ○ Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed. ○ Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the CCSS.	*The lesson/unit reflects evidence of key shifts that are reflected in the CCSS:* ○ **Focus:** Lessons and units targeting the major work of the grade (at the standard and cluster level) provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade (at the standard and cluster level) have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades. ○ **Coherence:** The content develops through reasoning about the new concepts on the basis of previous understandings. ○ **Rigor:** Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following: – **Application:** Provides opportunities for students to independently apply mathematical concepts in real-world situations and problem solve with persistence, choosing and applying an appropriate model or strategy to new situations. – **Conceptual Understanding:** Develops students' understanding through brief conceptual problems and questions, multiple representations and opportunities for students to write and speak about their understanding. – **Procedural Skill and Fluency:** Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately.	*The lesson/unit is responsive to varied student learning needs:* ○ Includes clear and sufficient guidance to support teaching and learning of the targeted standards, including, when appropriate, the use of technology and media. ○ Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g., pictures, symbols, expressions, equations, graphics, models) in the discipline. ○ Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking. ○ Addresses instructional expectations and is easy to understand and use. Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners. ○ Supports diverse cultural and linguistic backgrounds, interests and styles. ○ Provides extra supports for students working below grade level. ○ Provides extensions for students with high interest or working above grade level. *A unit or longer lesson should:* ○ Recommend and facilitate a mix of instructional approaches for a variety of learners such as using multiple representations (e.g., including models, using a range of questions, checking for understanding, flexible grouping, pair-share). ○ Gradually remove supports, requiring students to demonstrate their mathematical understanding independently. ○ Demonstrate an effective sequence and a progression of learning where the concepts or skills advance and deepen over time. ○ Expect, support and provide guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately.	*The lesson/unit regularly assesses whether students are mastering standards-based content and skills:* ○ Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS. ○ Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts. ○ Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance. *A unit or longer lesson should:* ○ Use varied modes of curriculum embedded assessments that may include pre-, formative, summative and self-assessment measures.
Rating: 3 2 1 0	**Rating: 3 2 1 0**	**Rating: 3 2 1 0**	**Rating: 3 2 1 0**

The EQuIP rubric is derived from the Tri-State Rubric and the collaborative development process led by Massachusetts, New York, and Rhode Island and facilitated by Achieve.
This version of the EQuIP rubric is current as of 02-25-13.
View Creative Commons Attribution 3.0 Unported License at http://creativecommons.org/licenses/by/3.0/. Educators may use or adapt. If modified, please attribute EQuIP and re-title.

EQuIP Rubric

ARIZONA'S COMMON CORE STANDARDS

- Individually read through the four dimensions & highlight key words in ELA 3-12 and Math 3-12
- Group gallery walk to assimilate the criteria
  - Number off 1-8
  - Gather by your poster
  - Discuss dimension criteria in your group and write out the description on poster
  - When prompted, as a group, rotate clockwise to next poster

Productive Struggle

Considerations for Implementation of ACCS

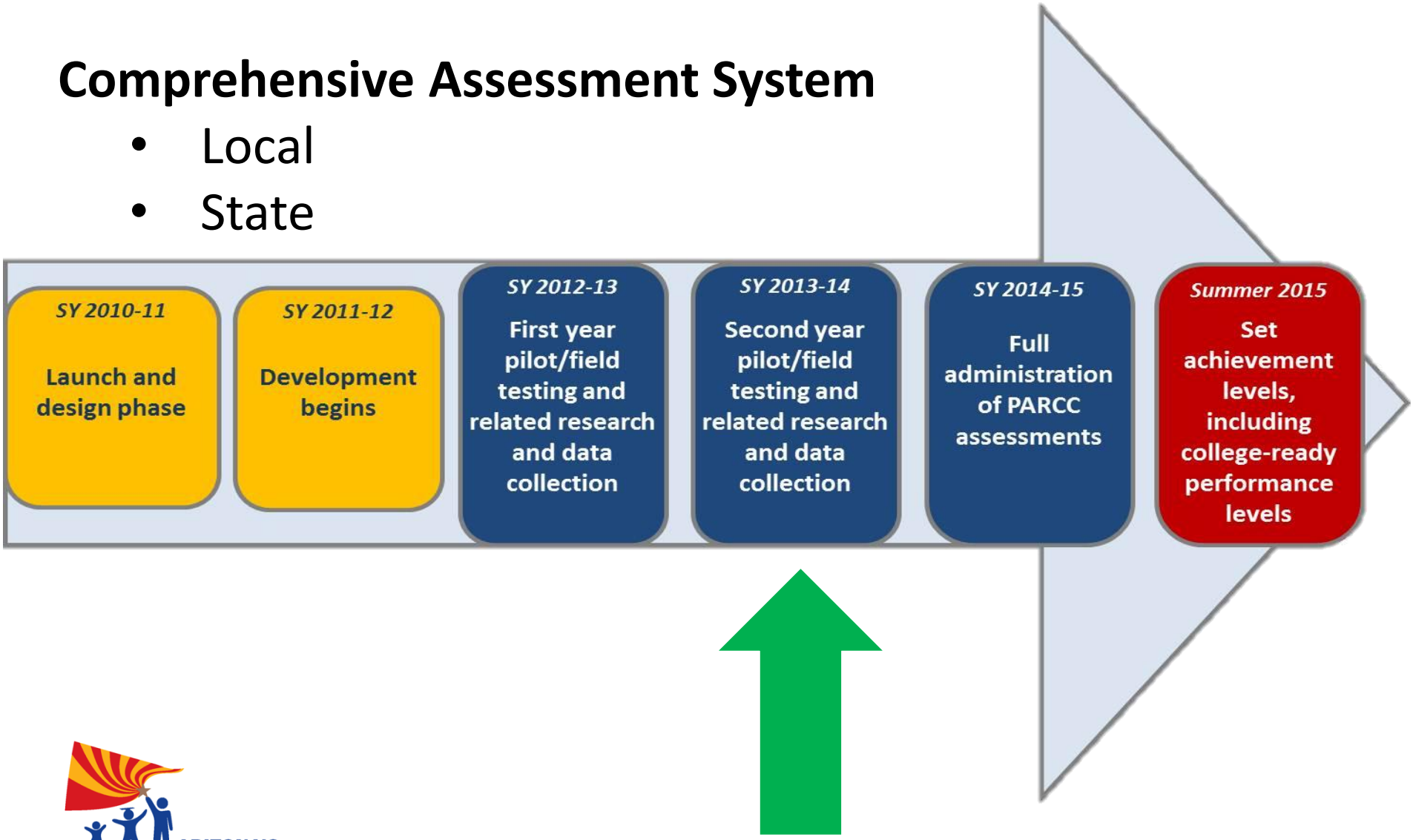
ARIZONA'S COMMON CORE STANDARDS

- **Assessment:**
  - PARCC
- **Key PARCC documents:**
  - PARCC Frameworks
  - PLD's - Performance Level Descriptors
  - Evidence Tables/Statements

PARCC Timeline

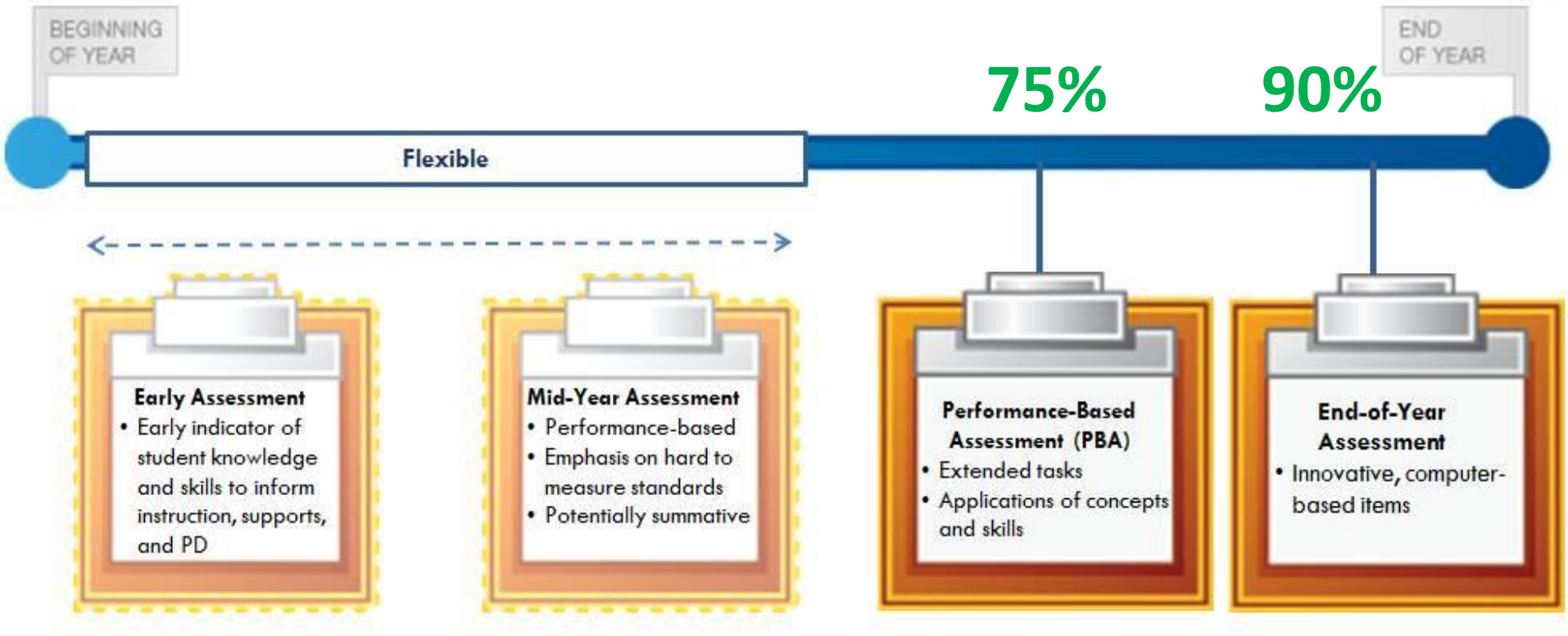
Comprehensive Assessment System

- Local
- State



ARIZONA'S COMMON CORE STANDARDS

PARCC Design



Considerations for Implementation of ACCS

ARIZONA'S COMMON CORE STANDARDS

- **Technology Readiness**
  - Technology Readiness Tool
  - Capacity Planning Tool
  - Student Preparation and Technology Skills

Considerations for Implementation of ACCS

ARIZONA'S COMMON CORE STANDARDS

- **Communication**
  - Local Support
    - What does your community know about Arizona's Common Core Standards? What do they *need* to know?
  - Parents and Families
    - What do parents know about Arizona's Common Core Standards? What do they *need* to know?
  - Students
    - What do students know about Arizona's Common Core Standards? What do they *need* to know?

Students today…..

ARIZONA'S COMMON CORE STANDARDS

Multiple Meanings ?

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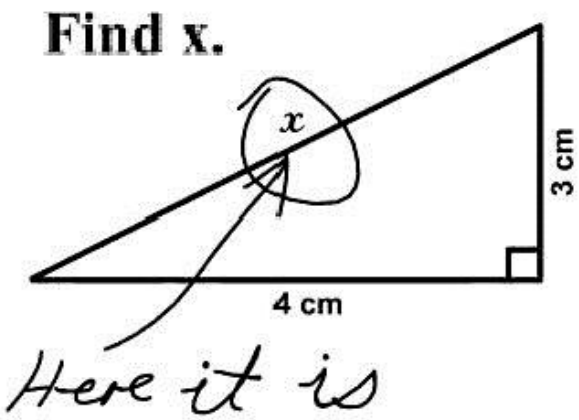

"These Standards are not intended to be new names for old ways of doing business. They are a call to take the next step."

***- Common Core State Standards for Mathematics, pg.* 5**

Resources

ARIZONA'S COMMON CORE STANDARDS

- Arizona Department of Education – Common Core
  http://www.azed.gov/azcommoncore/
- CCSS www.corestandards.org
- PARCC www.parcconline.org
- Illustrative Mathematics www.illustrativemathematics.org