Grade/Course: Kindergarten/Numbers and Operations in Base Ten February 26, 2014

Standards for Mathematical Practice:

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

Big Idea: The base-ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.

Pennsylvania Core Standards:
CC.2.1.K.B.1 Use place value to compose and decompose numbers within 19.

Essential Questions:	**Understandings: Students will understand THAT . . .**
How do patterns make sense of the values of numbers? How can recognizing repetition or regularity help solve problems more efficiently? How does a digit's position affect its value?	• Numbers can be written and shown as groups of tens and ones, and that different representations are equivalent. • Place value can lead to number sense and efficient strategies for computing with numbers.
Knowledge: ones place tens place digit compose decompose equation ten frame base ten blocks	**Skills:** • Represent single digit numbers using ones. • Represent two digits of a two-digit number using tens and ones.

Grade/Course: Kindergarten/Counting and Cardinality February 26, 2014

Standards for Mathematical Practice:

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

Big Idea: The set of real numbers is infinite, and each real number can be associated with a unique point on a number line.

Pennsylvania Core Standards:

C.C.2.1.K.A.1 Know number names and write and recite the count sequence.
C.C.2.1.K.A.2 Apply one to one correspondence to count the number of objects.
C.C.2.1.K.A.3 Apply the concept of magnitude to compare numbers and quantities.

Essential Questions:

What does a number represent?

How do patterns make sense of the values of numbers?

How do numbers relate and compare to one another?

When do we compare number values in our world?

Understandings: Students will understand THAT . . .

- Counting tells how many items there are altogether. When counting, the last number tells the total number of items; it is a cumulative count.
- Numbers can be represented using objects, words, and symbols and still maintain the same value (4, four, ****).
- Numbers can be used to tell the position of objects in a sequence (e.g., 3rd), and numbers can be used to name something (e.g., telephone number).
- Numbers and quantities can be compared.
- Counting is a purposeful skill that assigns a number name to an object or set of objects.

Knowledge:		**Skills:**
number names	sequence	• Counts to 100 by ones and tens. • Writes numbers from 0-20. • Represents a number of objects with a written numeral 0-20. • Understands the relationship between numbers and quantities; connects counting to cardinality. • Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. • Compare two numbers. • Uses one to one correspondence to count a group of objects.
compare	greater	
equal	less	
more	before	
fewer	after	
count		
number		
digits		
set		

Grade/Course: Kindergarten/Data and Probability February 26, 2014

Standards for Mathematical Practice:

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.

Big Idea:

Some questions can be answered by collecting and analyzing data. The question to be answered determines the data that needs to be collected and how best to collect it.

Pennsylvania Core Standards:

C.C.2.4.K.A.4 Classify objects and count the number of objects in each category.

Essential Questions:

Why do we compare, contrast and classify objects?

What does it mean to create a category?

Understandings: Students will understand THAT . . .

- Classifying objects is an efficient way of managing large quantities of data.

Knowledge:

classify
category
contrast
groups
sort

Skills:

- Sort (classify) objects into categories (groups).
- Determine the number of objects in each category.
- Sort the categories by number or count.

Grade/Course: Kindergarten/Geometry Feb. 26, 2014

Big Idea: Two and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.

Standards for Mathematical Practice:

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

Pennsylvania Core Standards:

CC.2.3.K.A.1 Identify and describe two and three-dimensional shapes
CC.2.3.K.A.2 Analyze, compare, create and compose two and three-dimensional shapes

Essential Questions:	**Understandings: Students will understand THAT . . .**
How are 2-D shapes like and unlike 3-D shapes? How can applying the attributes of shapes solve real world situations? How does the position of an object determine its location?	• Polygons can be described by their attributes. • There is more than one way to classify most shapes and sizes. • Shapes can be built upon one another to form different shapes that have the same or different number of dimensions. • Objects in the world have a specific location.

Knowledge:	**Skills:**
model (recreate from an example) attributes corners/vertices face side edge plane shape (two-dimensional) solid figure (three-dimensional) **Positional words:** in front of behind above below beside next to	• Correctly describe the relative position of objects in the real world. • Correctly name shapes, regardless of their orientations or overall size. • Can correctly identify shapes as two-dimensional (flat) or three-dimensional (solid). • Can compose and model simple two-dimensional shapes to form larger two-dimensional shapes.

Grade/Course: Kindergarten/Algebraic Thinking and Operations February 26, 2014

Standards for Mathematical Practice:

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

Big Idea: The same number sentence (e.g. 12-4=8) can be associated with different concrete or real-word situations, AND different number sentences can be associated with the same concrete or real-world situation.

Pennsylvania Core Standards:

CC.2.2.K.A.1 Extend the concepts of putting together and taking apart to add and subtract within ten.

Essential Questions:	**Understandings: Students will understand THAT . . .**
How does composing and decomposing allow us to make sense of numbers?	• Some real-world problems involving joining, separating, and comparing can be solved using addition; others can be solved by using subtraction. • One number value can be represented in many ways using addition of smaller values or subtraction from a larger value. • The maximum value possible when adding any number between 0 and 10 is 20.
Knowledge: addition subtraction represent join separate	**Skills:** • Represent addition and subtraction with objects, mental images, drawings, verbal explanations, expressions or equations. • Solve addition and subtraction word problems within ten. • Decompose numbers less than or equal to ten 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). • For any number from 1 to 9, find the number that makes 10 when added to the given number. • Fluently add and subtract within 5.

Grade/Course: Kindergarten/Measurement February 26, 2014

Standards for Mathematical Practice:

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

Big Idea:

Some attributes of objects are measurable and can be quantified using unit amounts.

Pennsylvania Core Standards:

CC.2.4.K.A.1 Describe and compare attributes of length, area, weight and capacity of everyday objects

Essential Questions:	**Understandings: Students will understand THAT . . .**
How does ”what” we measure influence ”how” we measure? Why is measuring useful?	• The magnitude of the attribute to be measured and the accuracy needed determines the appropriate measurement unit. • Measurement processes are used in everyday life to describe and quantify the world. • There are a variety of ways of measuring quantity and the attribute determines the type of measurement (i.e. length versus liquid volume).

Knowledge:		**Skills:**
attributes	capacity	• Measure everyday object to describe and compare attributes of length, area, weight, temperature, and capacity.
longer	describe	
shorter	compare	
taller	weight	
more	heavier	
less	lighter	
temperature	unit of measurement	
warmer		
colder		
length		
area		