

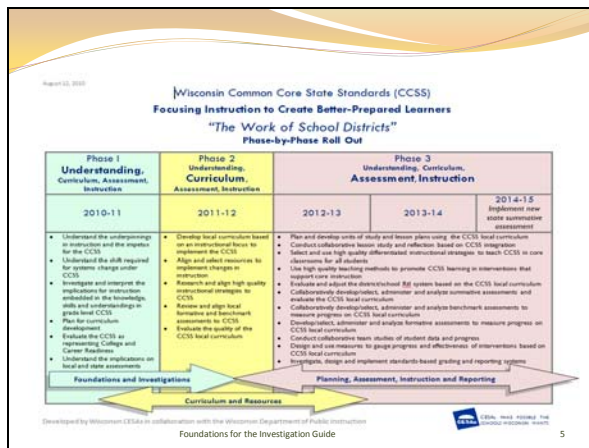
Wisconsin Common Core State Standards (CCSS) Focusing Instruction to Create Better-Prepared Learners “The Work of School Districts” Phase-by-Phase Roll Out



Phase 1 Understanding, Curriculum, Assessment, Instruction	Phase 2 Understanding, Curriculum, Assessment, Instruction	Phase 3 Understanding, Curriculum, Assessment, Instruction		
2010-11	2011-12	2012-13	2013-14	2014-15 <i>Implement new state summative assessment</i>
<ul style="list-style-type: none"> Understand the underpinnings in instruction and the impetus for the CCSS Understand the shift required for systems change under CCSS Investigate and interpret the implications for instruction embedded in the knowledge, skills and understandings in grade level CCSS Plan for curriculum development Evaluate the CCSS as representing College and Career Readiness Understand the implications on local and state assessments 	<ul style="list-style-type: none"> Develop local curriculum based on an instructional focus to implement the CCSS Align and select resources to implement changes in instruction Research and align high quality instructional strategies to CCSS Review and align local formative and benchmark assessments to CCSS Evaluate the quality of the CCSS local curriculum 	<ul style="list-style-type: none"> Plan and develop units of study and lesson plans using the CCSS local curriculum Conduct collaborative lesson study and reflection based on CCSS integration Select and use high quality differentiated instructional strategies to teach CCSS in core classrooms for all students Use high quality teaching methods to promote CCSS learning in interventions that support core instruction Evaluate and adjust the district/school RtI system based on the CCSS local curriculum Collaboratively develop/select, administer and analyze summative assessments and evaluate the CCSS local curriculum Collaboratively develop/select, administer and analyze benchmark assessments to measure progress on CCSS local curriculum Develop/select, administer and analyze formative assessments to measure progress on CCSS local curriculum Conduct collaborative team studies of student data and progress 		
<p>Foundations and Investigations</p>		<p>Planning, Assessment, Instruction and Reporting</p>		
<p>Curriculum and Resources</p>				

Purpose

1. To understand the underpinnings of the CCSS
2. To understand the essential differences with the CCSS
3. To investigate the CCSS
4. To learn how to investigate the CCSS
5. To plan local investigations of the CCSS
6. To reflect about implications to your practice



The Message

1. An **extended process** toward full adoption
2. Cannot/should not be rushed – a **marathon**, not a race
3. First of many **collaborative sessions** on the CCSS
4. **Teacher leaders** are needed
5. Our focus – to learn **HOW to investigate** these standards
6. We aren't investigating all standards today. You will be given a process that **can be duplicated** in your school
7. We won't be aligning today – because **alignment cannot be done effectively without careful investigation**

Impetus for the Common Core State Standards

- Currently, **every state has its own** set of academic standards, meaning public educated students are learning different content at different rates
- All students must be **prepared to compete** with not only their American peers in the next state, but with students around the world

This initiative will potentially affect 43.5 million students which is about 87% of the student population

CCSS Evidence Base

- Standards from individual high-performing countries and provinces were used to inform content, structure, and language. Writing teams looked for examples of rigor, coherence, and progression.

Mathematics

Belgium (Flemish)
Canada (Alberta)
China
Chinese Taipei
England
Finland
Hong Kong
India
Ireland
Japan
Korea
Singapore

English language arts

Australia
New South Wales
Victoria
Canada
Alberta
British Columbia
Ontario
England
Finland
Hong Kong
Ireland
Singapore

Development of Common Core Standards

- Joint initiative of:



- Supported by:

- Achieve
- ACT
- College Board



Activity #1: Investigating the Structure

Part 1—Overview of Conceptual Categories

Task:

- Divide the six Conceptual Categories (Number and Quantity, Algebra, Functions, Modeling, Geometry, Statistics and Probability) among the people in your table groups.
- Each person reads their assigned category narrative and summarizes key ideas in the table provided.
- Take turns sharing important ideas for each category.
- Watch the **Timer** to close this activity when the time is up.

Activity #1

Investigating the Structure

Part 1: Overview of Conceptual Categories

Task:

- Divide the six Conceptual Categories (Number and Quantity, Algebra, Functions, Modeling, Geometry, Statistics and Probability) among the people in your table groups.
- Each person reads their assigned category narrative and summarizes key ideas in the table below.
- Take turns sharing important ideas for each category.

Important Ideas from Conceptual Categories	Questions, Thoughts, Epiphanies
Number and Quantity	
Algebra	
Functions	
Modeling	
Geometry	
Statistics and Probability	

Activity #2

College and Career Readiness Threshold (+)

- (+) Standards indicate mathematical knowledge, skills and understandings **beyond the threshold** for all students
- These (+) learning expectations are not part of what all students will be able to accomplish before completing high school
- These more “advanced” expectations help define the continuum of learning for students completing more opportunities in mathematics
- Can be included in courses required for all students

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Activity #2

Modeling

Specific modeling standards appear throughout the high school standards indicated by a star symbol (*).

Modeling Cycle:

1. **PROBLEM.** identifying variables in the situation and selecting those that represent essential features
2. **FORMULATE.** formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables
3. **COMPUTE.** analyzing and performing operations on these relationships to draw conclusions
4. **INTERPRET.** interpreting the results of the mathematics in terms of the original situation
5. **VALIDATE.** validating the conclusions by comparing them with the situation, and then either improving the model or, deciding if it is acceptable
6. **REPORT.** reporting on the conclusions and the reasoning behind them.

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Activity #2

Modeling Cycle

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graph TD
    Problem([Problem]) --> Formulate[Formulate]
    Formulate --> Compute[Compute]
    Compute --> Interpret[Interpret]
    Interpret --> Validate{Validate}
    Validate --> Formulate
    Validate --> Report([Report])
  
```

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Activity #2: Investigating the Structure

Part 2—Structure of the Standards

Task:

- Refer to the power point slides regarding “cluster, domain and conceptual category”.
- See the standards provided in the table provided.
- For each standard, find all the elements (Cluster, Domain and Grade/Conceptual Category) and note them in the table provided.
- Watch the **Timer** to close this activity when the time is up.

Activity #2
 Investigating the Structure
 Part 2: Structure of the Standards

Task:

- Refer to the power point slides regarding “cluster, domain and conceptual category”.
- See the standards provided in the table below.
- For each standard, find all the elements (Cluster, Domain and Grade/Conceptual Category) and note them in the table below.

Standard	Cluster	Domain	Grade or Conceptual Category
Rewrite expressions involving radicals and rational exponents using the properties of exponents.			
Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★			
(+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosines, and tangent for x , $\pi + x$, and $2\pi - x$ in terms of their values for x , where x is any real number.			

Activity #3

Defining Rigor

- Rigor (*n*). An expectation that requires students to apply new learning to other disciplines and to predictable and unpredictable real-world situations.

-International Center for Leadership in Education
Rigor/Relevance Framework

- (*Syn*) difficulty, challenging

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Activity #3

Creating
assemble, construct, create, design, develop, formulate, write

Evaluating
appraise, argue, defend, judge, select, support, value, evaluate

Analyzing
appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test

Applying
choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write

Understanding
classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase

Remembering
define, duplicate, list, memorize, recall, repeat, reproduce state

REVISED
BLOOM'S
TAXONOMY

Activity #3

Visualize a classroom of students
DOING
Mathematics

What verbs describe what you hope to see them doing?

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Activity #3

Investigating the Rigor:

Mapping Revised Bloom's Taxonomy and CCSS

Task:

- Choose a conceptual category in the standards.
- Highlight all of the verbs you find.
- Discuss the levels of Revised Bloom's Taxonomy (RBT), questions and sample verbs.
- Determine the appropriate RBT level of each verb and place them in the corresponding RBT level.
- Discuss your findings – at which levels do most verbs appear?

Revised Bloom's Taxonomy	Questions	Sample Verbs	Connections to CCSS	
			What verbs do you see in the CCSS?	Where do these verbs appear- which standards?
Creating	<i>Can the student create new product or point of view?</i>	assemble, construct, create, design, develop, formulate, write		
Evaluating	<i>Can the student justify a stand or decision?</i>	appraise, argue, defend, judge, select, support, value, evaluate		
Analyzing	<i>Can the student distinguish between the different parts?</i>	appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test		
Applying	<i>Can the student use the information in a new way?</i>	choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write		
Understanding	<i>Can the student explain ideas or concepts?</i>	classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase		
Remembering	<i>Can the student recall or remember the information?</i>	define, duplicate, list, memorize, recall, repeat, reproduce state		

Activity #4

Mathematical Practices

1. *Make sense of problems and persevere in solving them*
2. *Reason abstractly and quantitatively*
3. *Construct viable arguments & critique the reasoning of others*
4. *Model with mathematics* Refer to Page 6 in the standards
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*

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Activity #4

The most basic idea in the learning of mathematics is ...

Mathematics makes sense!

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Activity #4

Standards for Mathematical Understanding

Many of the Common Core State Standards begin with the word **UNDERSTAND**.

A necessary and frequently asked question is ...

What is meant by the word understand?

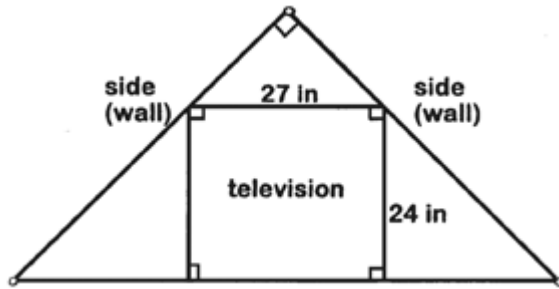
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Activity #4

Investigating the Standards for Mathematical Practice

Sample HS Mathematics Task:

In designing a new corner cabinet for our family room, my family and I had to figure out how deep to make it so that the TV we currently have would fit. We want the new cabinet to be the same length on each side (along the two walls).



Note the overhead view of the corner cabinet.

Key content standards for the sample mathematics task:

- (7th Ratios & Proportional Relationships, 2. Recognize and represent proportional relationships between quantities...)
- (8th Geometry, 7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.)
- (HS, Geometry, Similarity, Right Triangles, & Trigonometry, 8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems ★)

Group Task:

- Choose two mathematical practices: **1)Sense-making and Persevering, 2)Abstract & Quantitative Reasoning, 3)Constructing Arguments & Critiquing, 4)Modeling, 5)Using Tools Strategically, 6)Attending to Precision, 7)Recognizing & Using Structure, and 8)Looking for and Expressing Regularity in Repeated Reasoning.**
- When completing the sample HS Mathematics task above, consider how students might demonstrate the chosen Mathematical Practices at **Emerging** and **Mastery** stages of development.
- Describe characteristics in students' thinking and actions that you might observe for each practice in the chart below.

Standard for Mathematical Practice	Characteristics of Emerging Mathematical Practices <i>(What might students be thinking and doing?)</i>	Characteristics of Mastery Mathematical Practices <i>(What might students be thinking and doing?)</i>
Practice #1:		
Practice #2:		

Activity #5

Three Important Lenses to Investigate the Standards

- Lens #1: Student-Friendly Language
- Lens #2: Key Vocabulary
- Lens #3: Mathematical Practices

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Activity #5

Lens #1: Student-Friendly Language

- *Explaining the intended learning in student-friendly terms at the outset of a lesson is the **critical first step in helping students know where they are going**...Students cannot assess their own learning or set goals to work toward without a clear vision of the intended learning. When they do try to assess their own achievement without understanding the learning targets they have been working toward, their conclusions are vague and unhelpful.*

(Stiggins, Arter, Cahappuis & Chappius, 2004, pp. 58-59)

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Activity #5

Lens #2: Key Vocabulary

1. Key vocabulary for instruction
 - Pre-loading vocabulary
 - Making connections
2. Key vocabulary for student identification and understanding of concepts

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Activity #5

Lens #3: Mathematical Practices

“...those content standards which set an expectation of **understanding** are potential **“points of intersection”** between the Standards for Mathematical Content and the Standards for Mathematical Practice.”

CCSS, 2010

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Activity #5

Activity #5: Investigating Lenses of Standards

Task:

- Rewrite the standard in student-friendly language, beginning with “I will ...”.
- Identify essential vocabulary embedded in the standard.
- Connect the standards to specific mathematical practices.
- Watch the **Timer** to close this activity when the time is up.

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Activity #5

Investigating Lenses of Standards

Task:

Given the following standard, consider various “lenses” in relation to this standard. Complete the following tasks in the table below.

- Rewrite the standard in student-friendly language, beginning with “I will ...”.
- Identify essential vocabulary embedded in the standard.
- Connect the standards to specific mathematical practices.

Conceptual Category: Geometry	Domain: Similarity, Right Triangles, & Trigonometry	Cluster: Understand similarity in terms of similarity transformations	Standard: 1. Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.		
Lens #1: Student-Friendly Language			Lens #2: Key Vocabulary	Lens #3: Mathematical Practices	
I will....					

Activity #6: Investigating Vertical Connections

Task:

- Given the standards in the chart provided, find corresponding prior and future standards that focus on the learning progressions one level above or below the given standard.
- Discuss and note these connected standards in the chart provided.
- Consider and discuss implications of the connections.
- Watch the **Timer** to close this activity when the time is up.

Activity #6

Investigating Vertical Connections

Task:

- Given the standards in the chart below, find corresponding prior and future standards that focus on the learning progressions one level above or below the given standard.
- Discuss and note these connected standards in the chart below.
- Consider and discuss implications of the connections.

Prior Standard	Standard	Future Standard	Implications for Connections?
	H.S. Number/Quantity (The Complex Number System) 7. Solve quadratic equations with real coefficients that have complex solutions.		
	H.S. Statistics & Probability (Interpreting Categorical & Quantitative Data) 8. Compute (using technology) and interpret the correlation coefficient of a linear fit.		
	H.S. Functions (Linear, Quadratic, & Exponential Models*) 2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).		

Activity #7

Determining Implications and Next Steps

We've been investigating the standards – now, so what?

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Activity #7

Activity #7: Determining Implications

Task:

- Now that you've started the process of "investigating" the standards, discuss the implications for fellow teachers and staff. Use the chart to note your thoughts.
- Watch the **Timer** to close this activity when the time is up.

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Activity #8

Activity #8: Determining Next Steps

- Reflect on the activities completed today. How will you take this process back to your colleagues for investigations at your school/district? Jot your "next steps" in the chart provided.

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Activity #7

Determining Implications

Tasks:

- Now that you've started the process of "investigating" the standards, discuss the implications for fellow teachers and staff. Use the chart to note your thoughts.

For Mathematics Teachers. . .	For Special Education Teachers. . .	For ELL Teachers. . .	For Other Mathematics-Related Content Teachers. . .

Activity #8

Determining Next Steps

- Reflect on the activities completed today. How will you take this process back to your colleagues for investigations at your school/district? Jot your "next steps" in the chart below.

Next Steps for Future Standards Investigations In My School/District			
Task	Timeframe	Resources Needed	Staff Involved

