U46 Curriculum

U-46 Kindergarten Mathematics

Module 1 – Numbers to 10
Domain(s): Counting and Cardinality, Operations and Algebraic Thinking, Measurement and Data
Trimester(s): 1

Transfer: *Students will apply…*

1. Number recognition to count objects and pictures, or count out appropriate quantities of objects in real-world situations.
2. Sense of quantity to recognize that the number of objects is the same regardless of the arrangement. For example a group of 6 objects is the same quantity regardless of whether they are scattered or arranged in a line, circle, rectangle, die or domino pattern.
3. Knowledge of numbers 0-10 to count and represent numbers up to 10 (Module 5 – up to 20).
4. Counting skills to answer the question of "how many" for as many as 10 (Mod 5 – 20) objects arranged in a line, a rectangular array, or a circle, or as many as 10 things a scattered configuration given a number from 1-10 (Mod 5 – 20), count out that many objects

Understandings: *Students will understand that…*

1. Counting is used to find how many or how much a quantity represents.
2. The last number said when counting a quantity of objects, is the total number of objects in that group.
3. The total number of objects is represented with a numeral.
4. Counting one more will be the next larger number.
5. Each successive number name refers to a quantity that is one larger.
6. The last number name said is the total number of objects counted.
7. Relationships between numbers and quantities; connect counting to cardinality.
8. Written numerals represent an amount and each numeral represents a different amount.

Essential Question(s):

1. Why do we count?
2. How is number order helpful to us?
3. What can numerals represent?
4. How does knowing numbers 0-10 help you in counting other numbers?

Knowledge: *Students will know…*

1. Names for numerals.
2. Sequence and order of counting numbers.
3. Numerals

Skill: *Students will be able to …*

1. Subitize within five. (K.CC.4)
2. Use one-to-one correspondence when counting. (K.CC.4)
3. Know and say the standard order when counting. (K.CC.4)
4. Count within 10 (including 0). (K.CC.1)
5. Name the next number in a counting sequence. (K.CC.4)
6. Count up to 10 (Module 5 – 20) objects in any organized arrangement.
7. Count up to 10 objects in a scattered arrangement.
8. Count out a given quantity of objects within 10 (Mod 5 – 20).
9. Write numerals for quantities within 10 (Mod 5 – 20).
10. Connect a numeral to a quantity.

Vocabulary

- Exactly the same/not exactly the same/the same, but… (ways to analyze objects to match or sort)
- Match (group items that are the same or that have the same given attribute)
- Sort (group objects according to a particular attribute)
- "How many" (with reference to counting quantities or sets)
- Hidden partners (embedded numbers)
- Counting path (with reference to order of count)
- Number story (stories with add to or take from situations)
- Zero (understand the meaning of, write and recognize)
- Number sentence (3 = 2 + 1)
- 5-group
- Rows/columns (linear configuration types)
- Number path
- 1 more (e.g., 4. 1 more is 5)
- 1 less (e.g., 4. 1 less is 3)

Clusters/Standards:

Focus Grade Level Standards

Know number names and the count sequence

> **K.CC.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.3

> **K.CC.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.
> **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.4

> **K.OA.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).

Classify objects and count the number of objects in each category.

> **K.MD.3** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)

Focus Standards for Mathematical Practice

> **MP.2** Reason abstractly and quantitatively. Students represent quantities with numerals.
> **MP.3** Construct viable arguments and critique the reasoning of others. Students reason about other students' ways of counting fingers or a scattered set of objects, the former by comparing the fingers counted and the order counted or the latter by comparing counting paths through a set of up to 10 scattered objects.
> **MP.4** Model with mathematics. Students model decompositions of three objects as math drawings and addition equations.
> **MP.7** Look for and make use of structure. Students use the 5-group to reason about numbers within 10.
> **MP.8** Look for and express regularity in repeated reasoning. Students build a number stair to reason about 1 more and 1 less than each number within 10.

WIDA Standard:

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit from:

• Visual models of math and connections to the real world.

• The teacher showing a 3D model of each numeral and saying its number name, then displaying word form of the number name adjacent to the 3D model and number card.

• Students shape clay into numerals and verbalize the number name. Students sing number songs while writing/tracing clay numerals or sand, as well as, when forming numbers in the air.

• The teacher modeling 1:1 correspondence of number names to numerals by counting objects. Then, students repeatedly practice using (speaking) the number names as they count with 1:1 correspondence.

• The teacher modeling how to count out small quantities and say the total this group represents. Then students repeatedly practice counting out small quantities and using (speaking) the appropriate number the group represents.

Using i.e. five-frames; ten-frames; a linear arrangement of or an unorganized pile of manipulatives; irregular and regular spatial patterns such as dot cards :

• Teacher modeling of counting out a quantity within 20. Students repeatedly practice counting out objects within 20 and using (speaking) the appropriate number the group represents.

• Teacher modeling of counting out a quantity within 20 and then matching the quantity of objects with the correct number card. Students repeatedly practice counting out a quantity within 20 and matching the quantity of objects with the correct number card.

• Teacher modeling counting on from a particular quantity within 20. Students repeatedly practice counting on from a particular quantity within 20 verbalizing each number while counting.

• Tracing teen numbers to 20 and verbalizing the number names.

Student Learning Experiences / Tasks

Fluency practice Activities
Hands on Concept Development Activities
Problem Sets
Exit Slips
Homework

Instructional Resources/Assessments:

Engage NY   http://www.engageny.org/resource/kindergarten-mathematics-module-1

Module 2 – 2D and 3D Shapes
Domain(s): Geometry, Measurement and Data
Trimester(s): 3

Transfer: *Students will apply…*

1. Knowledge of positional language to describe 2-dimensional shapes in the environment regardless of their size or orientation.
2. Knowledge of 2-dimensional figures to identify them and describe their features in real-world situations.

Understandings: *Students will understand that…*

1. Two-dimensional shapes are flat.
2. The location of objects are described by using positional words
3. Three-dimensional shapes have specific names regardless of their orientations or overall size.

Essential Question(s):

1. What characteristics make a shape two-dimensional?
2. How is mathematical language used to describe shapes?

Knowledge: *Students will know…*

1. Names of two-dimensional shapes (squares, circles, triangles, rectangles)
2. Names of 3-dimensional shapes (K.G.2)

Skill: *Students will be able to do*

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. (K.G.1)
2. Identify shapes as "flat" or "solid." (K.G.3)

Vocabulary

- Above, below, beside, in front of, next to, behind (position words)
- Circle
- Cube (three-dimensional shape)
- Cylinder (three-dimensional shape)
- Face (flat side of a solid)
- Flat (two-dimensional shape)
- Hexagon (flat figure enclosed by six straight sides)
- Rectangle (flat figure enclosed by four straight sides)
- Solid (three-dimensional shape)Cone (three-dimensional shape)
- Sphere (three-dimensional shape)
- Square (flat figure enclosed by four straight, equal sides)
- Triangle (flat figure enclosed by three straight sides)

Clusters/Standards:

Focus Grade Level Standards

Classify objects and count the number of objects in each category.

K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

K.G.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.

K.G.2 Correctly name shapes regardless of their orientations or overall size.

K.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

Analyze, compare, create, and compose shapes.1

K.G.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).

Focus Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them. Distinguish shapes from among variants, palpable distractors, and difficult

distractors. See examples to the right.

MP.3 Construct viable arguments and critique the reasoning of others. Students are increasingly able to use shape attributes to defend identification of a plane or solid shape.

MP.6 Attend to precision. Students use position words to clearly indicate the location of shapes. Also, when kindergarten students are analyzing and defining attributes such as "3 straight sides" they are attending to precision.

MP.7 Look for and make use of structure. Students use examples, non-examples, and shared attributes of geometric figures in order to develop a richer "concept

WIDA Standard:

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit
from:

• Teacher modeling the location of familiar objects while describing the relevant positions emphasizing academic vocabulary.

• Teacher displaying academic vocabulary adjacent to the object that has been moved. Then students repeatedly practice speaking, using academic vocabulary as they manipulate each object.

• The teacher describing objects in the environment using the names of shapes and labeling the shape. Students look for another object that is the same shape as the one the teacher shared. Students verbalize the shape name.

•The teacher shows examples of a two-dimensional shape. Students look for additional examples of 2D shapes.

• The teacher shows another two-dimensional shape in a different size describing its similarities and differences to the original shape. Students analyze and compare two different sized shapes describing their parts (number of sides and vertices/"corners") and other attributes such as length of sides.

• Students draw shapes and build shapes from materials such as popsicle sticks.

•The teacher identifying shapes as two-dimensional (flat) or three dimensional (solid), and showing examples of three-dimensional shapes. Students looking for additional examples of 3D shapes.

• The teacher showing three-dimensional shapes of different sizes and describing their similarities and differences. Students analyzing and comparing two different sized shapes describing their parts (number of sides and vertices/"corners") and other attributes such as length of sides.

• Students building shapes from materials such as clay.

• The teacher modeling how a larger shape can be composed of two smaller shapes and students building a larger shape using two or more simple shapes. Students repeatedly verbalizing the names of the smaller shapes used to compose the larger shape.

Student Learning Experiences / Tasks:

Fluency Practice
Sorting Activities
Problem Sets
Exit Tickets
Homework

Instructional Resources/Assessments:
Engage NY http://www.engageny.org/resource/kindergarten-mathematics-module-2

U46 Curriculum
U-46 Kindergarten Mathematics

Module 3 – Comparison of Length, Weight, Capacity and N umbers 1-10 Domain(s): Counting and Cardinality, Measurement and Data Trimester(s): 3
Transfer: *Students will apply…* 1. Knowledge of quantity within numbers to sort objects into categories by count. 2. Understanding of attributes to categorize numbers. 3. Describing objects based on measurable attributes. 4. Comparison language to describe the relationship between two objects based on measurable attributes.
Understandings: *Students will understand that…* 1. Comparing quantity of numbers can be described as less than, greater then, or equal to. 2. Some attributes are measurable and both numbers and words can be used to describe and compare the measurements. 3. Groups can be quantified for comparison and order. 4. Written numerals represent an amount and each numeral represents a different amount.
Essential Question(s): 1. How do we determine measurable attributes of objects? 2. Why do we use attributes of objects to compare quantity?
Knowledge: *Students will know…* 1. How to compare objects based on quantity to identify more, less or equal. 2. How to categorize objects using attributes. 3. How to measure and compare 2 objects. 4. Comparison language.
Skill: *Students will be able to …* 1. Identify counts of objects as more than, less than, or equal to.

2. Sort objects into groups and count the number of objects in each group.
3. Compare and/or order groups by quantity.
4. Measure and compare 2 objects using appropriate comparing words.
5. Write all numerals within 10 (Mod 5 – 20)
6. Group objects by specific attributes.

Vocabulary

- Balance scale (tool for weight measurement)
- Capacity (with reference to volume)
- Compare (specifically using direct comparison)
- Endpoint (with reference to alignment for direct comparison)
- Enough/not enough (comparative term)
- Heavier than/lighter than (weight comparison)
- Height (vertical distance measurement from bottom to top)
- Length (distance measurement from end to end; in a rectangular shape, length can be used to describe any of the four sides)
- Longer measurement)than/shorter than (length comparison) f
- More than/fewer than (discrete quantity comparison)
- More than/less than (volume, area, and number comparisons)
- Taller than/shorter than (height comparison)
- The same as (comparative term)
- Weight (heaviness

Clusters/Standards:

Focus Grade Level Standards

Compare numbers.

K.CC.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. (Include groups with up to ten objects.)

K.CC.7 Compare two numbers between 1 and 10 presented as written numerals.

Describe and compare measurable attributes.

K.MD.1 Describe measureable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.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. For example, directly compare the heights of two children and describe one child

as taller/shorter.

Focus Standards for Mathematical Practice

MP.2 Reason quantitatively and abstractly. Students compare quantities by drawing objects in columns and matching the objects one to one to see that one column has more than another and draw the conclusion that 6 is more than 4 because 2 objects do not have a match.

MP.3 Construct viable arguments and critique the reasoning of others. Students describe measurable attributes of a single object and reason about how to compare its length, weight, and volume to that of another object.

MP.5 Use appropriate tools strategically. During the culminating task and end of module assessment, students might choose to use a scale to compare weight, cube sticks to compare weight, rice and cups to compare volume.

MP.6 Attend to precision. Students attend to precision by aligning endpoints when comparing lengths. They are also precise when weighing an object with cubes (or units) on a balance scale. Adding 1 more makes the cubes too heavy when the goal is to see how many cubes have the same weight as the object.

MP.7 Look for and make use of structure. Students use structure to see that the amount of rice in 1 container is equal to 4 of a smaller container. The smaller unit is a structure as is the larger unit.

WIDA Standard:

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit from:

• The teacher modeling how to count groups in order to compare two quantities and then students count each group, verbalizing the quantity of each using the appropriate number name.

• The teacher modeling how to line up objects in order to compare two quantities and students repeatedly maneuvering objects into two linear arrangements, then counting each arrangement, and verbalizing the quantity of each using the appropriate number name.

• The teacher representing each quantity counted with a number card and students labeling each quantity counted with the appropriate number card.

• The teacher modeling the academic language of "greater than," "less than," or "equal to" that describes the relationship 2 quantities and students repeatedly using (speaking) the appropriate academic language to describe the relationship of one quantity to another.

• The teacher using realia and /or pictures to create meaning of the academic vocabulary of "taller" and "shorter" by comparing two similar objects i.e. children, a picture of trees, etc., and students comparing pictures or similar items and verbalizing whether one object is taller or shorter than another.

• The teacher comparing two number cards for the numerals 1-10, finding the location of those numbers on a number line and/or saying whether a number is greater than, less than, or equal to another number. Students repeatedly practice saying the number names and using the academic vocabulary of greater than, less than, or equal to compare the numerals.

Student Learning Experiences / Tasks:

Fluency practice activities
Hands on Concept Development Activities
Problem sets
Exit Tickets
Homework

Instructional Resources/Assessments:

Engage NY   http://www.engageny.org/resource/kindergarten-mathematics-module-3

Module 4 – Number Pairs, Addition and Subtraction to 10 **Domain(s): Operations and Algebraic Thinking** **Trimester(s): 2**
Transfer: *Students will apply…* 1. Number knowledge to solve addition and subtraction word problems, involving adding to, taking from, putting together and taking apart situations.
Understandings: *Students will understand that…* 1. Different combinations of numbers within 10 represent addition and subtraction. 2. Word problems can be represented with objects or drawings. 3. Equations can be built by decomposing numbers in more than one way. 4. Quantities can be created using a variety of individual sets.
Essential Question(s): 1. How can knowing how to put together or take apart numbers help form other numbers? 2. Why should numbers be decomposed to form different combinations of a specific number? 3. What is the connection of an equation to a number combination? 4. How are word problems connected to number combinations?
Knowledge: *Students will know…* 1. Put together and take apart models. 2. Combinations of 10 using modalities
Skill: *Students will be able to do…* 1. Use knowledge of number combinations to fluently add and subtraction within 5. 2. Represent addition and subtraction word problems with multiple modalities within 10. (objects and drawings) 3. Extend number combinations of 5 to combinations within 10 by using objects or drawings, and record the answer with a drawing or equation.

Vocabulary

- **Addition (specifically using add to with result unknown, put together with total unknown, put together with both addends unknown)**
- **Addition and Subtraction sentences (equations)**
- **Make 10 (combine two numbers from 1–9 that add up to 10)**
- **Minus (–)**
- **Number bond (mathematical model)**
- **Number pairs or partners (embedded numbers)**
- **Part (addend or embedded number)**
- **Put together (add)**
- **Subtraction (specifically using take from with result unknown)**
- **Take apart (decompose)**
- **Take away (subtract)**
- **Whole (total)**

Clusters/Standards:
Focus Grade Level Standards

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

K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. (Drawings need not show details, but should show the mathematics in the problem.)
K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.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).
K.OA.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.
K.OA.5 Fluently add and subtract within 5.

Focus Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them. Students identify story problems as addition or subtraction situations and find the unknown. Students will demonstrate with drawings and verbal explanations the referent of each number in a given problem type.

MP.2 Reason abstractly and quantitatively. Students reason about the relationships between numbers in composition and decomposition situations. They can show, using the number bond mat, and explain that 6 and 4 make 10 and that 10 can be broken into 6 and 4.

MP.4 Model with mathematics. Students use number bonds and addition and subtraction equations to model composition and decomposition. Students will tell story problems using drawings, numbers, and symbols.

MP.5 Use appropriate tools strategically. Students select and use tools such as drawings, number bonds, and the number path to solve problems.

MP.7 Look for and make use of structure. Students draw the 5 + n pattern to reason about numbers within 10.

MP.8 Look for and express regularity in repeated reasoning. Students add and subtract 0 to get the same number. They also use linking cubes to add and subtract 1 to reason about 1 more and 1 less than with numbers to 10.

WIDA Standard: English Language Learners

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners would benefit from:

1. Modeling addition and subtraction situations through dramatization, manipulatives and/ or pictures.

2. The teacher modeling how to write and addition and subtraction equations plugging in the known values for the addends and sum in addition problems and the minuend, subtrahend, and difference in the subtraction problems.

3. Students will write an equation that represents the objects or a drawing in an addition or subtraction situation.

4. The teacher modeling how to fill a ten frame using manipulatives to find the number that makes ten when added to any number from 1 to 9.

5. Students will have repeated practice using a ten frame and manipulatives to find the number that makes ten when added to any given number.

Students will verbalize that _____ and _____ makes ten.

(number) (number)

6. The teacher modeling how to write the equation that represents the ten frame situation.

6. Students having repeated practice recording the ten frame situation with a drawing or an equation.

Student Learning Experiences / Tasks:

Fluency Practice

Shape Construction

Problem Sets

Exit Tickets

Homework

Instructional Resources/Assessments:

Engage NY http://www.engageny.org/resource/kindergarten-mathematics-module-4

Module 5 – Numbers 10-20 and Counting to 100
Module 5 – Numbers 10-20 and Counting to 100 **Domain(s): Counting and Cardinality, Numbers and Operations Base Ten** **Trimester(s): 3**

Transfer: *Students will apply…*

1. Knowledge of number 0-10 to count and represent numbers up to 20.
2. Counting skills to answer the question of "how many" for as many as 20 objects arranged in a line, a rectangular array, or a circle, or as many 10 things a scattered configuration given a number from 1-20, count out that many objects.
3. Knowledge of smaller numbers (combinations to 5, combinations to 10) and counting to 10 to decompose teen numbers as "ten and some more ones" by using objects or drawings, and recording each composition or decomposition by a drawing or equation.

Understandings: *Students will understand that…*

1. Teen numbers are composed of a group of ten and some more.
2. Knowledge of number 0-10 can be applied to predict order and sequence higher numbers (10-20, 20-30, etc)

Essential Question(s):

1. How are teen numbers composed and decomposed?
2. What is significant about the teen numbers?
3. How can you use 0-10 to predict other counting sequences?

Knowledge: *Students will know…*

1. Number names for teen numbers

Skill: *Students will be able to do…*

1. Count up to 20 objects in any organized arrangement.
2. Count out any given quantity of objects within 20.
3. Write numerals from quantities within 20.
4. Decompose/compose teen numbers into a group of ten and some ones, using modalities as well a numerical representation. (K.NBT.1)

5. Use objects/drawings to show how many tens and ones are in a number 11-19. (K.NBT.1)
6. Record compositions and decompositions using an equation. (K.NBT.1)

Vocabulary

Say Ten counting by tens to 100 (e.g., 1 ten, 2 tens, 3 tens, 4 tens, 5 tens, 6 tens, 7 tens, 8 tens, 9 tens, 10 tens)
Regular counting by ones from 11 – 20 (e.g., eleven, twelve, thirteen,…etc.)
Regular counting by tens to 100 (e.g., ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety, one hundred)
Hide Zero cards (in later grades called Place Value cards, pictured to the right)
10 ones and some ones
Teen numbers
10 and __
10 plus

Clusters/Standards:
Focus Grade Level Standards

Know number names and the count sequence.
K.CC.1 Count to 100 by ones and by tens.
K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1)
K.CC.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.
K.CC.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.
K.CC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Work with numbers 11–19 to gain foundations for place value.
K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, 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.

Focus Standards for Mathematical Practice

MP.2 Reason abstractly and quantitatively. Students represent teen numerals with concrete objects separated as 10 ones and some ones.

MP.3 Construct viable arguments and critique the reasoning of others. Students explain their thinking about teen numbers as 10 ones and some ones and how to represent those numbers as addition sentences.

MP.4 Model with mathematics. Students model teen quantities with number bonds, place value cards and teen numbers.

MP.7 Look for and make use of structure. Students use the structure of 10 ones to reason about teen numbers. They compare teen numbers using the structure of the 10 ones to compare the some ones.

WIDA Standard: (English Language Learners)

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit from:

1. Visual models of math and connections to the real world.

2. The teacher showing a 3D model of each numeral and saying its number name, then displaying word form of the number name adjacent to the 3D model and number card.

3. Students shape clay into numerals and verbalize the number name. Students sing number songs while writing/ tracing clay numerals or sand, as well as, when forming numbers in the air.

4. The teacher modeling 1:1 correspondence of number names to numerals by counting objects. Then, students repeatedly practice using (speaking) the number names as they count with 1:1 correspondence.

5. The teacher modeling how to count out small quantities and say the total this group represents. Then students repeatedly practice counting out small quantities and using (speaking) the appropriate number the group represents.

6. Using i.e. five-frames; ten-frames; a linear arrangement of or an unorganized pile of manipulatives; irregular and regular spatial patterns such as dot cards :

- Teacher modeling of counting out a quantity within 20. Students repeatedly practice counting out objects within 20 and using (speaking) the appropriate number the group represents.

- Teacher modeling of counting out a quantity within 20 and then matching the quantity of objects with the correct number card. Students repeatedly practice counting out a quantity within 20 and matching the quantity of objects with the correct number card.

- Teacher modeling counting on from a particular quantity within 20. Students repeatedly practice counting on from a particular quantity within 20 verbalizing each number while counting.

- Tracing teen numbers to 20 and verbalizing the number names.

Student Learning Experiences / Tasks:

Fluency practice Activities
Hands on Concept Development Activites
Problem Sets
Exit Slips
Homework

Instructional Resources/Assessments:

Engage NY http://www.engageny.org/resource/kindergarten-mathematics-module-5

Module 6 – Analyzing, Comparing and Composing Shapes
Domain(s): Geometry, Counting and Cardinality
Trimester(s): 3

Transfer: *Students will apply…*

1. Knowledge of two-dimensional shapes to three-dimensional shapes to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
2. Modeling of shapes in the world by building shapes from components and drawing shapes.

Understandings: *Students will understand that…*

1. Attributes are used to compare and analyze shapes.
2. Basic shapes are used to create more complex shapes.
3. Two dimensional shapes can be built from components.
4. Three-dimensional shapes have unique attributes.
5. 3-D Shapes can be used to build pictures, designs and other shapes.
6. 3-D Shapes can be built from components.

Essential Question(s):

1. What characteristics make a shape two-dimensional?
2. How is mathematical language used to describe shapes?
3. What determines the difference between 2-dimensional and 3-dimensional shapes?
4. Why is mathematical language critical when describing 2-dimensional and 3-dimensional shapes?

Knowledge: *Students will know…*

1. Defining attributes of flat shapes
2. Attributes of flat and solid shapes (K.G.4)

Vocabulary

- First, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth (ordinal numbers)
- Above, below, beside, in front of, next to, behind (position words)
- Circle
- Cube (three-dimensional shape)
- Cylinder (three-dimensional shape)
- Face (two-dimensional side of a solid)
- Flat (two-dimensional shape)
- Hexagon (flat figure enclosed by six straight sides)
- Rectangle (flat figure enclosed by four straight sides)
- Solid (three-dimensional shape)
- Cone (three-dimensional shape)
- Sphere (three-dimensional shape)
- Square (flat figure enclosed by four straight, equal sides)
- Triangle (flat figure enclosed by three straight sides)

Skill: *Students will be able to do…*

1. Draw shapes (circle, square, rectangle, triangle, hexagon)
2. Build two-dimensional shapes from smaller shapes.
3. Analyze and compare two-dimensional shapes using informal language (e.g. number of sides and vertices/ "corners" or having sides of equal length).
4. Analyze and compare 2 and 3-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts, and other attributes. (K.G.4)
5. Model shapes in the world by building shapes from components and drawing shapes. (K.G.5)

Clusters/Standards:

Focus Grade Level Standards

Count to tell the number of things.

K.CC.4 Understand the relationship between numbers and quantities: connect counting to cardinality.

d. Develop understanding of ordinal numbers (first through tenth) to describe the relative position and magnitude of whole numbers.

Analyze, compare, create and compose shapes.

K.G.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).

K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

K.G.6 Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?

Focus Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them. Students persist in their use of trial and error until they begin to use the attributes of a puzzle to determine which shape fits into an open space. "The empty space has a long side like my triangle. Let's see if my triangle fits."

MP.4 Model with mathematics. Students use shapes to create pictures of common objects and use straws and clay to create models of two- and three-dimensional objects in their environment.

MP.6 Attend to precision. Ordinal numbers provide students with vocabulary to precisely describe the spatial organization of ten shapes in a straight line.

MP.7 Look for and make use of structure. Students make use of their understanding of a shape's attributes to build three-dimensional from two-dimensional shapes.

WIDA Standard: English Language Learners

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners would benefit from:

•The teacher describing objects in the environment using the names of shapes and labeling the shape. Students look for another object that is the same shape as the one the teacher shared. Students verbalize the shape name.

• The teacher identifying shapes as two-dimensional (flat) or three dimensional (solid) and showing examples of three-dimensional shapes. Students looking for additional examples.

•The teacher shows another two-dimensional shape in a different size describing its similarities and differences to the original shape. Students analyze and compare two different sized shapes describing their parts (number of sides and vertices/"corners") and other   attributes such as length of sides.

•Students draw shapes and build shapes from materials such as popsicle sticks.

•The teacher will then model how a larger shape can be composed of two smaller shapes. Students build a new larger shape using two or more simple shapes. Students verbalize the name of the smaller shapes that the larger shape is composed of.

•The teacher showing three-dimensional shapes of different sizes and describing their similarities and differences. Students analyzing and comparing two different sized shapes describing their parts (number of sides and vertices/"corners") and other attributes such as length of sides.

Student Learning Experiences / Tasks:

Fluency Practice
Shape Construction
Problem Sets
Exit Tickets
Homework

Instructional Resources/Assessments:
Engage NY http://www.engageny.org/resource/kindergarten-mathematics-module-6