



Examining Common Core Standards for Math:

Kindergarten

February 3 , 2012

Please Make Your Nametag



1. Your nametag must be a rectangle
2. You must use exactly 36 linking cubes to cover it
3. Cut a piece of yarn as long as the length from your shoulder to your fingertip
4. Tape each end on the back of the nametag
5. Write your name on the front of the nametag

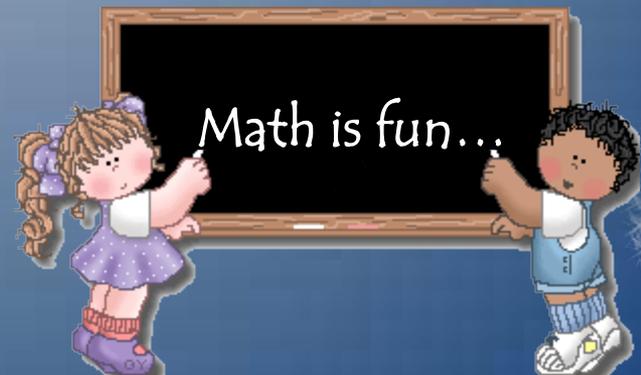
Examining Elementary Mathematics Standards – KINDERGARTEN

Agenda

- Let's Think, Puzzles, Patterns, Learning in Context
- Overview of the CCSSM
 - **Break**
- Counting and Cardinality
 - Making Five
 - Making Ten
 - Comparing Numbers
- **Lunch**
- Operations and Algebraic Thinking
 - Dominoes
- Number and Operations in Base Ten
 - Money Talks
- **Break**
- Measurement and Data
 - Eye to Eye
- Geometry
 - 2-D and 3-D shapes

Norms

- ★ **L**isten to others.
- ★ **E**ngage with the ideas presented.
- ★ **A**sk questions.
- ★ **R**eflect on relevance to you.
- ★ **N**ext, set your learning into action.





FOLLOW-UP

INSTRUCTIONS

DUE DATE:

Reflection

Submit a written reflection on the components of an effective mathematics lesson, providing detailed examples. The reflection is not to be just a recap but a consideration of what has been presented, to identify with "new eyes" those aspects of an effective instructional practice that support teaching for depth as required by CCSSM.

Penguin Puzzler

250 penguins marched in the fourth annual penguin parade.

There was one penguin in the first row, two penguins in the second row, and three penguins in the third row. This pattern continued through all of the rows.

- How many rows of penguins were there?
- Was the last row full?





Benchmarking for Success:

**Ensuring U.S. Students Receive
a World-Class Education**

Five Steps Toward Building Globally Competitive Education Systems

- **Action 1:** Upgrade state standards by **adopting a common core** of internationally benchmarked standards in math and language arts for grades K-12 to ensure that students are equipped with the necessary knowledge and skills to be globally competitive.
- **Action 2:** Leverage states' collective influence to **ensure that textbooks, digital media, curricula, and assessments are aligned to internationally benchmarked standards** and draw on lessons from high-performing nations and states.
- **Action 3:** Revise state policies for **recruiting, preparing, developing, and supporting teachers and school leaders** to reflect the human capital practices of top-performing nations and states around the world.
- **Action 4:** Hold schools and systems accountable through **monitoring, interventions**, and **support** to ensure consistently high performance, drawing upon international **best practices**.
- **Action 5:** Measure state-level education performance globally by **examining student achievement and attainment in an international context** to ensure that, over time, students are receiving the education they need to compete in the 21st century economy.

Myths and Realities about International Comparisons

- **Myth 1**: Other countries test a more select, elite group of students.
- **Myth 2**: The U.S. performs poorly because of poverty and other family factors.
- **Myth 3**: Cultural factors prevent U.S. students from performing as well as those in other nations, particularly Asian countries.
- **Myth 4**: Other countries are less diverse.
- **Myth 5**: Wealthier countries spend more than the U.S. on education.
- **Myth 6**: U.S. attainment rates cannot be compared with other countries' because the U.S. tries to educate many more students.
- **Myth 7**: Education does not really affect the economy anyway. A Nation at Risk warned that America's economy would suffer, but that never happened.



COUNCIL OF CHIEF STATE SCHOOL OFFICERS (CCSSO)

&

NATIONAL GOVERNORS ASSOCIATION

CENTER FOR BEST PRACTICES

(NGA CENTER)

JUNE 2010

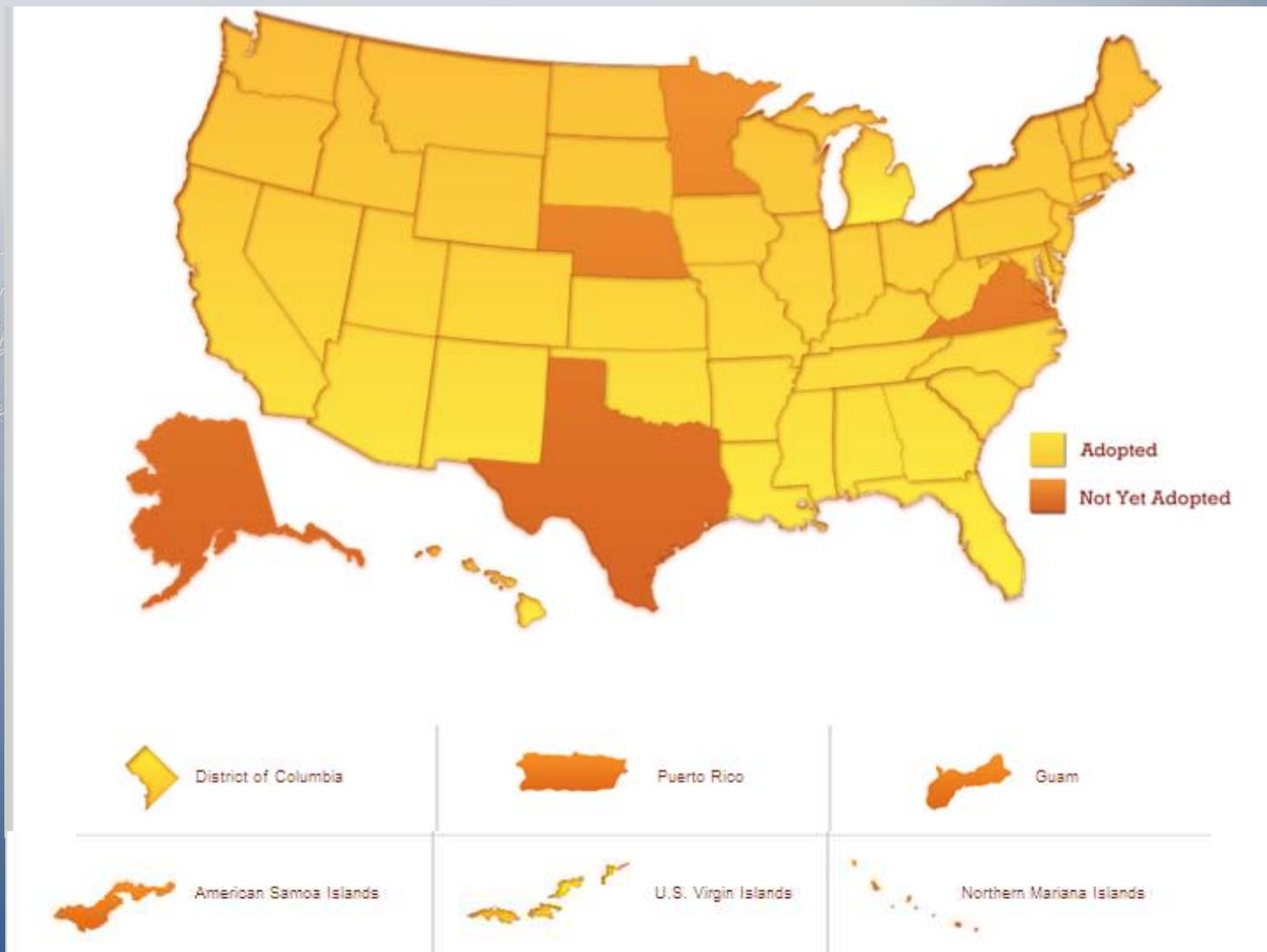
Why is this important?

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

Common Core Development

- Initially 48 states and three territories signed on
- As of now, 48 states have officially adopted
- Final Standards released June 2, 2010, at www.corestandards.org
- Adoption required for Race to the Top funds
- Florida adopted CCSS in July of 2010

In the States



Common Core Mission Statement

The Common Core State Standards provide a **consistent, clear understanding of what students are expected to learn**, so teachers and parents know what they need to do to help them. The standards are designed to **be robust and relevant to the real world**, reflecting the knowledge and skills that our young people need for **success in college and careers**. With American students fully prepared for the future, our communities will be best positioned to **compete successfully in the global economy**.

Standards Development Process

- College and career readiness standards developed in summer 2009
- Based on the college and career readiness standards, K-12 learning progressions developed
- Multiple rounds of feedback from states, teachers, researchers, higher education, and the general public
- Final Common Core State Standards released on June 2, 2010

Benefits for States and Districts

- Allows collaborative professional development based on best practices
- Allows development of common assessments and other tools
- Enables comparison of policies and achievement across states and districts
- Creates potential for collaborative groups to get more economical mileage for:
 - Curriculum development, assessment, and professional development

Characteristics

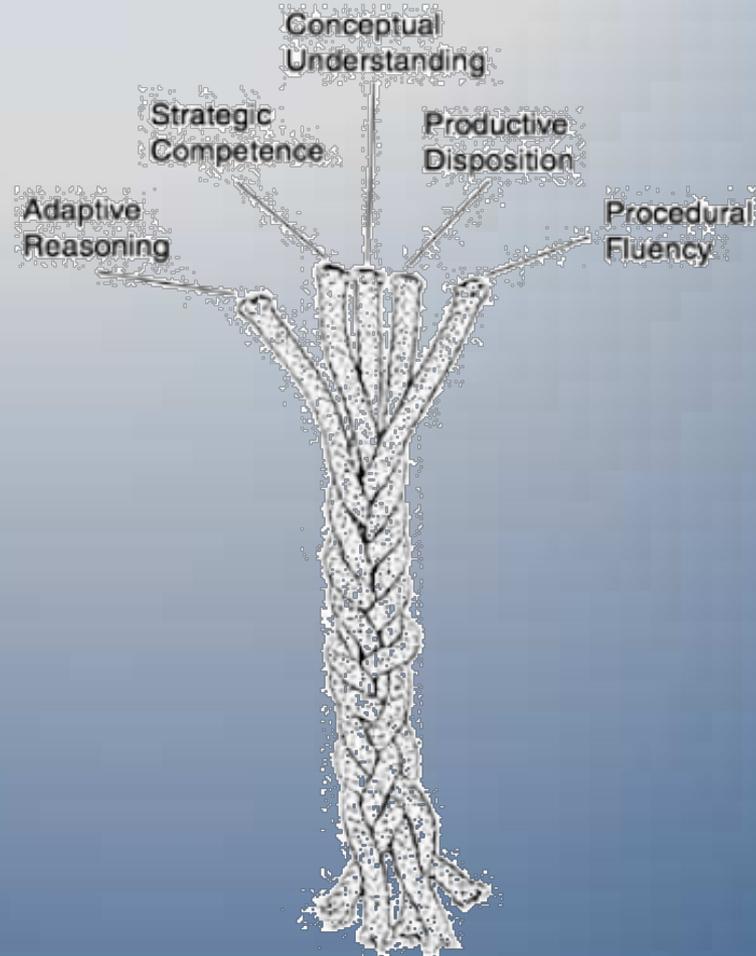
- Fewer and more rigorous
- Aligned with college and career expectations
- Internationally benchmarked
- Rigorous content and application of higher-order skills
- Builds on strengths and lessons of current state standards
- Research based

Intent of the Common Core

- The same goals for all students
- Coherence
- Focus
- Clarity and Specificity

The Five Strands of Mathematics Proficiency

Developing Mathematicians



National Research Council. (2001). *Adding it up: Helping children learn mathematics*. J. Kilpatrick, J. Swafford, and B. Findell (Eds.). Mathematics Learning Study Committee, Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.



Eight Mathematical Practices



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

Florida's Common Core State Standards Implementation Timeline

Year/Grade Level	K	1	2	3-8	9-12
2011-2012	FL	L	L	L	L
2012-2013	F L	F L	L	L	L
2013-2014 CCSS fully implemented	F L	F L	F L	B L	B L
2014-2015 CCSS fully implemented and assessed	F L	F L	F L	F L	F L

F - full implementation of CCSS for all content areas

L - full implementation of content area literacy standards including: (1) text complexity, quality and range in all grades (K-12), and (2) CCSS Literacy Standards in History/Social Studies, Science, and Technical Subjects (6-12)

B - blended instruction of CCSS with Next Generation Sunshine State Standards (NGSSS); last year of NGSSS assessed on FCAT 2.0



Design

and

Organization

Focal points at each grade level

Mathematics/Kindergarten

In Kindergarten, instructional time should focus on two critical areas:

- (1) representing, relating, and operating on whole numbers, initially with sets of objects;
- (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than other topics.

Grade Level Overviews (not all are shown below)

Grade K Overview

Counting and Cardinality

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

Operations and Algebraic Thinking

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Number and Operations in Base Ten

- Work with numbers 11-19 to gain foundations for place value.

Mathematical Practices

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.

Domains are large groups of related standards. Standards from different domains may sometimes be closely related. Look for the name with the code number on it for a Domain.

Clusters are groups of related standards. Standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

Standards define what students should be able to understand and be able to do- part of a cluster

Domain

Number and Operations in Base Ten

3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Standard

Cluster

Counting and Cardinality (not all standards shown)

Counting and Cardinality

K.CC

Know number names and the count sequence.

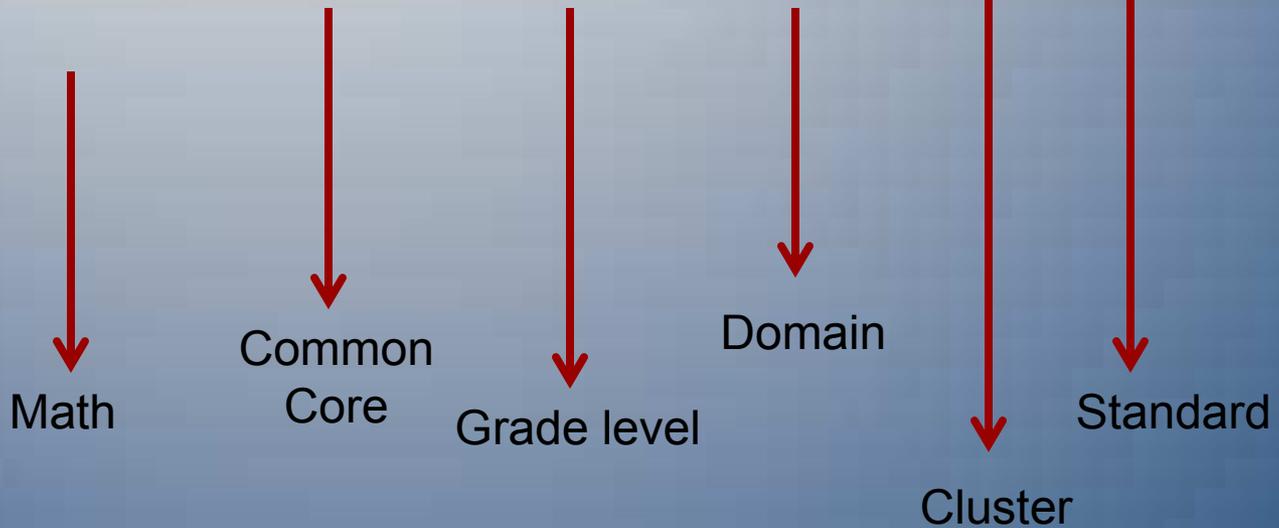
1. Count to 100 by ones and by tens.
2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Count to tell the number of objects.

4. Understand the relationship between numbers and quantities; connect counting to cardinality.
 - a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
 - b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
 - c. Understand that each successive number name refers to a quantity that is one larger.

New Florida Coding for CCSSM:

MA.CC.K.OA.1.1



Conclusion

The Promise of Standards:

These Standards are not intended to be new names for old ways of doing business. They are a call to take the next step. It is time for states to work together to build on lessons learned from two decades of standards based reforms. It is time to recognize that standards are not just promises to our children, but promises we intend to keep.



You can ask questions by typing your question into the Q&A panel and clicking "send."

Webinar recording will be available at www.corestandards.org



Let's Dig Deeper!

Common Core State Standards



Domain:
Counting and Cardinality
(K.CC)

Domain: Counting and Cardinality (K.CC)

CLUSTER	STANDARD
Know number names and the count sequence.	1. Count to 100 by ones and by tens. New
	2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1). New
	3. Write numbers from 0 to 20. Represent a number of objects with a written numeral.

Domain: Counting and Cardinality (K.CC)

CLUSTER	STANDARD
<p data-bbox="160 282 554 386">Count to tell the number of objects.</p> <p data-bbox="301 634 484 682">In Depth</p>	<p data-bbox="595 282 1682 386">4. Understand the relationship between numbers and quantities; connect counting to cardinality.</p> <ul data-bbox="707 396 1738 1015" style="list-style-type: none"><li data-bbox="707 396 1738 615">a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.<li data-bbox="707 625 1738 896">b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.<li data-bbox="707 906 1738 1015">c. Understand that each successive number name refers to a quantity that is one larger.
<p data-bbox="355 1158 452 1206">New</p>	<p data-bbox="595 1062 1760 1333">5. Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circles, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.</p>

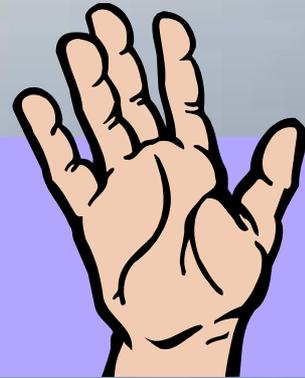
Domain: Counting and Cardinality (K.CC)

CLUSTER	STANDARD
Compare numbers.	6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
New	7. Compare two numbers between 1 and 10 presented as written numerals.



Making five

Show Me Five

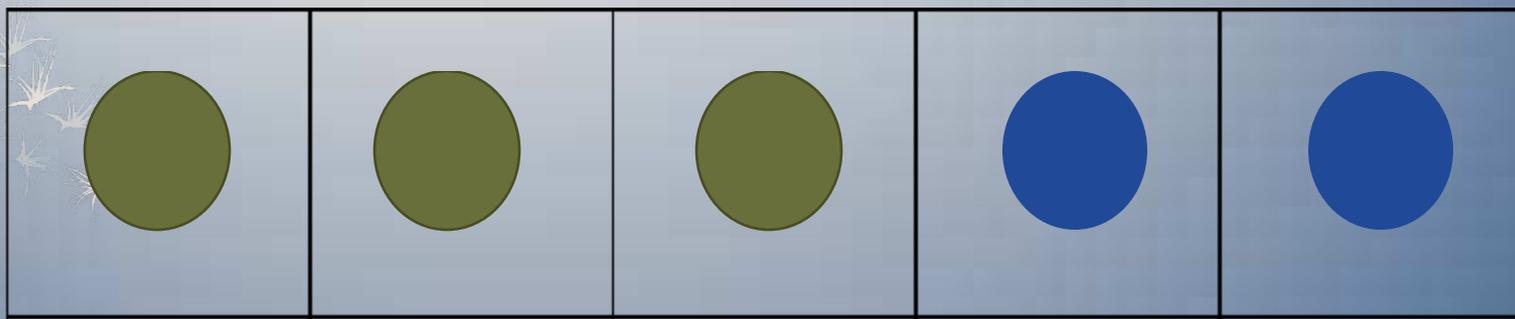


Essential Question

HOW CAN YOU MAKE 5 WITH OBJECTS?



Five-Frame





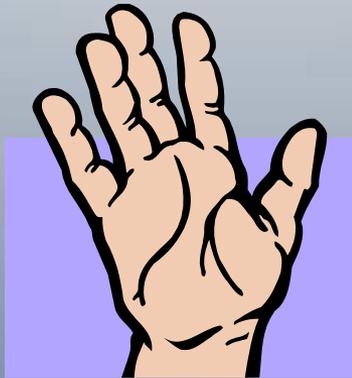
Making ten

Essential Question

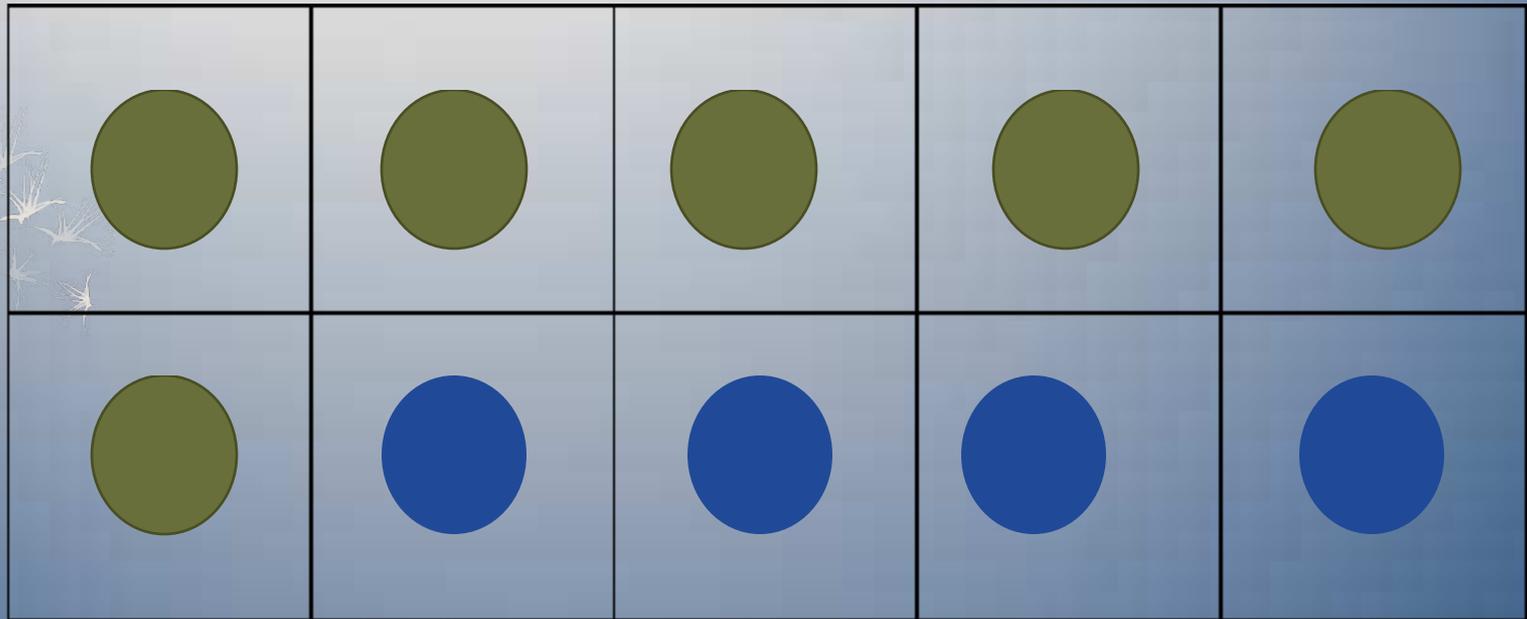
HOW CAN YOU MAKE 10 WITH OBJECTS?



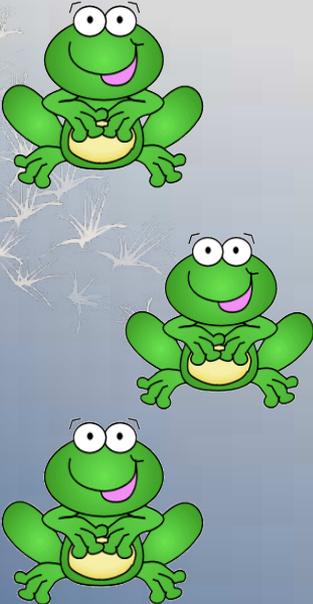
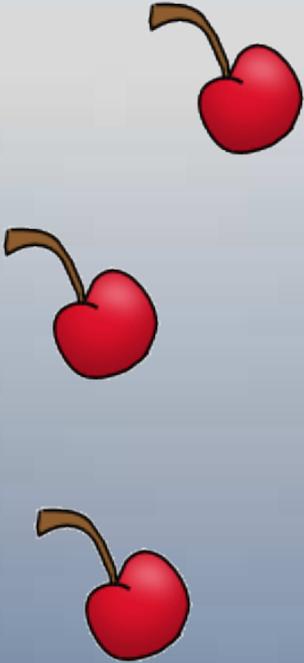
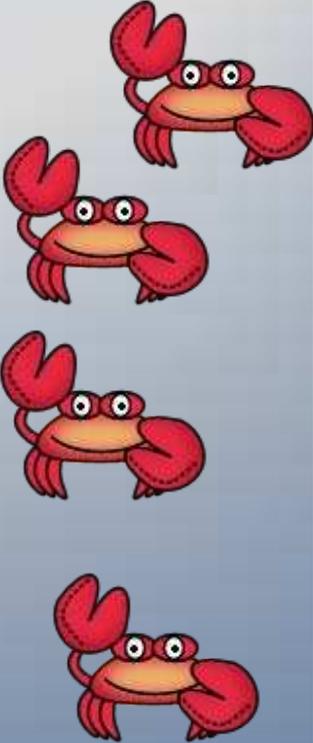
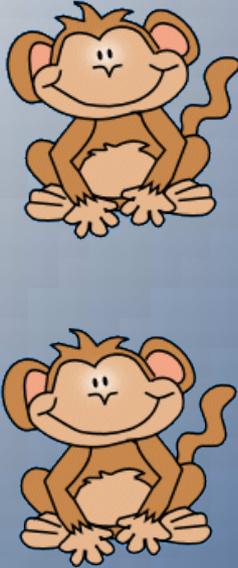
Show Me Ten



Ten-Frame

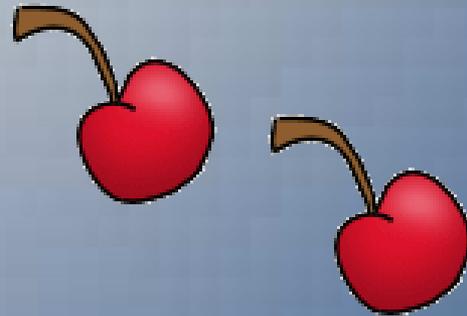
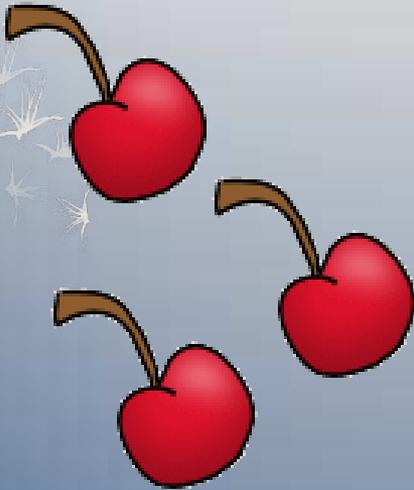


Comparing Numbers

			
<p>OUR</p>	<p>SAME</p>	<p>MORE</p>	<p>LESS</p>

Vocabulary Wallet

greater than

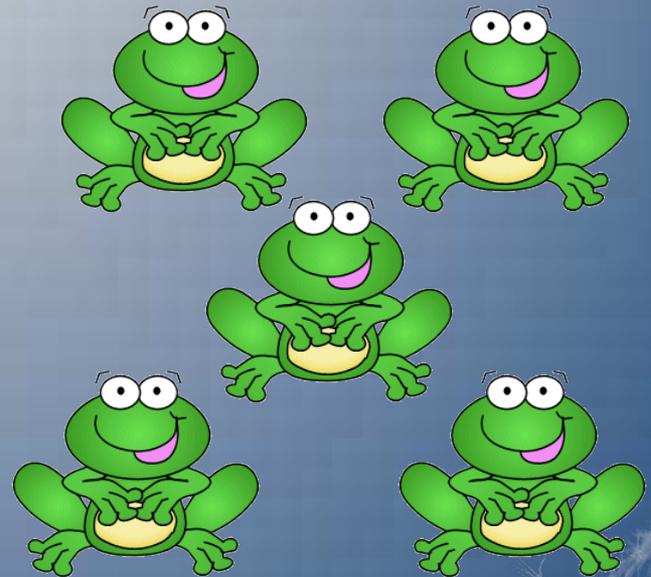
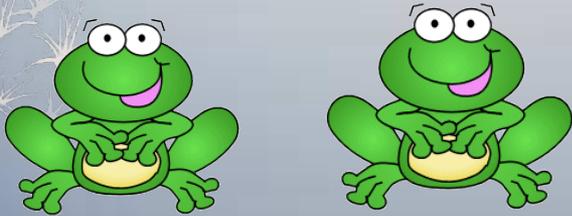


_____ is greater than _____



Vocabulary Wallet

less than



_____ is less than _____

Vocabulary Wallet

equal to



_____ is equal to _____

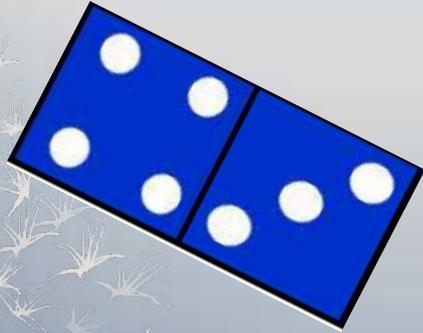


Domain:
**Operations and Algebraic
Thinking(K.OA)**

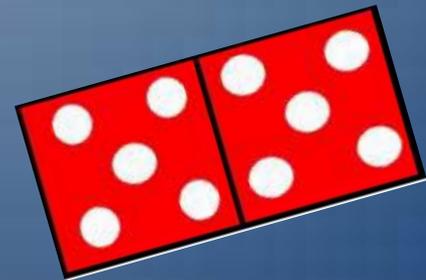
Domain: Operations and Algebraic Thinking (K.OA)

CLUSTER	STANDARD
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions or equations.
	2. Solve addition and subtraction word problems, and add and subtract within 10 e.g., by using objects or drawings to represent the problem.
	3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5=2+3$ and $5=4+1$). In Depth
New	4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
New	5. Fluently add and subtract within 5.

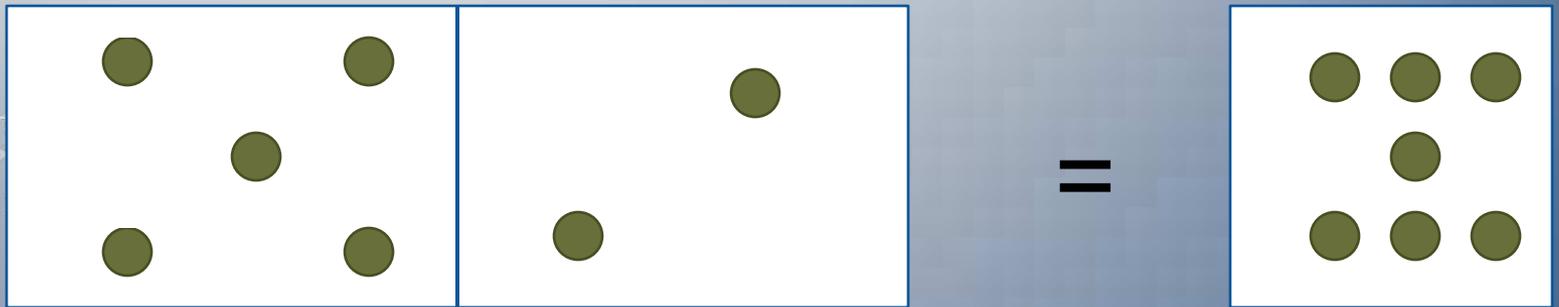
October 28, 2011



Dominoes



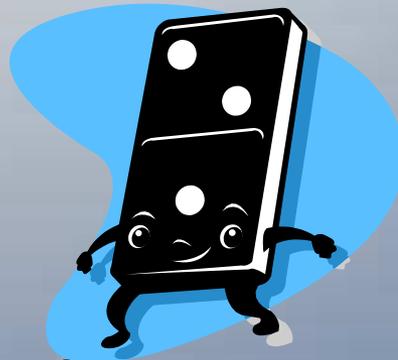
Recording Dominoes Sums



$$5 + 2 = 7$$

Vocabulary Wallet

addition



___ and ___ is ___.



Domain:
Number and Operations
in Base Ten(K.NBT)

Domain: Number and Operations in Base Ten (K.NBT)

CLUSTER	STANDARD
Work with numbers 11-19 to gain foundations for place value.	<ol style="list-style-type: none"><li data-bbox="440 539 1734 868">1. Compose and decompose numbers from 11 to 19 into ten ones and some further one e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. <p data-bbox="950 968 1047 1011">New</p>

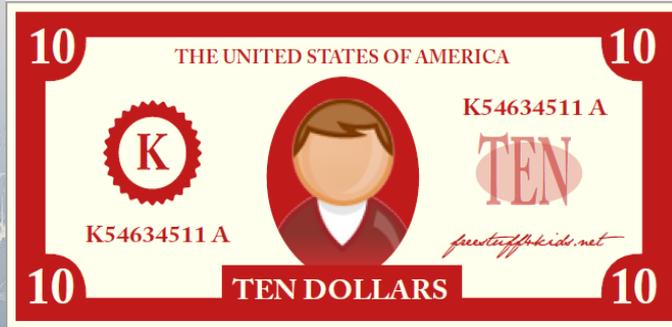
Ten “ones” make a “ten”





Money talk

Fourteen equals one "ten"
and four "ones"



Four ones

One ten

1 4



**Domain:
Measurement and Data
(K.MD)**

Domain: Measurement and Data (K.MD)

CLUSTER	STANDARD
Describe and compare measurable attributes.	1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
	2. Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>
Classify objects and count the number of objects in each category.	3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

All New



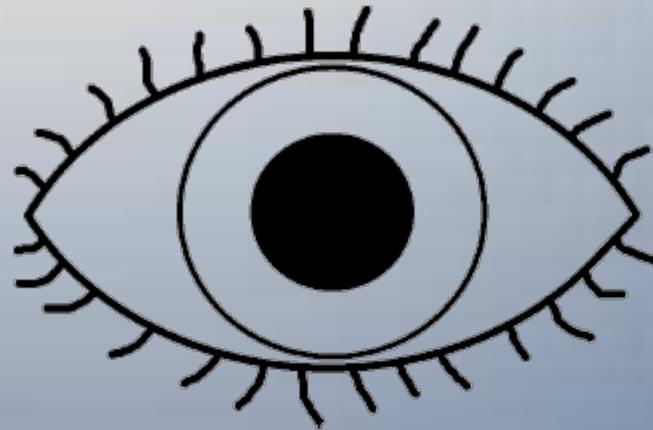
Eye to eye

Our Class Eye Color Graph

"What colors are our eyes?"

 BLUE	
 BROWN	
 GREEN	

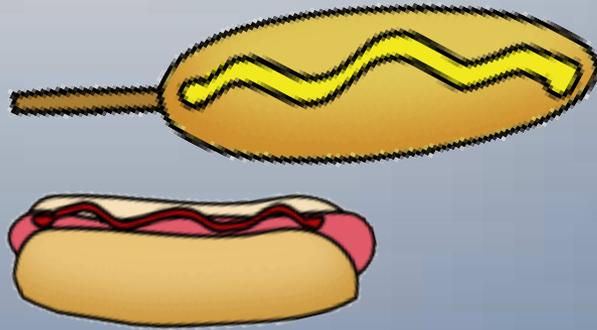
Color the iris with the color of your eye.
Put your name on the line below the eye.



Owner of eye: _____

Vocabulary Wallet

longer

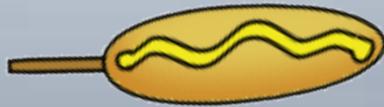


The _____ is longer than the

_____.

Vocabulary Wallet

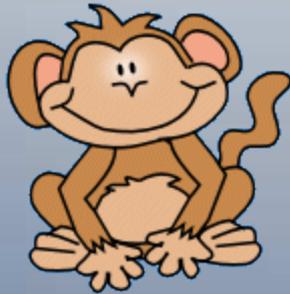
longest



The _____ is the longest.

Vocabulary Wallet

shortest



The _____ is the shortest.

Vocabulary Wallet

shorter



The _____ is shorter than the

_____.



**Domain:
Geometry
(K.G)**

Domain: Geometry (K.G)

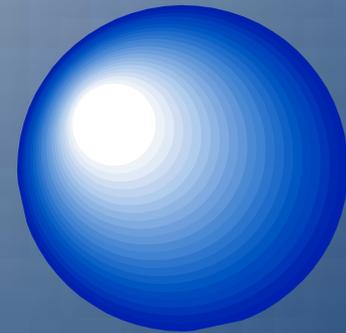
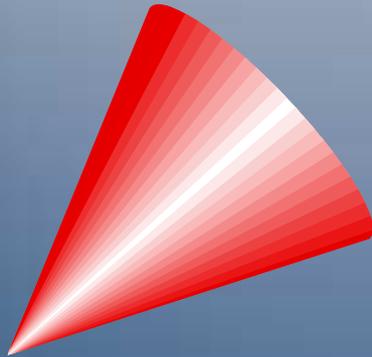
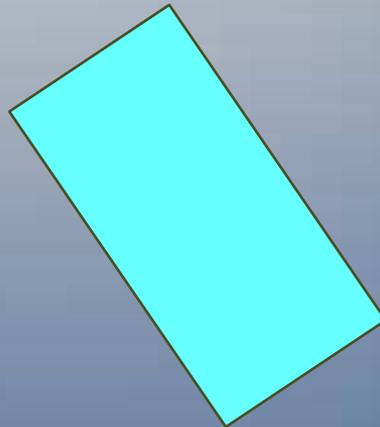
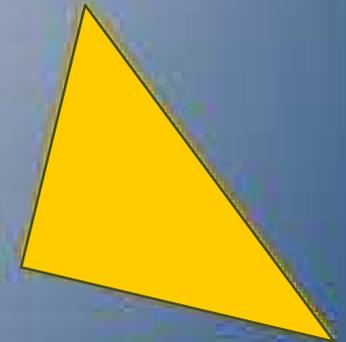
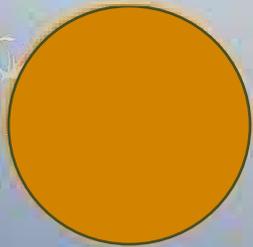
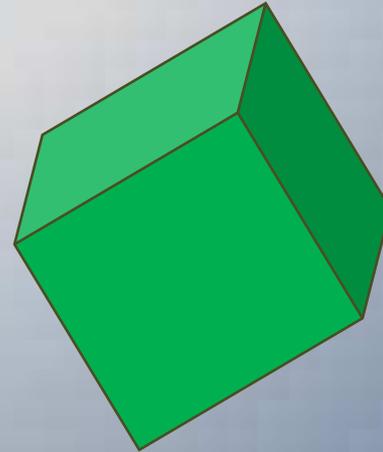
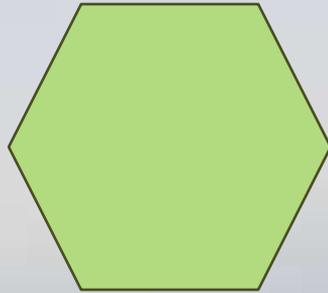
CLUSTER	STANDARD
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres.)	<p>1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.</p> <p style="text-align: center;">Some New Positions</p>
	<p>2. Correctly names shapes regardless of their orientations or overall size.</p>
New	<p>3. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").</p>

Domain: Geometry (K.G)

CLUSTER	STANDARD
Analyze, compare, create, and compose shapes.	4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
New	5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
New	6. Compose simple shapes to form larger shapes. <i>For example, "Can you join these two triangles with full sides touching to make a rectangle?"</i>



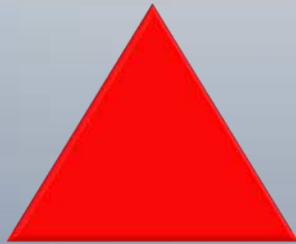
Fun with shapes



Vocabulary Wallet



square



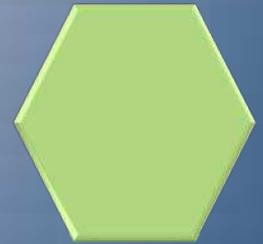
triangle



circle



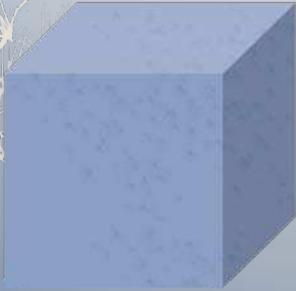
rectangle



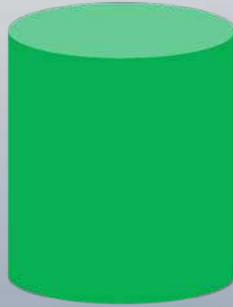
hexagon

two-dimensional shapes

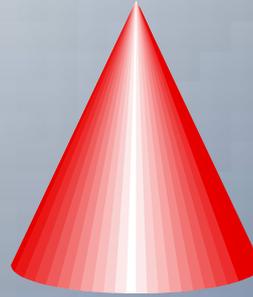
Vocabulary Wallet



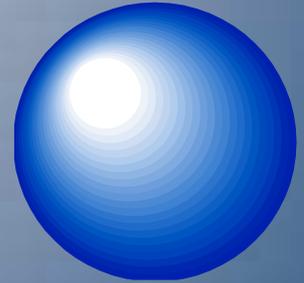
cube



cylinder



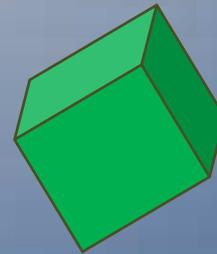
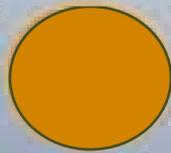
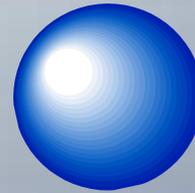
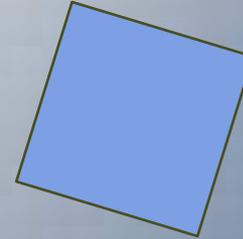
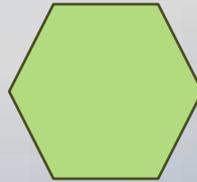
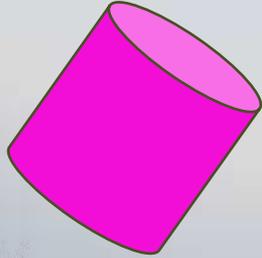
cone



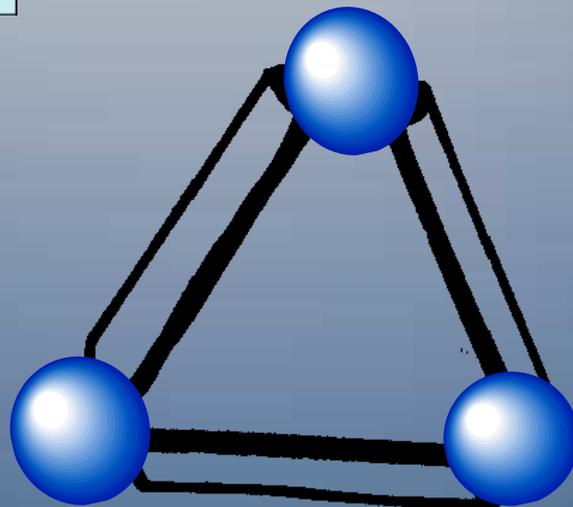
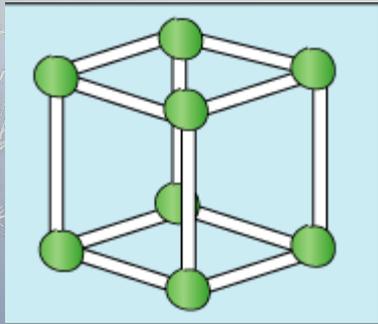
sphere

three-dimensional shapes

No peeking bag



Coffee stirrers and playdough balls



Tower Power!



Excellent Resources for Common Core Activities

<http://www.k-5mathteachingresources.com/measurement-and-data-activities.html>

<http://illuminations.nctm.org/lessons.aspx>

<http://mathwire.com/>

MATHEMATICS INSTRUCTIONAL BLOCK

___ Minutes

ENGAGE

- * Connection to prior learning/knowledge
- * **Essential Question**

___ Minutes

TEACH AND TALK

Exploration / Direct Instruction / Guided Practice

- * **Listen and Draw (Grades K-2)**
- * Unlock the Problem (Grades 3-5)

___ Minutes

PRACTICE

Guided Practice / Independent Practice / Evaluation

* **Quick Check Intervention:**

- ✓ Share and Show (Guided Practice); do only the two check marked problems

* **Differentiated Instruction:**

- ✓ On Your Own (Independent Practice); selected problems for at-level students
- ✓ Online Florida Intervention; Tier 1 students
- ✓ Teacher-led group; core-resources – Re-teach/Strategic/Intensive Intervention for Tier 2 And 3 students

* **Whole Class**

- ✓ Problem Solving
- ✓ H.O.T. Problems
- ✓ Test Prep

___ Minutes

SUMMARIZE

Have students communicate mathematical ideas by discussing, drawing, or writing the answer to the *Essential Question*

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