

Louisiana Believes.



Kindergarten Mathematics

Comprehensive Curriculum
REVISED 2012

LOUISIANA DEPARTMENT OF EDUCATION

**Kindergarten
Mathematics**

Table of Contents

Unit 1: All About Numbers	1
Unit 2: Thinking About Numbers: Counting and Cardinality.....	24
Unit 3: Counting: Numbers and Numerals 0 – 20	41
Unit 4: Number Operations: Working with Numbers	55
Unit 5: Geometry: Shapes, Attributes, and Solids.....	74
Unit 6: Shapes, Sizes, and Solids	95
Unit 7: Number Operations	111

2012 Louisiana Comprehensive Curriculum Course Introduction

The Louisiana Department of Education issued the first version of the *Comprehensive Curriculum* in 2005. The *2012 Louisiana Comprehensive Curriculum for Kindergarten Mathematics* is aligned with the Common Core State Standards (CCSS) for Mathematics, the Standards for Mathematical Practice, and, where appropriate, the ELA CCSS. The curriculum is organized into coherent, time-bound units with sample activities and classroom assessments to guide teaching and learning.

Implementation of Activities in the Classroom

Incorporation of activities into lesson plans is critical to the successful implementation of the Louisiana Comprehensive Curriculum. Lesson plans should be designed to introduce students to one or more of the activities, to provide background information and follow-up, and to prepare students for success in mastering the CCSS associated with the activities. Lesson plans should address individual needs of students and should include processes for re-teaching concepts or skills for students who need additional instruction. Appropriate accommodations must be made for students with disabilities.

Features

Content Area Literacy Strategies are an integral part of approximately one-third of the activities. Strategy names are italicized. The link ([view literacy strategy descriptions](#)) opens a document containing detailed descriptions and examples of the literacy strategies. This document can also be accessed directly at <http://www.louisianaschools.net/lde/uploads/11056.doc>.

Underlined standard numbers on the title line of an activity indicate that the content of the standards is a focus in the activity. Other standards listed are included, but not the primary content emphasis.

A *Materials List* is provided for each activity and *Blackline Masters (BLMs)* are provided to assist in the delivery of activities or to assess student learning. A separate Blackline Master document is provided for the course.

The *Access Guide to the Comprehensive Curriculum* is an online database of suggested strategies, accommodations, assistive technology, and assessment options that may provide greater access to the curriculum activities. This guide is currently being updated to align with the CCSS. Click on the *Access Guide* icon found on the first page of each unit or access the guide directly at <http://sda.doe.louisiana.gov/AccessGuide>.



**Kindergarten
Mathematics
Unit 1: All about Numbers**



Time Frame: This unit should last approximately 5 weeks although the content of this unit should be taught throughout the year with activities integrated into all content areas. Due to beginning-of-the-year testing and staggered enrollment in many schools, the total timeframe for this course will be 30 weeks.

Note: The Comprehensive Curriculum is designed to allow students to achieve end-of-grade goals in developmentally-appropriate increments. The Unit Description, Student Understandings and Guiding Questions describe the developmentally-appropriate increments for each unit. The chart containing the CCSS for Mathematical Content provides the end-of-grade goals.

Unit Description

This unit focuses on numbers to 10 and the count sequence to 20.

Student Understandings

Students match groups of objects with number names, read numbers, use numbers to define more or less, and represent a number of objects with a corresponding numeral from 0 – 10. Students count in sequence to at least 20 by ones, and read and write numerals 0 – 10. Students apply counting to equivalences of sets, and use comparison vocabulary such as greater than, less than, or equal to compare the number of items in two sets.

Guiding Questions

1. Can students count in sequence to at least 20 by ones?
2. Can students say the number names in the standard order when counting objects to 10?
3. Can students establish 1-to-1 correspondence between objects and number names in counting and comparing the size of sets?
4. Can students compare and use the vocabulary for comparing the number of items in two sets?
5. Can students count and produce sets of a given size 0 – 10?
6. Can students correctly write the numerals 0 – 10?
7. Can students represent a number of objects with a written numeral 1 – 10?

Unit 1: Common Core State Standards (CCSS)

CCSS for Mathematical Content	
CCSS #	CCSS Text
Counting and Cardinality	
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 0-20. Represent a number of objects with a written numeral 0-20. (with 0 representing a count of no objects).
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. <ul style="list-style-type: none"> 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.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.
Standards for Mathematical Practice (MP)	
MP.2	Reason abstractly and quantitatively.
MP.7	Look for and make use of structure.
MP.8	Look for and express regularity in repeated reasoning.
CCSS for ELA Content	
CCSS#	CCSS Text
Reading Standards for Informational Text	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.
Speaking and Listening Standards	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ul style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Blackline masters that include numbers and are to be distributed to students were created using the *School Text* font. *School Text* font displays numerals in a format that is most frequently used in classrooms as shown in the graphic to the right. 1234567890 Although an embedding process was used to try to insure that the font can be read on any computer, it will be necessary to install the font set from <http://www.fonts101.com/fonts/view/Uncategorized/29268/SchoolText.aspx> if the numerals on the BLMs do not print as shown in the example.

Daily Routines

Count and Move (CCSS: K.CC.1, MP.7, MP.8)

Have students count to 20 using a corresponding motion as they count. For instance, for numbers 1-10, tap legs; for numbers 11-20, clap. Make sure there is only one motion for one number. This activity should be done daily and can be used as a transition activity to start the math class. Counting should be reinforced often throughout the day, not taught in isolation.

Examples:

- Count the number of chairs of the students who are absent.
- Count the number of stairs, shoes, etc.

When counting orally, students should recognize the patterns that exist from 1 to 100.

Number Rhymes and Stories (CCSS: K.CC.1, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, RI.K.1, SL.K.1b, SL.K.2)

Whole Group, Small Groups, and Centers: Provide students with daily opportunities to sing/chant/recite number rhymes and engage in finger plays, songs, and stories using hand motions, puppets, and/or flannel board pieces. Use these activities to help students understand the relationship between numbers and quantities and connect counting to cardinality. When counting objects, have students 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. Ask questions to check students' understanding that the last number name said tells the number of objects counted and that each successive number name refers to a quantity that is one larger.

Point to the numerals in the books and rhymes and explain that these are the symbols used when writing the number. Have students predict the next number, count the objects, and answer questions about the details in the number rhymes or stories as read. Allow students to ask their own questions about the number rhymes and stories for clarification of concepts.

Five Little Bears <http://more2.starfall.com/m/math-k/song1/load.htm?f&d=demo>

Over In the Meadow <http://more2.starfall.com/m/talking-library/library-index-demo/load.htm?f>

Five Little Chickadees <http://more2.starfall.com/m/player/sing-along-1-demo/load.htm?f>

Computer Counting Practice (CCSS: K.CC.1, K.CC. 4a, K.CC.4b, MP.7, MP.8)

Center Activity: www.Internet4classrooms.com offers many standard-based computer links to help students practice what they have been taught.

Beginning Counting

[Bees and Honey](#) - Numeration exercise - Use this to help with mouse skills.

[Big Bird's Numbers](#) – Students press a number key and Big Bird identifies the number and shows corresponding objects.

[Count the Bananas](#) – Students count the bananas the monkey eats.

[Counting](#) – The teacher will need to set this up. The number range can be selected for individual students and reports can be printed out to show their success.

[Counting on a Cloud](#) – Students pick an object to count; pick a number for the number of objects; the audio counts objects as they appear.

[Egg Counting Elmo](#) – Students click on the eggs and count them.

[Fishing Mission](#) - From FunSchool. Students match numerals with the correct number of fish. Caution: This takes a very long time to load. This may need adult supervision for some students.

[How Many Fish](#) – Students click on the correct number.

[Number Matching](#) – Students count objects and match the correct numeral to them. This may need adult supervision for some students.

[Pirate Counting](#) – Students count the barrels and type in the number to match. This may need adult supervision for some students.

[What number comes next](#) – Students put numbers in order.

Comparing Numbers

[Same Number of Things](#) – Students match two groups that have the same number of items.

[More, Less, or the Same](#) – Students count the objects in two sets and compare them by selecting is more than, is less than, or is the same as. Students must recognize the words.

[More or Less](#) - Students select if one number is more, less or equal to a second number. Students must recognize the words.

For paper and pencil activities to use in a center, the site:

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html> offers many standards-based activities to help students practice what they have been taught.

Activity 1: Speckled Frogs (CCSS: K.CC.3, K.CC.4c, MP.2, MP.7, MP.8, SL.K.2)

Materials List: giant paper log from bulletin board paper, number cards 1-5, Speckled Log BLM, Frog Count BLM, scissors, paper in 2 colors

Whole Group: Sing *Five Green and Speckled Frogs*. (If this song is unfamiliar, go to <http://bussongs.com/songs/five-green-and-speckled-frogs.php> to download the music or use an Internet search to find a video.)

Display 5 frogs and have students count the frogs noting that each successive number name refers to a quantity that is one larger and that the last number said tells the number of objects counted. Write the numerals in order above each frog explaining that this numeral is the symbol that is used when writing that number name. Allow students to ask their own questions about the number rhyme, *Five Green and Speckled Frogs*, for clarification of concepts.

Pick 5 students to pretend to be frogs. Give each “frog” a number card 1 – 5. The frogs will act out the story as the class sings the song. As the frogs take their places, emphasize that the number of frogs increases by one as each sequential number card is counted. *Teacher Note: Frog 5 must always be the first to jump into the water whether lined up 1-2-3-4-5 or 5-4-3-2-1 to be able to count the remaining frogs in order. The frogs that are left each time should to be counted from 1 to the highest number remaining.* As the song is sung, stop after each verse and discuss that the number of frogs decreases by one as each frog jumps into the pool. Students count the remaining group of frogs to prove that the last number held up tells the number of frogs that are left.

Five little speckled frogs
Sat on a great big log
Eating some most delicious bugs

Yum, Yum!

One jumped into the pool
Where it was nice and cool
Now there are
Four speckled frogs
Glub, glub!

(Repeat in descending order)

Pick 5 students to pretend to be frogs. Give each frog a number card 1 – 5. Have the frogs act out the story as the class sings the song.

Small Group: Use the Speckled Log BLM to provide students with cut-out frogs and a log. Have the students place the corresponding number of frogs on the log as the teacher calls out a number. To practice a number increasing by one, ask the students how many frogs will there be if one more frog hops on the log.

Individual/Partner Work: To practice writing numbers, have students write the numeral for each group of frogs using the Frog Count BLM. Have students cut out their frog cards and use them to play a comparison game with a partner. Have each person stack their cards facedown. Each will turn over their top card and compare the number of frogs. The person with the most frogs wins that round. The winner is the person with the most cards when all cards have been played.

HINT: Run off the frog cards on 2 different colors of paper. Give each student in a pair a different color. It will be much easier to sort into the original set when the game is done to have them ready for the next round of the game or next activity.

Activity 2: Counting with a Number Path to Five (CCSS: K.CC.2, K.CC.4c, MP.7, MP.8, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: Baby Duck Headband BLM, Mother Duck BLM, Number Cards BLM, bag, Number Path BLM, paper links for chains, crayons, 6 duck headbands

Whole Group: Sing *Five Little Ducks Went out to Play*. (If this song is unfamiliar, go to <http://bussongs.com/songs/five-little-ducks.php> to download the music or use an Internet search for a video.)

Have students discuss similarities and differences between this song and *Five Green and Speckled Frogs*. Use the Mother Duck BLM to make a mother duck headband. Use the Baby Duck BLM to make 5 baby duck headbands. Display the 5 baby duck headbands. Write the numbers 1 to 5 under each duck. Emphasize the number of ducks increases by one as each sequential number is written. Ask questions to reflect student understanding that each successive number name refers to a quantity that is one larger and that the last number said tells the number of objects counted. Allow students to ask their own questions about the number song, *Five Little Ducks Went out to Play*, for clarification of concepts.

Teacher Note: For numeral writing and recognition, when teachers write a number for their students, the numeral is like a sight vocabulary word for the students. The symbol for each number does NOT denote the quantity of that number – it is only what has been artificially assigned to represent a specific number. For example, the numeral 2 has nothing that tells the student that it means two objects. So when referring to the written form, teachers should refer to the symbol as a numeral and when speaking of quantities, teachers should refer to them as numbers.

Have children count forward from the first duck to the last. Then count backwards from 5 to 1. Choose 6 students to pretend to be ducks. Students can wear duck headbands. One will be the Mama duck and five will be the baby ducks. Students will sing *5 Little Ducks went Out to Play*

and one child will walk away with each verse. The Mama duck will shake her finger at the babies when she says, “Quack, quack, quack.” During the last verse the Mama duck will shout and really shake her finger at the babies then all five babies will come running back.

Teacher Note: Be sure to have the Duck 5 leave first, so that when students count the remaining ducks, children can see the total as 1-2-3-4; next have duck 4 leave, etc. through the rest of the song

Five Little Ducks Went Out to Play

Five little ducks went out to play
Over the hill and far away
Mama duck said "Quack, Quack, Quack"
And four little ducks came waddling back.

Four little ducks went out to play
Over the hill and far away
Mama duck said "Quack, Quack, Quack"
And three little ducks came waddling back.

Three little ducks...

Two little ducks...

One little duck went out to play
Over the hill and far away
Mama duck said "Quack, Quack, Quack"
And no little ducks came waddling back.

No little ducks went out to play
Over the hill and far away
Mama duck said "**QUACK, QUACK, QUACK**"
And five little ducks came waddling back!

Say, “Let’s count them to make sure that all the ducks have returned”; then have returning ducklings align themselves in numerical order before the class counts.

Small Groups or Centers: Have the Number Path BLM available. Cut out number cards from the Number Cards BLM and place them in a bag. Ask a student to draw a number card from the bag. Together, find that number on the number path. Count forward and backward from the given number. The term number path is being used rather than number line. A number line is a length model and a number path is a count model. In a number path, numbers are put in squares (or other shapes) and students count as they move along the path.

Small Group Work: Students will each make a modified *text chain* ([view literacy strategy descriptions](#)) for each verse of the song. A *text chain* is a chain of events used to describe the

stages of an event, the actions of characters, or the steps in a procedure. *Text chains* are especially useful in teaching math concepts. The process involves a small group of students writing a math story using the math concepts being learned. Writing out the math story provides students a reflection of their understanding. The first student initiates the story. The next student adds a second line. The next, a third line, etc., until the last student solves the problem.

For this activity, give each group of students five paper links. One student will draw five ducks on the first link, another student will draw 4 ducks on the second one, and so on. They will glue each link in order from 5 to 1. Students will use the text chain to retell (or re-sing) the story to their families.

Activity 3: Count Out Loud *Ten Little Puppies* (CCSS: K.CC.3, K.CC.4 a, K.CC.4b, K.CC.4c, MP.2, MP.7, MP.8, RL.K.1, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: counters, containers, number cards 1-10, learning logs, Ten Frame BLM, (Optional: puppy headbands, sentence strips)

Whole Group: Sing *Ten Little Puppies* sung to the tune of *Ten Little Indians*. Give each of 10 students a card labeled with a number from 1-10. Have all 10 students stand with their numbers in front of them. Allow class to assist in putting them in numeric order 1 to 10. Ask questions to reflect student understanding that each successive number name refers to a quantity that is one greater/larger and that the last number said tells the number of objects counted. Allow students to ask their own questions about the number song, *Ten Little Puppies*, for clarification of concepts. Have the 10 students sit down in a row to begin singing the song. If desired, students can wear puppy headbands while acting out their story. Headbands can be made by gluing “puppy ears” onto a sentence strip and stapling the sentence strip to fit around each student’s head.

As the class sings the first verse of the song, each student will stand as his/her number is sung. During second verse each student will sit when his/her number is sung. Sing the song slowly a couple of times, then sing faster and faster.

One little, two little, three little puppies
Four little, five little, six little puppies
Seven little, eight little, nine little puppies
Ten little puppy dogs.

Ten little, nine little, eight little puppies
Seven little, six little, five little puppies
Four little, three little, two little puppies
One little puppy dog.

Small Groups or Centers: Ask students to focus on 1-to-1 correspondence as they count aloud with the teacher. Have students drop counters into containers (such as small baskets or bowls) as they practice counting out loud to a designated number (1–10). When the teacher or a student says, “dump,” everyone will empty his/her container and count the number of counters. Repeat

several times. Check for accuracy in counting and pointing to cubes/counters. It may help some students if the “dumped” items are then assembled on the Ten Frame BLM, filling the top row from left to right first, and then continuing left to right on the row below.

Independent work: Ask students to write and draw in their math *learning logs* ([view literacy strategy descriptions](#)) about things they like to count. A math *learning log* is a notebook that students keep to record ideas, questions, reactions, and new understandings. Documenting ideas in a log about the content’s being studied forces students to “put into words” what they know or do not know. This process offers a reflection of understanding that can be used as formative assessment by the teacher and that can lead to further study and alternative learning paths. It combines writing and reading with content learning. The math *learning log* will be used as a reference to guide further study and to assess progress and understanding. Instead of writing, kindergarten students can draw or glue pictures of items they like to count and write numbers for the items under each object.

Activity 4: *The Secret of Nim* (CCSS: K.CC.1, K.CC.2, K.CC.4 a, K.CC.4b, K.CC.4c, MP.2, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: 10 tongue depressors for each pair of students

Write one numeral (1-10) on each tongue depressor. Students will work with a partner and arrange the tongue depressors in order from 1-10. Have a number path available for students who need extra help in sequencing numbers. Together they will check for accuracy by counting and checking the number order on a personal or class number path. They will start with 10 and remove one or two sticks in order, taking turns until tongue depressor 1 is chosen. The person who ends up with the 1 stick is the winner. Allow the students to play the game several times while monitoring that the rules of the game are followed. Stop to discuss who the winner has been. Ask questions such as, “Did the winner start first when choosing the number of sticks to take? Was the winner the second player? Did it matter who picked first? How did you decide to pick one or two sticks? Is there a trick to winning?” Allow students an opportunity to use this activity often by placing it in a math center.

Teacher Note: Begin using this activity with more advanced students who are ready to do this type of reasoning. Keep using this type of activity throughout the year as more children gain confidence in abstract reasoning.

Activity 5: Roll and Write (CCSS: K.CC.4a, K.CC.4b, K.CC.6, MP.7, MP.8, SL.K.1a, SL.K.1b)

Materials List: number cubes with dots, objects to count, paper, pencils, Roll and Win BLM, Number Stickers BLM, mini-stickers or ink stamps

Partners: Partner A rolls a number cube and counts out that number of objects saying the number names in standard order as they count matching only one number name to one object.

Partner A draws that many dots on the first space on the Roll and Win BLM and writes the corresponding numeral on the second space. Partner B then takes a turn and does the same thing on his/her side of the Roll and Win BLM. After each student takes his/her turn, students will compare their objects, matching them one-to-one. The partner with the larger number will circle his/her number and wins that round. Monitor that the rules are being followed and that students are counting correctly. Ask questions to check for understanding of which number is larger.

Example:

Partner A		Partner B	
● ● ●	③	● ●	2

Variation: For those still having difficulty forming numbers, provide numbers for students to trace as they roll a number. For the more advanced students, provide spinners to 10 or make a number cube by drawing dots 5-10 on a one-inch cube.

Individual Work: The students will use a modified *split-page note taking* strategy ([view literacy strategy descriptions](#)) to demonstrate a visual representation of numerals to ten. *Split-page notetaking* is a good strategy to use to teach children to better organize notes. This strategy has been modified for use with kindergartners as it uses numbers instead of words. The Number Stickers BLM can be used to allow students to draw or use mini stickers or ink stamps to represent each number. For example:

1	△
2	△ △
3	△ △ △

Teacher Note: Aligning the stickers vertically, in stair step fashion can help students visually see the growth in each number.

Activity 6: Number Detectives—Finding the Missing Number (CCSS: K.CC.3, MP.2, MP.7, MP.8)

Materials List: counters, Number Detectives BLM

Whole or small groups: On a strip of paper showing up to 10 slots, line up objects in a row, but leave one slot empty. Write the numbers in sequence under each object leaving out the number under the missing object. Have a student write the number of the missing object. Repeat this several times using different objects and varying the placement of the missing object. Have students use Number Detectives BLM to practice finding missing numbers.

Teacher Note: This activity could be done on a table top or on floor space. Have students line up 10 objects, either vertically or horizontally (they need to be exposed to counting in both directions) then place a numeral card below (for horizontal) or next to (for vertical) each object. Have students hide their eyes and then remove one of the numeral cards. Can the student(s) determine which card is missing? Observe if they have to count to the items or if they can determine by the order of the numbers. This activity can be extended beyond the 1-10 range for students who are ready.

Follow-up activity: Display a set of paper plates, each with a number of small objects or stickers (to represent the various numbers). Have one of the plates without an object or sticker. Discuss how many are on each plate and have a student write the corresponding numeral on the plate. Discuss how many objects are on the empty plate. Have a student write and name the numeral that represents no objects. Have students take turns to order the plates from least to greatest or vice versa for capable students. Make sure the students understand that 0 comes before 1 when ordering numbers from 0-10.

Activity 7: Practice Recognizing and Writing Numbers to 10 (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.6, MP.2, MP.7, MP.8)

Materials List: objects from home, quart zip bags, Counting Objects from Home BLM, Count and Write Numbers BLM




Teacher Note: Prior to this lesson, give each student a quart zip bag and ask students to bring up to 10 small objects from home to count at school. Give parents some ideas of the objects students could bring to school (e.g., bread bag tabs, pasta pieces, empty thread spools, buttons). Have extra objects available in case there are children who do not bring items from home.

Small Groups: Have students place their objects in a pile in front of them and count them aloud. Have students cut out the two sections of the Counting Objects from Home BLM and glue them together. Ask students to line up their 10 objects in the top row of boxes, one item in each box, on the Counting Objects from Home BLM to check their previous count and then write the number of the object in the bottom box. If both counts are not the same, have the student recount the objects and help the student determine where an error in counting was made. Ask

questions to determine students' understanding that each successive number name refers to a quantity that is one larger and that the last number said tells the number of objects counted.

Have students compare their Counting Objects from Home BLMs. Have students discuss who has more, who has fewer, who has the same number of objects. Use the Count and Write Numbers BLM to practice counting smiley faces and writing numbers.

Example:

		
1	2	3

Activity 8: Ten Black Dots (CCSS: K.CC. 1, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, RI.K.1, SL.K.1b, SL.K.2)

Materials List: *Ten Black Dots* Book, black circle stickers, drawing paper, markers, crayons

Read and discuss the book *Ten Black Dots*. This counting book illustrates how 1-10 black dots can be used to make a picture.

Individual or partners: Have the students use a modified *RAFT* ([view literacy strategy descriptions](#)) to create a class book. This will allow students a chance to view numbers as the author does. Once the class book is completed, place it in the class library so students can read it over and over. Explain what a *RAFT* is to the students. A *RAFT* will give the student a chance to apply and extend their understandings. This form of writing gives students the freedom to project themselves into unique roles and look at content from unique perspectives. *RAFT* writing is both creative and informative.

R – Role (role of the writer) – become the author

A – Audience (to whom or what the *RAFT* is being written) – for classmates

F – Form (the form the writing will take, as in letter, song, etc.) – the form of the story, *Ten Black Dots*

T – Topic (the subject focus of the writing) – counting and writing numbers 1-10

Cut black circle stickers and make groups of stickers of various quantities staying with the limit of 1-10. Have each student choose a group of stickers. Count how many are in the group. Have students use the stickers to create a picture and dictate a sentence to be written under their picture. If black circle stickers aren't available, have students color circles on white paper and cut them out adhere them with a dab of glue stick.

Pick up pages created by individual students and have the students help put the pages together to create a class book. Place the class *Our Ten Black Dots* book in a center or class library so students can read it often.

As an alternate activity, each student could create his/her own book to take home to share with family members.

Activity 9: Build a Number Using a Ten Frame (CCSS: K.CC.1, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, SL.K.2)

Materials List: cubes, number cards 0-10, container, Ten Frame BLM

Place cubes in the middle of each table at which a group of students sit and give each student one ten frame cut from the Ten Frame BLM. Review numerals 0-10 with the students by showing them the number cards in mixed order and asking them to identify the number. Next, place the cards face down in a container. Choose a student to come to the front of the room and pick a number from the container. Have that student identify the number. Have the class put that many cubes on their ten frame. Make sure students start at the top left corner of the ten mat. Next, ask, “What number will we have if one more cube is added?” Have the students respond. Then have the students add the cube to their ten frame and count their cubes to check their answer. Continue this activity until all cards have been pulled.

This activity can later be placed in a center to provide further practice for students.

Activity 10: Mystery Bags (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.6, MP.2, MP.7, MP.8)





Materials List: 4 paper bags labeled A, B, C, and D for each group of four students, variety of objects, learning log, Mystery Bags BLM

Divide students into groups of four. Give each group four “mystery bags” containing various numbers of objects from 1-10. Using modified *split-page notetaking* ([view literacy strategy descriptions](#)), have the students glue the Mystery Bags BLM in their learning logs. Each student in the group should take one of the bags.

Have the student with Bag A pour out the objects from his/her bag and count them. Students can recount as needed. All students in the group should write the number of items in Bag A on the BLM. Additionally, each student should draw circles to represent the number of objects in Bag A. The process is repeated with student having Bag B going next, followed by the student with Bag C, and the student with Bag D going last.

Allow the members of the group to compare their answers to be sure that all have the same information. Have them answer questions such as, “Which bag had the most objects? Which bag had the fewest objects? Which bag had more than 4? Which bag had fewer than 7? How many would be in the bag if you had one more? How many would be in Bag A? Bag B? Bag C? Bag D? if it had one more; if it had one fewer/less?”

Sample:

<p>How many?</p> 	<p>○ ○ ○ ○ 6 ○ ○</p>
<p>How many?</p> 	<p>○ ○ ○ ○ 4</p>
<p>How many?</p> 	<p>○ ○ ○ ○ 7 ○ ○ ○</p>
<p>How many?</p> 	<p>○ ○ ○ ○ 5 ○</p>

Activity 11: Number Mats (CCSS: K.CC.4a, K.CC.4b, K.CC.6, MP.7, MP.8, SL.K.1a)

Materials List: Number Mat Spinner BLM, Number Mat BLM, paper clips or bobby pins, counters or cubes

Small Groups: Distribute a copy of Number Mat BLM, the Number Mat Spinner BLM, and a paper clip or bobby pin to each student. Demonstrate how to make the spinner using a pencil and a paper clip or a bobby pin. Insert a pencil point through the loop and place on the center of the spinner grid. Flick with a finger to make it spin. A bobby pin is much narrower than a paper clip so it won't land on a line as often as a paper clip.

Number mats are papers with two rows of dots, five dots in each row, for a total of ten dots on each card.

Ask students to take turns spinning and covering the corresponding number of dots on their boards with counters or cubes. Have students count aloud as the counters are placed. Ask students to explain how they know how many counters are on the board. (Possible answers - I counted them, the number I stopped on tells me how many chips I have, etc.) Have each group of students decide who has the largest/greatest set, who has the smallest set, and if anyone has equal sets.

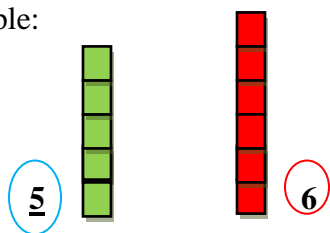
Observe to see if the appropriate number of dots are covered for each spin and monitor the students to make sure they are playing the game correctly.

Activity 12: Build and Compare (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6, MP.2, MP.7, MP.8, SL.K.1a)

Materials List: cubes, number cards, Build and Compare BLM

Distribute the Build and Compare BLM. Have students work with a partner. Partners take turns choosing a number card and building a cube tower to represent that number. Have them record their towers by coloring in the correct number of blocks and writing the corresponding numeral on the Build and Compare BLM. Have students circle the numeral representing the larger value in red and circle the numeral representing the smaller number in blue on the Build and Compare BLM. Monitor that the rules for this activity are being followed and that the students understand that the last cube counted is the number of cubes in their tower. Check for accuracy and the correct recording and writing of the numerals.

Example:



Activity 13: Grab Bag Counting (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6, MP.2, MP.7, MP.8, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: paper, counters, bag, number path paper, pencil, transparency sheets, markers

Whole Group: Explain to students that they will each be grabbing a handful of counters from a bag. Have students brainstorm whether they think everyone in the class will grab the same number of counters. Brainstorming is a technique for generating ideas. It is based upon the belief that when a great number of ideas are generated, the chances of uncovering a good idea or solution are increased. Ground rules are essential for this activity to be effective and successful:

- List all ideas without judging them. Passing judgment inhibits creativity and decreases the number of ideas generated;
- Quantity of ideas is more important than quality;
- Build on other peoples ideas and modify them;
- Ensure that all students participate. Call on reticent students to join in with an idea.

Record each student’s response on a chart or other classroom-based recording device. The responses will be revisited after the small group activity.

Small Groups: Prior to beginning the activity, trace each group member’s hand with fingers closed on separate sheets of paper. Write the student’s name above his/her handprint. Have one

student grab a handful of counters from a bag and count the counters saying each number aloud. Then have the student record the number on his/her hand outline. Have students discuss why they are writing the last number counted. Have the student return the counters to the bag. Repeat the process for other students in the group.

Students may need to use a number path to help them with their counting and writing the numerals 1–10. Observe students' strategies for counting and writing the numerals 1–10 and monitor that all directions are being followed.

Whole Group: Revisit the chart of brainstorming ideas. Have students discuss why different numbers of counters were grabbed. With adult help, students can trace outlines of their hands onto transparency sheets using markers. These tracings can be placed on top of each other to see whose hands were the largest and whose hands were the smallest. Have students check to see if students with larger hands grabbed greater numbers of counters than students with smaller hands. Have students give examples to support their answers. (For example: Bob's hand is bigger than Sue's hand. He grabbed 7 counters and Sue grabbed only 4 counters.)

Teacher Note: To save time, the small group could trace their hands directly onto a transparency. The student's name could still be written above the drawing. Extra time would not be needed to make another tracing of the students' hands.

Activity 14: *Ants Go Marching* (CCSS: K.CC.1, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, RI.K.1, SL.K.1a, SL.K.2)

Materials List: black counters (cubes, black beans, toy ants), Ten Frame BLM

Whole Group: Begin the lesson by singing the song, *Ants Go Marching*. (If this song is unfamiliar, music can be downloaded at <http://bussongs.com/songs/the-ants-go-marching.php> or an Internet search can be used to locate a video.

Encourage children to make up movements to go with the song. Sing the song again and have the students role play the song by having one student begin marching and one more student come up each time as the song suggests. In addition, have students use black counters to represent the ants. Have students place an "ant" on the Ten Frame BLM each time a song verse is sung. Ask predictive questions of children: "If one more ant comes marching, how many will we have? Show me on your fingers." Have students count the ants each time to check for accuracy. Ask questions to reflect student understanding that each successive number name refers to a quantity that is one larger and that the last number said tells the number of objects counted. "How many more ants do we need to get to 10 ants?"

Ants Go Marching

The ants go marching one by one, hurrah, hurrah
The ants go marching one by one, hurrah, hurrah
The ants go marching one by one,
The little one stops to suck his thumb

Chorus:

And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching two by two, hurrah, hurrah
The ants go marching two by two, hurrah, hurrah
The ants go marching two by two,
The little one stops to tie his shoe

Chorus:

The ants go marching three by three, hurrah, hurrah
The ants go marching three by three, hurrah, hurrah
The ants go marching three by three,
The little one stops to climb a tree

Chorus:

The ants go marching four by four, hurrah, hurrah
The ants go marching four by four, hurrah, hurrah
The ants go marching four by four,
The little one stops to shut the door

Chorus:

The ants go marching five by five, hurrah, hurrah
The ants go marching five by five, hurrah, hurrah
The ants go marching five by five,
The little one stops to take a dive

Chorus:

The ants go marching six by six, hurrah, hurrah
The ants go marching six by six, hurrah, hurrah
The ants go marching six by six,
The little one stops to pick up sticks

Chorus:

The ants go marching seven by seven, hurrah, hurrah
The ants go marching seven by seven, hurrah, hurrah
The ants go marching seven by seven,
The little one stops to pray to heaven

Chorus:

The ants go marching eight by eight, hurrah, hurrah
The ants go marching eight by eight, hurrah, hurrah
The ants go marching eight by eight,
The little one stops to shut the gate

Chorus:

The ants go marching nine by nine, hurrah, hurrah
The ants go marching nine by nine, hurrah, hurrah
The ants go marching nine by nine,
The little one stops to check the time
Chorus:

The ants go marching ten by ten, hurrah, hurrah
The ants go marching ten by ten, hurrah, hurrah
The ants go marching ten by ten,
The little one stops to say "THE END"
Chorus:

Activity 15: Musical Chairs (CCSS: K.CC.1, K.CC.4a, K.CC.4b, K.CC.6)

Materials List: *Monsters' Musical Chairs*, chairs, CD player, CD

Read *Monsters' Musical Chairs* by Stuart Murphy to introduce the concept of Musical Chairs and how it is played. As the book is read, have the students count the chairs and monsters on each page as the teacher points to each one. Make sure that students see that the number of monsters is not the same as the number of chairs. The number of monsters is the next counting number name, which refers to a number that is one larger than the number of chairs. Ask students, "What do you think will happen when all the monsters try to sit down?" Restate the students' responses and add, "There are fewer chairs than there are monsters. So 5 is less than 6. Or another way to say it is, 6 is greater than 5." Continue with this type of questioning and restating of responses each time the "music stops."

Small Group/Whole Class: Have all the boys stand up and count off. Each boy says the next sequential number. After the boys are through counting, ask, "How many boys are there?" Have each boy bring up a chair and sit down. Ask, "How many chairs do we have?" Check for student understanding of the relationship between numbers and quantities. Ask, "How many chairs do we need to play musical chairs?" (Possible response—We need one less chair than there are boys.) Remove one chair, have students tell you how many chairs there are now. Have students recount to check. Play musical chairs with the boys. Have students count aloud the chairs left and tell how many boys are left each time. Notice if students have to count each boy to determine the number of boys left or if they can start with the number of chairs and count on from that number to know how many boys are left. Repeat the game with just the girls. Then have the entire class play to allow practice with larger numbers.

Activity 16: Take Inventory (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6)

Materials List: poster, markers

Explain that people often take inventory to keep track of the number of things they have. Tell students that to take inventory, a list of the things and how many of each thing is written down.

Tell students that they will take an inventory of things in the classroom. Write “Classroom Inventory” on the poster.

Ask students to name objects in the room and record them on the poster. Have students count each item aloud in standard order pairing each object with one and only one number name and each number name with one and only one object. Make sure students understand that the last number name said tells the number of objects counted. Have a second student count the objects again in a different order to show that the number of objects is the same regardless of their arrangement or the order in which they are counted. Have a student write the correct numeral next to the item counted.

Example:

Classroom Inventory	
Tables---	8
Bookshelves---	4
CD players---	2
Centers----	5
Chairs---	20
Paintbrushes---	12

Activity 17: Number Pull (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6, MP.2)

Materials List: 3 by 5 index cards, marker, container

Have each student write one numeral from 0-20 on a card. If a student is unable to write the numeral on his card, use a highlighter pen to write the number on the card and have the student trace over it. Place the cards in a container. Call on one student at a time to choose a card and read the numeral. Have that student give the other students an activity to do for that many times. Have all students count aloud as they do the given activity.

Example:

Student pulls	Student says
5	Do 5 jumping jacks.
18	Clap 18 times.

Activity 18: Grab and Graph (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6, MP.2, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: container, counters, sticky notes, pencils

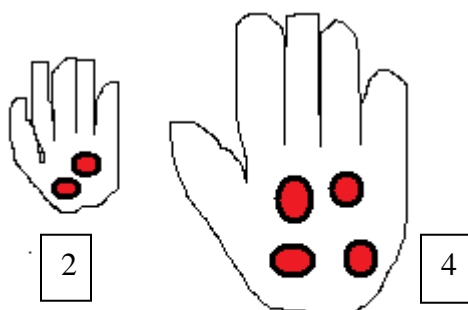
Whole Group: Write the numbers 0 – 10 on separate sticky notes and line them up on the floor in numeric order. Place 10 counters in the container. Have the first student grab a fistful of counters. Refill container so that it has 10 counters and let the second student do the same thing.

Keep repeating until all students have grabbed counters. Have each student count the counters they grabbed out loud and write that number on a post-it note. Students will place their sticky note with the number of counters above the sticky note that has the same number as theirs. This sticky note bar graph can be used to ask comparison questions.

Teacher Note: Make sure students maintain a one-to-one correspondence across the chart as they contribute their sticky note number to make it clear how many notes are in each column. If uneven spaces are left, a column with fewer notes may look to be taller than a neighboring column with more notes.

Ask questions such as, “Which number of counters did most students grab? Which number of counters did the fewest number of students grab? Why do you think some people grabbed more than other people did?”

Independent work: Ask students to write and draw in their math *learning logs* ([view literacy strategy descriptions](#)) to show what they learned in this lesson. The math *learning log* will be used as a formative assessment and as a reference to guide further study and to assess progress and understanding. An example of what a student might draw and write is provided below.



"Kids with bigger hands grabbed more things."

Activity 19: Professor-Know-It-All (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6, MP.2, MP.7, MP.8, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: number cards, objects to count

Small Groups: Allow the students to play a modified version of *professor know-it-all* ([view literacy strategy descriptions](#)). The *professor know-it-all* strategy is appropriate to use after information is learned. The student will be given the opportunity to be the “expert” or the “professor.” In the *professor know-it-all* strategy, students are put into groups to generate questions about the content learned. The students are given time to review the content and are called on randomly to come to the front of the room to provide “expert” answers to questions from their peers. In a modified form of *professor know-it-all*, each kindergartner will have a chance to pretend to be the professor for his/her group. The student pretending to be the teacher will write a number on a card and hold up the number card. *Professor-know-it-all* will read the number on his/her card and the group members will count out loud that many objects. Students

in the group are encouraged to ask the “professor” questions such as, “What number would be one more than your number? Can you write the number that comes next when you count by ones? Is your number larger or smaller than 6? How many more objects would you need to get to 10?”

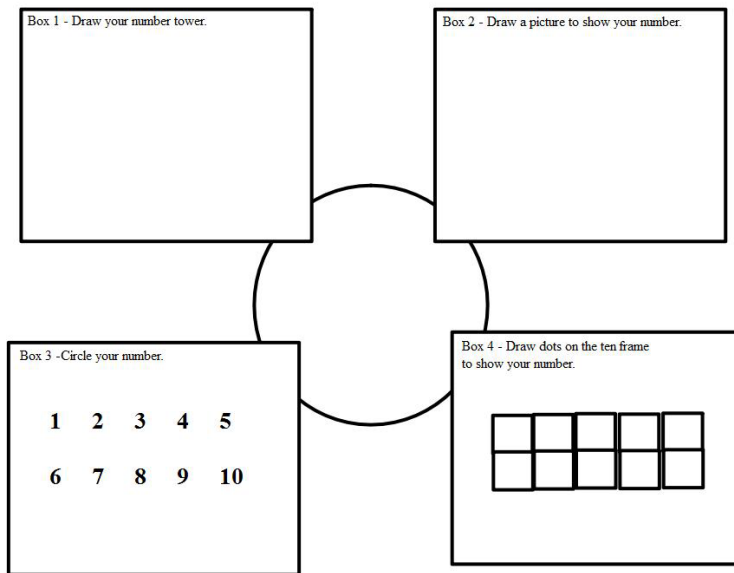
Monitor for accuracy and that the rules are being followed. Have each student in the group use counters to verify the professor’s answers.

Activity 20: Put It All Together (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.6, MP.2, MP.7, MP.8)

Materials List: markers, zipper bags, Vocabulary Cards BLM

Have students make modified *vocabulary cards* ([view literacy strategy descriptions](#)) as a culminating activity to reinforce their learning. *Vocabulary cards* are a good way for students to organize their understanding in a concrete way. It creates a personalized reference as well as a quick study guide for follow-up activities. Students can store their cards in a zipper bag for easy access. This activity will take 2 or 3 days to complete.

Example:



Sample Assessments

General Guidelines

Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Use teacher observation, anecdotal notes, and portfolios
- Use number cards 1–10 and connecting cubes and ask the student to place the cards in order, then connect the cubes and count, starting with 1.
- Show the student a pile of loose counters (more than 10) and ask the student to count as many cubes as possible.

Activity-Specific Assessments

- Activity 4: Give the students the numbered tongue depressors from the Nim game. Have them place them in the correct order from 1-10 as they say each number aloud.
- Activity 9: Present the student with a number card from 1–10 and ask the student to put the same number of cubes on the ten frame.
- Activity 12: Use this performance task to individually assess student: Have students choose two number cards, read the numerals and create corresponding cube towers. Ask students which tower is greater and which tower is smaller. Have students explain their answers.
- Activity 14 : Assess students individually to check their understanding that each successive number name refers to the quantity that is one larger. Have the student choose a number card and show the corresponding number of ants using the manipulatives from the activity. Then have the student predict how many ants there would be if one more ant should come along to march.

Resources

Children's Books

Crews, Donald. *Ten Black Dots*

Murphy, Stuart. *Monsters' Musical Chairs*

Websites

www.Internet4classrooms.com

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>

**Kindergarten
Mathematics**
Unit 2: Thinking About Numbers: Counting and Cardinality



Time Frame: This unit should last approximately 4 weeks, although the content of this unit should be taught throughout the year with activities integrated into all content areas.

Note: The Comprehensive Curriculum is designed to allow students to achieve end-of-grade goals in developmentally-appropriate increments. The Unit Description, Student Understandings and Guiding Questions describe the developmentally-appropriate increments for each unit. The chart containing the CCSS for Mathematical Content provides the end-of-grade goals.

Unit Description

This unit focuses on numbers to 10, the count sequence to 30, and counting to understand that the final number in the sequence refers to the total number of objects in the set (cardinality).

Student Understandings

Students count objects in a set, count a given number of objects, and connect a given number of objects to its corresponding numeral. Students use counting to answer questions about as many as 10 objects, arranged in a line, a rectangular array, a circle, or in a scattered configuration. Students represent a number of objects with a written numeral 0 – 10. Students identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group by using matching and counting strategies.

Guiding Questions

1. Can students count in sequence to at least 30 by ones?
2. Can students understand the relationship between numbers and quantities?
3. Can students connect counting to cardinality?
4. Can students recognize the cardinalities of small sets of objects?
5. Can students count forward from a given number within a known sequence?
6. Can students represent a number of objects with a written numeral 0-10?
7. Can students count to answer “how many” questions about as many as 10 things arranged in a line, a rectangular array, a circle or a scattered configuration?

Unit 2: Common Core State Standards (CCSS)

CCSS for Mathematical Content	
CCSS #	CCSS Text
Counting and Cardinality	
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 0-20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. <ul style="list-style-type: none"> 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” 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.
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.
Measurement and Data	
K.MD.3	Classify objects into given categories, count the number of objects in each category and sort the categories by count.
Standards for Mathematical Practice (MP)	
MP.2	Reason abstractly and quantitatively.
MP.7	Look for and make use of structure.
MP.8	Look for and express regularity in repeated reasoning.
CCSS for ELA Content	
CCSS#	CCSS Text
Reading Standards for Informational Text	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.
Speaking and Listening Standards	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ul style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.

SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
--------	--

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Daily Routines

Count and Move (CCSS: K.CC.1, MP.7, MP.8)

Have students count to 30 using a corresponding motion as they count. For instance, numbers 1-10, tap legs; numbers 11-20, clap; and numbers 21-30, snap fingers. Make sure there is only one motion for one number. This activity can be used as a transition activity to start the math class. Counting should be reinforced throughout the day, not taught in isolation.

Examples:

- Count the number of chairs of the students who are absent.
- Count the number of stairs, shoes, etc.

Teacher Note: These types of counting activities need to occur daily; count from 10 on (perhaps every other day) once students are comfortable with 1-10 counting. Keep in mind that 11-20 are the most difficult for K students because 11 and 12 don't follow any pattern, and the pattern of 13-19 does not follow into 21 and beyond. When possible, students should recognize the patterns that exist from 1 to 100.

Number Rhymes and Stories (CCSS: K.CC.1, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, RI.K.1, SL.K.1b, SL.K.2)

Whole Group, Small Groups, and Centers: Provide students with daily opportunities to sing/chant/recite number rhymes and engage in finger plays, songs, and stories using hand motions, puppets, and/or flannel board pieces. Use these activities to help students understand the relationship between numbers and quantities and connect counting to cardinality. When counting objects, have students 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. Ask questions to check students' understanding that the last number name said tells the number of objects counted and that each successive number name refers to a quantity that is one larger.

Point to the numerals in the books and rhymes and explain that these are the symbols used when writing the number. Have students predict the next number, count the objects, and answer

questions about the details in the number rhymes or stories as read. Allow students to ask their own questions about the number rhymes and stories for clarification of concepts.

Calendar (CCSS: K.CC.1, MP.7, MP.8, SL.K.1b)

Have students look at the calendar daily. Each day have students state the date to provide a real life experience for counting to 30/31. The following are some samples of calendar activities:

- Sing songs to practice the days of the week and the months of the year.
<http://www.canteach.ca/elementary/songspoems4.html>. This site has several songs to use.
- Discuss the number of days in the week. Have students match the name for each day in a week to the number for each day of the week (e.g. Sunday is day 1, Monday is day 2, etc.) Do the same for the months of the year.
- Ask students to indicate the number that will be said next when counting the number of days in a month.
- Ask, “Today is the ___th day of the month. How many days have passed in this month?”
- Ask students to discuss patterns that they see on the calendar.

Computer Counting Practice (CCSS: K.CC.1, K.CC.3, K.CC. 4a, K.CC.4b, K.CC.6, MP.2, MP.7, MP.8)

Center Activity: www.Internet4classrooms.com offers many standard based links to help students practice what they have been taught.

Beginning Counting

[Bees and Honey](#) – Numeration exercise - Use this to help with mouse skills. It does require manual dexterity.

[Big Bird's Numbers](#) – Students press a number key and Big Bird identifies the number and shows the corresponding objects.

[Count the Bananas](#) – Students count the bananas that the monkey eats.

[Counting](#) – The teacher will need to set this up. The number range can be selected for individual students and reports can be printed out to show their success. This shows objects in a 10 frame.

[Counting on a Cloud](#) – Students pick an object to count; then pick a number for the number of objects. The audio counts objects as they appear. The 2nd, more difficult level of this activity, provides students with an opportunity to count the number of objects shown and match it to the correct numeral.

[Egg Counting Elmo](#) – Students click on the eggs and count them.

[Fishing Mission](#) – (From FunSchool) Students match numerals with the correct number of fish. Caution: this takes a very long time to load. Have students count out loud as they catch each fish; otherwise, they have no practice in counting. This does require some manual dexterity.

[How Many Fish](#) – Students click on the correct number.

[Pirate Counting](#) – Students count the barrels and type in the number to match. Students will need guidance in getting started.

[What number comes next](#) – Students put numbers in order.

Comparing Numbers

[More, Less, or the Same](#) – Students count the objects on each side and decide if they are more, less or the same. Students must recognize the words. This shows the objects in a 10-frame.

[More or Less](#) – Students select if the number is more, less or equal to. Students must recognize the words. This activity will need teacher guidance.

For paper and pencil activities to use in a center, the site <http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>, offers many standard based links to help students practice what they have been taught.

Activity 1: Everyday Numbers (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.4c, K.CC.5, K.CC.6, K.MD.3, MP.2, MP.7, MP.8, RI.K.1, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: chart, marker, learning log

Use *discussion* ([view literacy strategy descriptions](#)) to help students become aware of how often numbers are seen and used in everyday life. The Think-Pair-Square-Share *discussion* strategy helps students improve learning and remembering when they participate in the dialog about class topics. It encourages thinking about a specific topic and checking given information. It gives students an opportunity to speak in front of others as well as process what has been said by others. Orally state a number (1-10) and have students think where that number, or something using that number, can be found. Have students tell their ideas to the person sitting next to them. Have students share their ideas with everyone at the table.





After a brief discussion is held about a number, create a chart from the students' responses to show everyday numbers. Record the ideas as the reporter at each table states the number and gives a sample of that number. Have students count aloud the objects recorded for each number. Make sure the students understand that the number on which they stop when counting is the total number of objects. To introduce each successive number, have students state what number is one more than the number just discussed. Make sure to choose a different reporter each time so

everyone can have a turn. Monitor students to ensure that they are participating in the discussions and that they are asking and answering questions.

Independent Work: Have students use *split-page notetaking* ([view literacy strategy descriptions](#)) to create their own record of “Everyday Numbers.” *Split-page notetaking* provides an organized record of learning and serves as a good reference for the students as they develop number sense. Model drawing a vertical line from top to bottom on paper and label the left side “numbers” and the right side “objects.” Have students write numeral 1 on the left side and draw 1 object from the class chart on the right. Continue this process through 10. Show students how to use *split-page notetaking* to study numbers by folding the page so only the objects show. Have them count the objects then check their answer by checking the other side. Monitor for understanding.

Teacher note: This activity may take two or three days to complete.

Example:

1	 <small>The Nose</small>	1 nose
2		2 eyes
3		3 sides
4		4 legs on a cat

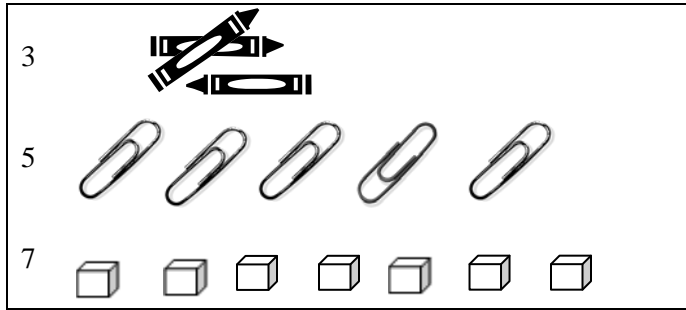
Activity 2: What’s in the Bag (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, K.CC.6, K.MD.3, MP.2, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: bags, variety of small objects, learning log

Small Groups or Individually: Provide students with a bag filled with a variety of small objects. Have students sort the objects by one attribute. Have them count the objects aloud in each set, write the corresponding numeral, and then place the sets in order from the fewest number of objects to the greatest number of objects. Have the students record their sets in numerical order in their *learning log* ([view literacy strategy descriptions](#)) to use as a reference or review of cardinality of numbers. Repeat this activity often to deepen the students understanding of classifying by count as well as by attribute. Monitor journal entries and encourage students to ask themselves questions such as:

How do I know what number I have?
 How can I tell if a group is greater than or less/fewer than?

Example:



Activity 3: Practice Counting with Cubes (CCSS: K.CC.1, K.CC.2, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: counting cubes, large number cards 1-30

Provide each student with a set of counting cubes. Show the students a large number card displaying one of the numbers from 1-30. Have them read the number aloud. Have students take counter cubes from a pile and slide them toward themselves, one at a time, as they practice counting aloud. Use a xylophone, store counter bell, or other instrument to signal the movement and the counting of each cube. After the designated number is reached, say, “check,” have students count silently and tell how many cubes they have. Have students arrange the cubes differently and count to see if the number of objects changes if the arrangement changes. Monitor to check for accuracy and understanding, providing additional support when needed.

Small Groups or Centers: Have students begin with a given number other than 1 and practice counting up to a designated number. Direct them to make towers, stacks, or trains with connecting cubes. Say, “Get three cubes. How many do you have? Get one more. How many do you have now? Get one more. How many do you have now?” Repeat this activity as needed to provide needed practice for students who have difficulty counting. Monitor to ensure students are only adding one cube each time.

Activity 4: Cube Arrangements (CCSS: K.CC.1, K.CC.5, K.CC.6, MP.7, MP.8)

Materials List: Cube Arrangement Cards BLM (2 pages), connecting cubes

Copy the Cube Arrangements Cards BLM on cardstock. Cut out a set of cards for each group of three students. Have students take turns picking a card from the Cube Arrangement Cards BLM. Have them name the number or count the stars on their card and count out that number of connecting cubes. After everyone has picked a card, have students build a tower with their cubes.

Have students compare their towers to the other towers in their group using vocabulary such as shortest, tallest, most cubes, etc. Have students in the group place their towers in order from tallest to shortest or vice versa. Monitor for accuracy and understanding. When speaking about towers and vertical comparisons, model for students the correct measurement terminology (tallest/shortest).

Partners: Have students work with partners and take turns picking one of the cards. Partner A snaps the cubes together to make a train. Partner B takes the same number of cubes and puts them in a pile or circle. Have partners compare the number of cubes in the train to the pile or circle of cubes to check that both have the same number. Make sure that students understand that the number of cubes is the same regardless of the arrangement.

Activity 5: Ten Apples Up on Top (CCSS: K.CC.1, K.CC.2, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.5, K.CC.6, K.MD.3, MP.2, MP.7, MP.8, RI.K.1, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: *Ten Apples Up on Top* book, number cards 1-10, cubes, legal size sheets of paper, empty margarine tubs

Read *Ten Apples Up on Top*. This is a classic story by Dr. Seuss about three animals that compete to see who can carry the most apples on their heads. As the story is read, have the students count the apples aloud each time an additional apple is added and say the new number. Ask comparison questions about the number of apples on each animal's head as the story is read. Have students explain that the number on which they stop counting is the number of apples the animal has on his head.

Small group: Show a number from 1-10 and have students name the number. Have students take cubes from a pile and slide them one at a time toward themselves as they practice counting. Clap or use a bell to signal the movement and counting of each cube. After the designated number is reached, say, "check," have students recount silently and tell how many cubes they have.

Partners: In this activity, students will use a modified RAFT ([view literacy strategy descriptions](#)) to create a class book. This will allow students a chance to view numbers as the author of *Ten Apples Up on Top* did. Once the class book is completed, place it in the class library so students can read it as often as they wish or need to. Explain what a RAFT is to the students. A RAFT will give the student a chance to apply and extend their understandings. This form of writing gives students the freedom to project themselves into unique roles and look at content from unique perspectives. RAFT writing is both creative and informative.

R – Role (role of the writer) - become the author

A – Audience (to whom or what the RAFT is being written) - their classmates

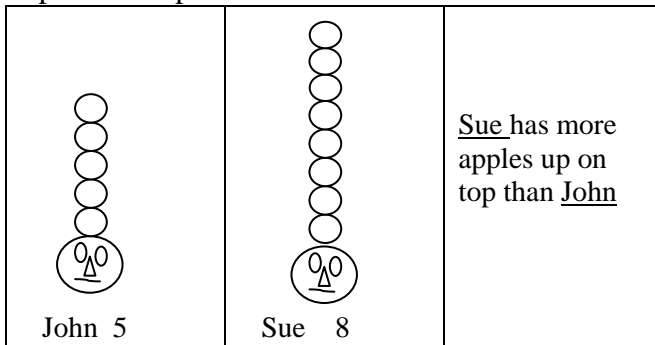
F – Form (the form the writing will take, as in letter, song, etc.) - the form of the story, *Ten Apples Up on Top*

T – Topic (the subject focus of the writing) - counting and writing to 10 from a given number other than 1 and comparing numbers.

Have students use a legal size sheet of paper and fold it into thirds along the 14 inch edge. In the first column, have Partner A draw a circle to represent his/her head and write his/her name beneath the head. Partner B should draw a circle to represent his head and write his/her in the middle column. If time permits, allow them to draw eyes, nose, and mouth. An alternative would be to provide students with an appropriate size circle and let them create their head prior to this activity. Just be sure the circles will fit in a column on the sheet.

Have Partner A pick a number card, draw that many apples on top of his/her head, and write the numeral. Then have Partner B do the same. Have the partners decide who has more apples and then write a sentence in the third column to state what they found. When all groups are finished, put the pages together to make a class book. Place the book in the class library so students can read it often. Monitor that students are correctly following the directions given, are understanding how numbers are compared, and are taking turns listening and speaking.

Example of completed sheet:



Teacher note: In groups of three, have students act this out using empty margarine tubs (with the lids on) to stack on their heads. They can't get hurt and it may be fun to balance on their heads, as in the story. Then have them fill in the chart with real names and their counts.

Activity 6: Blast Off/Fill In (CCSS: K.CC.1, KCC.4a, K.CC.4b, K.CC.4c, K.CC.5, K.CC.6, MP.7, MP.8)

Materials List: crayons in 2 colors, large paper clip or bobby pin, pencil, Blast Off/Fill In BLM, Blast Off/Fill In Spinner BLM

Partners: Distribute the Blast Off/Fill In Spinner BLM and the Blast Off/Fill In BLM to students. Have Partner A choose a color, spin a number and color that many rectangles on the Blast Off/Fill In BLM. Have Partner B choose another color, spin a number and color in that number of rectangles. The play continues until all rectangles are colored in. The winner is the person who colors in the last rectangle. This activity promotes the understanding of conservation of number by displaying numbers in a variety of arrangements.

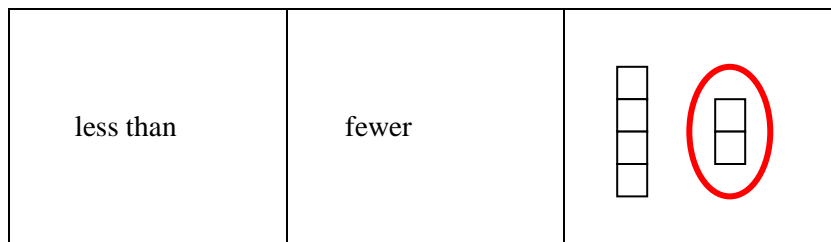
Teacher note: Demonstrate that rectangles must be touching when students color a given number of rectangles.

Activity 7: Snap It (CCSS: K.CC.1, K.CC.2, K.CC.6, MP.7, MP.8)

Materials List: connecting cubes, 5 × 7 index cards, zipper bags

Small Groups: Have each student count out 10 cubes and connect them to make a train. Have each student hide the train behind his/her back. Give the signal word “Snap.” Have students break the train into two parts and place one stack on one hand and the other stack on the other hand. Have each student compare his/her own stacks using the following vocabulary: *same, different, as many as, more than, less than, greater, fewer, equal to, greater than*. Have students use comparative vocabulary for measurement (*longer/taller or shorter*). Explain that one comparison is based on the number of objects (cubes) in each stack, and the other is a measurement comparison (one is taller or longer than the other). Encourage appropriate vocabulary use by asking the following question: “What can we do to make these two stacks the same?” Accept either response “Add ___ to this or take away ___ many.” Then ask, “How many more cubes does your stack have than mine? Which of us has fewer cubes in our stack? If one more cube is added to this stack, will the stacks be the same length? If two more cubes are added to this stack, will they be the same length?”

Have students use 5 × 7 index cards folded into thirds to make modified *vocabulary cards* ([view literacy strategy descriptions](#)) to reinforce their learning. *Vocabulary cards* are a good way for students to organize important information about concepts and terms and are useful for study and review for follow-up activities. Once cards are completed, allow time for students to review the newly learned vocabulary words independently and with a partner. Students can store their cards in the zipper bag with their vocabulary cards from Unit 1 for easy access. Have students make the vocabulary cards for all the words listed above. An example of a modified vocabulary card is provided below.



Activity 8: Reach for the Stars (CCSS: K.CC.1, K.CC.2, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, K.CC.6)

Materials List: dot number cubes, Reach for the Stars BLM, Blank Reach for the Stars BLM, pencil

Have students work in pairs. Partner A rolls a dot number cube, counts the dots out loud, and writes the number rolled in the corresponding column on the Reach for the Stars BLM, starting at the bottom. Partner B checks Partner A’s counting and the correct writing of the numeral.

Partners switch roles and the game continues until all the spaces for one numeral are filled in. The first numeral to reach the star is the winner.

Example:

☆	☆	☆	☆	☆	☆
		3			
		3			
1		3		5	
1	2	3	4	5	6
1	2	3	4	5	6

Teacher note: Using blank cubes, make your own dot cubes to vary the number of dots through 10. Use the Blank Reach for the Stars BLM and write the corresponding numerals for the teacher-made dot cube in the bottom row.



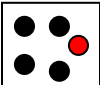
Activity 9: Number Dot Pattern Race (CCSS: K.CC.1, K.CC.2, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, K.CC.6)

Materials List: Number Dots Race Cards BLM (2 pages), Numeral Cards BLM, zipper bag, paper in 2 colors

Partner or Small Group: Run off Number Dots Race BLM and Numeral Cards BLM on card stock, cut apart, and place in a zipper bag. Have students work alone to put the numeral cards in a row from 1 to 10 and then place all the dot cards under the correct numeral. Have students race against partners or in a small group to finish first. Have the students check each other’s work for accuracy.

Teacher note: Run each set of cards in a different color to make it easy to keep up with all the cards.

Example:

1	2	3	4	5	6	7	8	9	10
									

Activity 10: Edible Dominoes (CCSS: K.CC.1, K.CC.2, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, K.CC.6)

Materials List: graham crackers, peanut butter or icing, raisins, plastic knife, paper towel or small plate

Teacher note: Check ahead of time to see if anyone has an allergy to peanut butter or if there are any district or school policies that prohibit use of food items because of allergies or child weight control issues.

Give each student a small paper plate or paper towel, a graham cracker, spoonful of peanut butter or icing, and 10 raisins. Have students follow these steps:

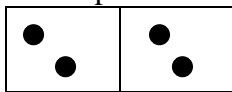
- Spread the peanut butter or icing on the graham cracker.
- Gently draw a line in the middle of the graham cracker using the tip of the plastic knife
- Place 2 raisins on the left side and count the raisins aloud.
- Place 3 raisins on the right side.

Explain that the dominoes will help to practice counting on from another number other than 1.

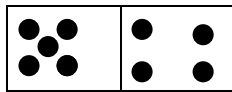
Model:

There are 2 raisins on the left side and 3 raisins on the right side. Tell students that for this activity, they will always count on from the larger number. Ask which side has a greater number of raisins? Three raisins are more than 2 raisins so the teachers should start counting on from 3. Let's count 3... 4, 5. Be sure to point to each raisin during counting. Have the students count their own raisins in the same way to check for understanding. Continue with other domino combinations. (See examples.) Make sure that each time students count on from the larger number. *Note: The first few dominoes have the greater number of raisins on the left side. As students gain proficiency with counting on, the greater number of raisins may be on either side.*

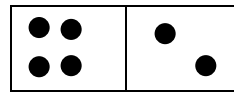
Examples:



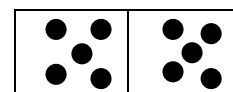
2.....3,4



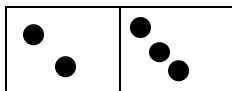
5....6,7,8,9



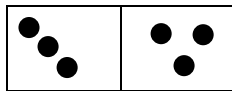
4....5,6



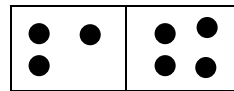
5.....6,7,8,9,10



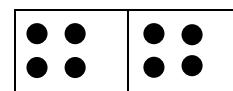
3.....4,5



3.....4,5,6



4.....6,7



4.....5,6,7,8

Activity 11: Dominoes Count and Compare (CCSS: K.CC.1, K.CC.2, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, K.CC.6, MP.2, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: dominoes (double six and five/six dominoes removed), Domino Count and Compare BLM,

Give each student a Domino Count and Compare BLM. Have students place the dominoes face down. Have Partner A and Partner B each choose a domino and count aloud the number of total dots on their domino. Have each student record the total number of dots on the Domino Count and Compare BLM. Have students compare their dominoes and use 1-to-1 matching to find out who has more dots. Have the partner with the most dots circle his/her number on the Domino Count and Compare BLM. That student wins the round and keeps both dominoes. The game continues until all dominoes have been played. The partner with the most/greater number of dominoes wins. Model and encourage students to use a count on strategy when the number of a set of dots can be readily identified. Check for understanding and use of the count on strategy.

Teacher note: Sort a set of dominoes ahead of time to help select appropriate dominoes to differentiate instruction.

Activity 12: What's Up? (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.6, MP.2, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: two-colored chips, What's Up? BLM

Partners: Give each group of students 10, two-colored chips, but increase number of chips as appropriate as this activity works well with numbers into the teens.

Have Partner A drop the chips into a shallow box or onto a tray to avoid having chips scatter across the room. Partner A should then count aloud the number of chips that have the red side up and the number of chips that have the yellow side up. Using the What's Up? BLM, have Partner A record the number of each color.

Have Partner B count the chips to see if Partner A is correct. Have Partner B ask, "Which group has more? Which group has fewer/less?" Remind students to take turns listening and speaking to their partner. Have students change roles and continue playing. This activity can be played often just by varying the number of chips the students use.

Activity 13: Edible Necklaces (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.6, K.MD.3, MP.2, MP.7, MP.8, SL.K.2)

Materials List: fruit-flavored circle cereal, yarn, learning log

Give each student a small amount of fruit-flavored circle cereal. Have students sort the cereal by color and count aloud the number of each color. Have students arrange the cereal in a straight line

and recount the cereal. Have students record their sets in numerical order in their *learning log* ([view literacy strategy descriptions](#)) to use as a reference or as a review of the cardinality of numbers. Have students put the cereal on a piece of yarn to create an edible necklace.

Example of learning log entry:

Yellow – 0
 Purple – 2 ●●
 Red – 4 ●●●● Blue – 4 ●●●●
 Green – 6 ●●●●●●
 Orange – 7 ●●●●●●●

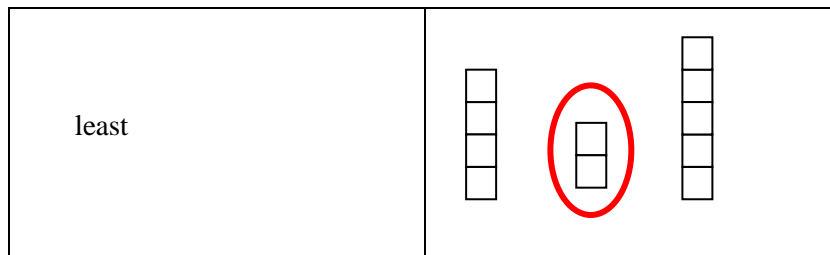
Teacher note: Be sure your school doesn't prohibit use of food items because of allergies or child weight control issues. This activity can be incorporated in a Thanksgiving Social Studies unit.

Activity 14: Counter Grab Bag (CCSS: K.CC.1, KCC.4a, K.CC.4b, K.CC.5, K.CC.6, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: paper bag, 10 counters per student in a group, index cards, zipper bags

Small Groups: Have students sit in a circle on the floor. Have them take turns grabbing a handful of counters from a paper bag. Each time a handful is taken, ask the student to count aloud as he/she places the counters on the floor so that everyone can see how many counters were grabbed. After each student grabs a handful, ask if there are more or fewer counters than the last student's handful. Have a student count and compare the piles of counters. Ask students if the arrangement of the counters changes the number of the counters. Use the words *equal*, *not equal*, *greater than*, and *less than/fewer than*. Alternate comparing the number of chips from two and three students to students using the words *most*, *greatest*, *fewest*, *least*. Check for understanding and use of comparative and superlative vocabulary and the accuracy of counting with 1-to-1 correspondence.

Have students use 5 × 7 index cards folded in half to make modified *vocabulary cards* ([view literacy strategy descriptions](#)) to reinforce their learning and as a quick study guide for follow-up activities. Once cards are completed, allow time for students to review the newly learned vocabulary words independently and with a partner. Students can store their cards in the zipper bag with their vocabulary cards from Unit 1 for easy access.



Teacher Note: To maintain high student interest, the teacher should vary the counters with other types of objects that can be easily counted. Examples may include florist marbles, acorns, small erasers, or shells.

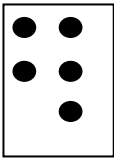
Activity 15: Quick Images (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, MP.2, MP.7, MP.8, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: Quick Images BLM (4 pages), learning logs

Quick Images is an activity that helps students visualize number patterns and number relationships. Using the Quick Images BLMs, briefly show an image and then remove it. After the images are removed, have students draw or make a copy of what they saw in their math *learning logs* ([view literacy strategy descriptions](#)). Have them compare their copy with the original image. Have students share and analyze their images using number combinations and number relationships to describe different arrangements of a set of objects. The Quick Images BLM shows the same number in a variety of arrangements. Have the class check the student responses for accuracy. Remind students to take turns listening to the responses of others and take turns to speak.

Example:

Quick Image Card



Possible student responses:

Student response: I saw 4 circles and 1 more. I saw 5 circles.

Student response: I saw 2 circles and 2 circles and 1 circle. I saw 5 circles.

Student response: I saw 2 circles and 3 circles. I saw 5 circles.

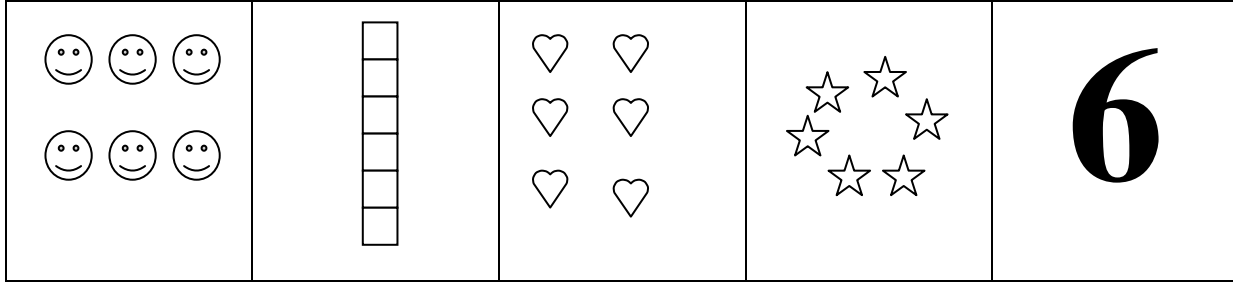
Teacher note: This activity lends itself well to use on an overhead projector or document camera by using any manipulative. Place items in a glass plate (if using an overhead) or on paper (if using a document camera). Cover up the glass plate or paper with a piece of cardboard or box top to arrange the manipulatives. Count to three: “one, two, three, look and see.” Uncover VERY briefly and cover up again. Do NOT turn the projector or document camera off and on repeatedly; it will burn out your bulb very quickly.

Activity 16: Match Game (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.5, MP.2, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: Match Game BLM (3 pages), zipper bags, paper in 2 colors

Teacher note: Run the Match Game BLMs on card stock. Cut the cards out prior to the lesson and place them in a zipper bag. Using a different color for each set will make it easier to sort each set and return it to a zipper bag at the end of the class. Laminate cards for reuse.

Partners: Have students use the Match Game BLMs to match cards that show the same number. Rules of the game: All cards are placed face up. A card is chosen and the partners work together to find all the other matching number cards by counting the objects aloud or reading the number that is written. For additional practice writing numbers, use the blank cards on the 3rd page of the BLM and have the students write the corresponding numeral. Monitor students as they play the game for understanding and accuracy. Check that students understand that the number on which they stop counting is the number of objects.



Activity 17: Number Pull (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.6, MP.2)

Materials List: 3 by 5 index cards, marker, container

Have each student write one numeral on a card from 0-30. Place the cards in a container. Call on one student at a time to choose a card and read the numeral. Have that student give the other students an activity to do that many times. All students count aloud as they do the given activity.

Example:

Student pulls	Student says
12	Hop 12 times.
28	Raise both hands high 28 times.

Sample Assessments

General Guidelines

Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Use teacher observation, anecdotal notes, and portfolios
- Have students place number cards 1-10 in order. Point to a number and have students connect that number of cubes and count them, starting with 1.
- Show the student a pile of loose counters (more than 10 and up to 30) and ask the student to count as many counters as possible.

Activity-Specific Assessments

- Activity 3: Provide the student with at least 10 cubes, and show a card with a numeral (1–10) on it. Have the student count out the corresponding number of cubes.
- Activity 7: Show the student a pile of cubes (or any other manipulative) and ask the student to count and remove 10 objects from the pile. Ask the student to split the pile of cubes into two groups, comparing the two piles as *same*, *different*, *equal*, *not equal*, *greater than*, and/or *less than*. Give specific directions. For example, “Can you make two piles so that they each have the same number? Can you make one pile greater than the other pile?”
- Activity 11: Use two dominoes. Show the student one domino at a time. Have him/her count the dots and write the corresponding numeral. Do the same thing with the second domino. Have the student circle the number that represents the number that is greater. Make sure to include dominoes that show 0-10 dots.
- Activity 16: Use several cards with shapes or dots representing any of the numbers from 1 to 10, and ask the student to use cubes to show the same number of cubes as shapes or dots on the card. Have the student count the number of cubes used. There may be a need to demonstrate the task with one card.

Resources

Children’s Books

Dr. Seuss. *Ten Apples Up on Top*

Websites

www.Internet4classrooms.com

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>

<http://www.canteach.ca/elementary/songspoems4.html>

**Kindergarten
Mathematics
Unit 3: Counting: Numbers and Numerals 0 – 20**



Time Frame: This unit should last approximately 5 weeks. The content of this unit should be taught throughout the year with activities integrated into all content areas.

Note: The Comprehensive Curriculum is designed to allow students to achieve end-of-grade goals in developmentally-appropriate increments. The Unit Description, Student Understandings and Guiding Questions describe the developmentally-appropriate increments for each unit. The chart containing the CCSS for Mathematical Content provides the end-of-grade goals.

Unit Description

This unit focuses on numbers to 20, the count sequence to 50 (by ones and tens), and connecting counting to cardinality (number denoting quantity).

Student Understandings

Students classify objects into given categories, count the number of objects in each category, and sort the categories by count. Students apply counting and cardinality to objects in a set and write the corresponding numeral 11 – 20. Students identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group by using matching and counting strategies. Students describe measurable attributes of objects such as length and weight and can describe several measurable attributes of a single object.

Guiding Questions

1. Can students count by ones to 50?
2. Can students count to 50 by tens?
3. Can students count forward beginning from a given number within the number sequence (0 – 20)?
4. Can students write numerals from 0 – 20?
5. Can students understand that each successive number name refers to a quantity that is one larger?
6. Can students classify and count small sets of objects and sort the categories by count?
7. Can students identify the number of objects in one group as greater than, less than, or equal to the number of objects in another group (with groups up to 10 objects?)
8. Can students identify the numerals for recording the number of objects in a given set (0 – 20)?
9. Can students describe measurable attributes of objects such as length and weight?
10. Can students describe several measurable attributes of a single object?

Unit 3: Common Core State Standards (CCSS)

CCSS for Mathematical Content	
CCSS #	CCSS Text
Counting and Cardinality	
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 0-20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. <ul style="list-style-type: none"> 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.
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.
Measurement and Data	
K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.MD.3	Classify objects into given categories, count the number of objects in each category and sort the categories by count.
Standards for Mathematical Practice (MP)	
MP.2	Reason abstractly and quantitatively.
MP.7	Look for and make use of structure.
MP.8	Look for and express regularity in repeated reasoning.
CCSS for ELA Content	
CCSS#	CCSS Text
Reading Standards for Informational Text	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.

Speaking and Listening Standards	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ol style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Daily Routines:

Count and Move (CCSS: K.CC.1, MP.7)

Have students count to 50 using a corresponding motion as they count. For instance, numbers 1-10, tap legs; for numbers 11-20, clap; for numbers 21-30, snap; for numbers 31-40, pound fists; and for numbers 41-50, lift both arms. Make sure there is only one motion for each number. This activity can be used as a transition activity to start the math class. Counting should be reinforced throughout the day, not taught in isolation.

Teacher Note: These types of counting activities need to occur daily; count from 10 on (perhaps every other day) once students are comfortable with 1-10 counting. Keep in mind that 11-20 are the most difficult for K students because 11 and 12 don't follow any pattern, and the pattern of 13-19 does not follow into 21 and beyond. When possible, students should recognize the patterns that exist from 1 to 100.

Count on Louisiana Seafood: (CCSS: K.CC.1, MP.7)

Materials List: Louisiana Seafood Counting Cards BLMs (5sets)

Run off enough Louisiana Seafood Counting Cards BLMs so that there are 5 sets of each card. Choose 5 students to hold one ten frame set. Have students count the seafood by tens to 50. Point out that the seafood is grouped by tens and shown on a ten frame. Counting by tens is a quick way of counting the seafood. Early in this activity, it may be necessary to have students count the seafood again by ones to check their count. Students who have still not developed confidence that “one ten” is the same as “ten ones” may need additional support to develop this important understanding.

Are You There Yet? (K.CC.1, K.CC.4a, K.CC.4c)

Have students count aloud to 50 by 1s as they walk to and from places around the school (cafeteria, playground, gym, library, etc). Have students make a list of places that are 50 steps away from their room.

Calendar (CCSS: K.CC.1, K.CC.4c, MP.2, MP.7, MP.8, SL.K.1b)

Have students look at the calendar daily. Each day have students state the date to provide a real life experience for counting to 30/31. The following are some samples of calendar activities:

- Sing songs to practice the days of the week and the months of the year. <http://www.canteach.ca/elementary/songspoems4.html>. This site has several songs to use.
- Discuss the number of days in the week. Have students match the name for each day in a week to the number for each day of the week (e.g. Sunday is day 1, Monday is day 2, etc.) Do the same for the months of the year.
- Ask students to indicate the number that will be said next when counting the number of days in a month.
- Ask, “Today is the ___th day of the month. How many days have passed in this month?”
- Ask students to discuss patterns that they see on the calendar.

Line Up, Please! (CCSS: K.CC.1, K.CC.2, K.CC.4a, K.CC.4b, K.CC.4c, MP.8)

Have a container of large craft sticks numbered from 1 – 20 (more if there are more students in your classroom). Before lining up, have each student draw a craft stick and line up in numerical order. Lining up daily will help students with the number sequence and with number identification. Have students count aloud as they line up. Point out that the number said is the number of students in line and that each successive number name refers to a quantity that is one larger.

Computer Counting Practice (CCSS: K.CC.1, K.CC.4b, MP.2, MP.7, MP.8)

Center Activity: www.Internet4classrooms.com offers many standard based links to help students practice what they have been taught.

[Count The Dots](#) - Level 1 goes to 10, Level 2 goes to 20. Students click on the numbers in sequence.

[Connect The Dots To Make A Picture](#) - [1-20] Students click on the numbers in sequence.

[How Many?](#) - [1-20] Students click on the numeral that matches the number.

For paper and pencil activities to use in a center, the site:

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html> it offers many standard based links to help students practice what they have been taught.

Activity 1: Anno’s Counting Book (CCSS: K.CC.1, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, RI.K.1, SL.K.2)

Materials List: *Anno’s Counting Book*, chart paper, markers

Share the story *Anno’s Counting Book* by Mitsumasa Anno with students by using a modified *GISTing strategy* ([view literacy strategy descriptions](#)). *GISTing* helps paraphrase and summarize essential information. These are important skills needed in comprehension. Students must limit the gist of a paragraph to a set number of words. Using *GISTing* with *Anno’s Counting Book* will help the students focus on the many components of the story. See the examples below.

When going through this book with a small group of children, carefully examine each page together. This book introduces counting and the numbers 0 – 12 by showing mathematical relationships in nature. On the first page, there is a barren winter landscape--a hazy, blue sky above a hazy, white hill. There is nothing to count on this page. This page shows zero but the students may not understand that until they reflect on their statements after the *GISTing* activity is complete. Each page contains the written numeral, the number represented in unifix cubes, and the number represented pictorially in various ways. For example: Page “2” includes the numeral, the number represented in unifix cubes, 2 children, 2 buildings, 2 cars, 2 dogs, and 2 trees. The sets and the village continue to grow, and it may not be until the last page that the students discover that Anno has also been taking them through the calendar year.

To help students develop *GISTing*, ask such questions as, "What's Mitsumasa Anno doing here?" "What does he want us to notice?" Write down all responses (gists) without comment. When all the students’ gists are recorded, talk about the various responses. Say, “I noticed something interesting about the months and the seasons. Before we get to the end of the book, I wonder if any of you also noticed something about the months and the seasons.”

GISTing Example:

Page 1: 1 boy, 1 house 1 square, 1 car, 1 dog, 1 tree

Page 2: 2 children, 2 buildings, 2 squares, 2 cars, 2 dogs, 2 trees

Page 3: 3 children, 3 buildings, 3 squares, 3 cars, 3 dogs, 3 trees

Continue to 12.

Fewer words example:

Page 1 has 1 of everything. Page 2 has 2 of everything. etc.

As each page is read, ask students questions that show student understanding of these key concepts:

- 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.
- 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.
- Understand that each successive number name refers to a quantity that is one larger.

Activity 2: Double Ten Frames (CCSS: K.CC.1, K.CC.2, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, MP.7, MP.8, SL.K.1a)

Materials List: cubes, Double Ten Frames BLM

Using the Double Ten Frame BLM, have students use cubes to make the numbers 11 and 12. Point out that one ten frame is completely filled in, and a new frame must be started to make 11 and 12.

Individually: Show a numeral card 0 – 12 to students. Have students name the number on the card and have them count aloud as they place the correct number of cubes on the ten frames. Have students practice counting on to 20 beginning with the number displayed on the ten frame. Make sure to point out that 0 means there are no objects.

As students display the correct number of cubes, ask students questions that show student understanding of these key concepts:

- 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.
- 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.
- Understand that each successive number name refers to a quantity that is one larger.

Monitor to ensure that students are following the directions and working accurately.

This activity will be repeated each week as different numbers are introduced. Week 2, numbers 13 and 14; Week 3, numbers 15 and 16; Week 4, numbers 17 and 18; Week 5, numbers 19 and 20.

Activity 3: Practice Counting with Cubes (CCSS: K.CC.1, K.CC.2, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, MP.8, SL.K.2)

Materials List: counting cubes, large numeral cards 11 – 20, Tracing Numerals BLM

Show the students a large numeral card between 11 – 20. Have them read the numeral. Have students take counters from a pile and slide the counters toward themselves, one at a time, as they practice counting out loud. Use a xylophone, a store counter bell, or other instrument to emphasize the one-to-one counting motion. After the designated number is reached, say, “check” and have students recount silently. Point out that the last number said when counting is the number of cubes they have and that each successive number name said refers to a quantity that is one larger than the previous number.

Repeat the above activity. After students count a number of cubes, have them trace the correct numeral on the Tracing Numerals BLM.

Small Groups or Centers: Have students begin with a given number and practice counting on to a designated number. Direct them to make towers, stacks, or trains with connecting cubes. Say, “Get ten cubes. How many do you have? Get one more. How many do you have now? Get one more. How many do you have now?” Repeat this activity as needed to provide needed practice for students who have difficulty counting.

This activity will be repeated each week as different numbers are introduced. Week 2, numbers 13 and 14; Week 3, numbers 15 and 16; Week 4, numbers 17 and 18; Week 5, numbers 19 and 20.

Activity 4: Mystery Bags (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.6, K.MD.3, MP.2, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: 4 paper bags labeled A, B, C, and D for each group of four students, variety of objects, learning log, Mystery Bags BLM

Divide students into groups of four. Give each group four “mystery bags” containing various number of objects from 1-10. Using modified *split-page notetaking* ([view literacy strategy descriptions](#)), have the students glue the Mystery Bags BLM in their learning logs. Each student in the group should take one of the bags.

Have the student with Bag A pour the objects from his/her bag and count them. Students can recount as needed. All students in the group should write the number of items in Bag A on his/her BLM. Additionally, each student should draw circles to represent the number of objects in Bag A. The process is repeated with student having Bag B going next, followed by the student with Bag C, and the student with Bag D going last.


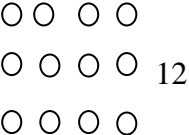



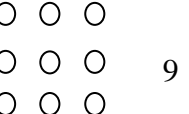



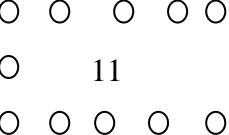
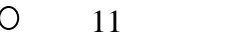





Allow the members of the group to compare their answers to be sure that all have the same information. Students can quiz each other using their notes with questions such as:

- Which bag had the greatest number/most objects?
- Which bag had the fewest/ least number of objects?
- Which bag had one more than 11?
- Which bag had one less/fewer than 10?

Check that students are following the guidelines for *split-page notetaking* and are being accurate in their counting. When monitoring the activity, have students count aloud, answer comparing questions, show how they know which number of cubes is greater/smaller, and assist with the correct writing of the numerals. Have students put the objects back in each bag and place the bags in numerical order by the number of objects.

This activity will be repeated each week as different numbers are introduced. Week 2, numbers 13 and 14; Week 3, numbers 15 and 16; Week 4, numbers 17 and 18; Week 5, numbers 19 and 20.

Example:

How many? 	  12 
How many? 	  9 
How many? 	  11 
How many? 	  10 

Activity 5: One Dozen, Please! (CCSS: K.CC.1, K.CC.2, K.CC.3, MP.7, MP.8)

Materials List: empty egg cartons, cubes or plastic eggs, number cube (cube with numerals 1-6 written on it), 2 different color crayons, One Dozen, Please! BLM

Partners: Have partners take turns rolling a number cube, saying the numeral rolled, and placing that many cubes or plastic eggs in an egg carton. Have partners choose different crayons to color in the corresponding number of squares on the One Dozen, Please! BLM. Have students count aloud as they count on from the last number of eggs collected when adding the new eggs. Students should fill in the two lines of the egg carton in the same way they fill in the ten frame by starting at the upper left corner,



completing the top row before moving to the next row, and starting on the left again.

Have students write the numeral 12 on the line next to the egg carton when an egg carton is completely filled. Students must continue to roll until they reach exactly 12. Egg cartons are emptied and the next round can be played.

Example:



Activity 6: Vocabulary Cards (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4c, MP.2, MP.7, MP.8, SL.K.1a)

Materials List: markers, zipper bags, Vocabulary Cards BLM

Have students make modified *vocabulary cards* ([view literacy strategy descriptions](#)) as a culminating activity to reinforce their learning. *Vocabulary cards* are a good way for students to organize their understanding in a concrete way. They create a personalized reference as well as a quick study guide for follow-up activities. Monitor that students are following the directions correctly for creating the *vocabulary cards*. Students can store their cards in a zipper bag for easy access. Allow time for them to review their cards individually and read them aloud with a partner to reinforce understanding of numbers.

This activity will be repeated each week as different numbers are introduced. Week 2, numbers 13 and 14; Week 3, numbers 15 and 16; Week 4, numbers 17 and 18; Week 5, numbers 19 and 20.

Example:

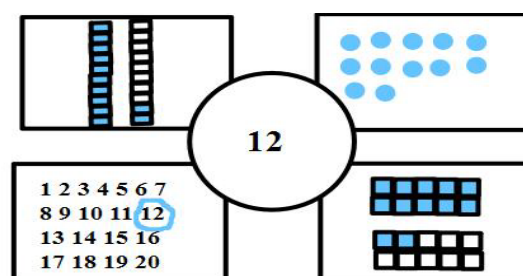
Circle – Write your numeral.

Box 1 – On your tower, color in the correct number of spaces for your numeral.

Box 2 – Draw dots to show your numeral.

Box 3 – Circle your numeral.

Box 4 – Color in the correct number of spaces for your numeral on the double ten frames.



Activity 7: Roll and Compare (CCSS: K.CC.1, K.CC.3, K.CC.4a, K.CC.4c, K.CC.6, MP.8)

Materials List: dot number cubes, small manipulatives, Roll and Compare BLM

Partners: The first student rolls 2 number cubes and counts the total number of dots. The number is recorded on the Roll and Compare BLM. The partner checks for accuracy by recounting the dots. Partners change roles and the game continues. After both numbers are recorded, the numeral representing the larger number is circled. Provide manipulatives for counting and one-

to-one comparing when needed to solve the problem of which number is greater. Monitor students as they play the game. Observe that students:

- 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.
- Understand that each successive number name refers to a quantity that is one larger.
- 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.

Extension: After numbers have been introduced through 18, add a third number cube. Adding the third number cube will allow students to roll numbers 13-18.

Teacher note: Have students experiment with lining up their number cubes in a row and then counting – testing to see which order is easiest to use: starting with the greatest number of dots, going to the next greater, and then to the least to use the counting on strategy, or determining that another arrangement is easier for them. Lining the cubes up is important to help them keep track of which one(s) has been counted.

Activity 8: What’s in the Bag (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.4c, K.CC.5, K.CC.6, K.MD.3, MP.2, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: bags, variety of small objects, learning log

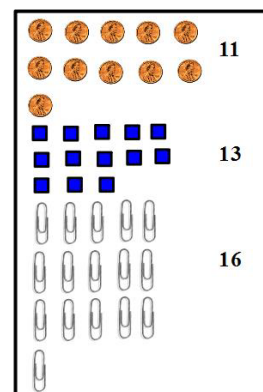
Small Groups or Individually: Provide students with a bag filled with a variety of small objects. Have students sort the objects by one attribute. Have them count the objects aloud in each set, write the corresponding numeral, and place the sets in order from the smallest set to the largest set. Have the students record their sets in numerical order from least to greatest in their *learning log* ([view literacy strategy descriptions](#)) to use as a reference or a review of cardinality of numbers. Repeat this activity often to deepen the students understanding of classifying by count as well as by attribute. Monitor journal entries and encourage students to ask themselves questions such as:

- How do I know what number I have?
- How can I tell if a group is greater than or less/fewer than?

Then determine if they can do the following:

- 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.
- Understand that each successive number name refers to a quantity that is one larger.
- 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.
- Identify whether the number of objects in one group is greater than, less/fewer than, or equal to the number of objects in another group, e.g. by using matching and counting strategies.

Teacher note: Try to have students make rows of five, as in a ten frame.



Activity 9: What’s Up? (CCSS: K.CC.1, K.CC.3, KCC.4a, K.CC.4b, K.CC.4c, K.CC.5, K.CC.6, MP.2, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: two-colored chips, What’s Up? BLM

Partners: Give each pair of students a set of two-colored chips ranging in size from 11-20. Have Partner A drop the chips into a shallow box or tray and count the number of chips that have the red side up and the number that have the yellow side up. Using the What’s Up? BLM, have Partner A record the number of each color. Have Partner B rearrange the chips and count them again to see if Partner A is correct. Partner B asks, “Which color has the greater number or more objects/chips? Which color has fewer or less objects/chips?” Have them change roles and continue playing. This activity can be played often just by varying the number of chips the students use.

Monitor that the activity is being played correctly and that the students are taking turns asking and answering questions. Observe that students:

- 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.
- Understand that each successive number name refers to a quantity that is one larger.
- 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.
- 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.

Activity 10: Number Path (CCSS: K.CC.1, K.CC.2, K.CC.5, K.CC.6, MP.2, MP.7, MP.8, SL.K.2)

Materials List: floor size number path 1 – 20, construction paper, tape, numeral cards 1 – 20

A floor size number path can be made by taping large sheets of construction paper together and writing one number in each space. Once made, the number path can be laminated and taped to the floor. Have a student stand on a specific numeral based on simple questions such as, “How many tentacles does an octopus have? How many fingers do we have? What number is one more/greater than 12? What number is one less/fewer than 19?”

After students are comfortable using the number path, have two students each choose a numeral card, read their numeral and find their numerals on the number path. Have the class state a number sentence that tells which numeral is larger.

Examples:

10 is greater than 6

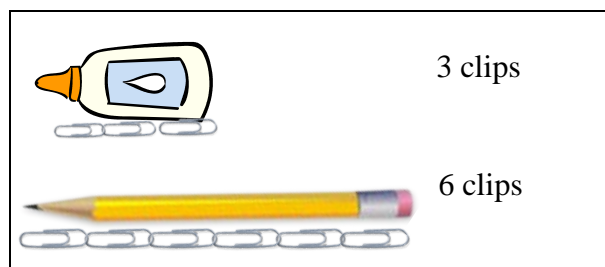
17 is less than 20

Activity 11: Measuring Up (CCSS: K.CC.1, K.CC.3, KCC.4a, K.MD.1, MP.8)

Materials List: small paper clips, shoe box with a variety of objects that have different lengths for each group, Measuring Up BLM, paper

Give each group of students a shoe box with a variety of objects that are different lengths. Have students use small paper clips to measure the lengths of the objects, counting the number of paper clips aloud. Include some long objects that will measure more than 10 paper clips. Have students draw the objects they measure or use the Measuring Up BLM and glue the pictures into their *learning log*. Next to the pictures, have students draw and write the number to indicate the objects length in paper clips in their math *learning logs* ([view literacy strategy descriptions](#)). The math *learning log* will be used as a reference to guide further study and to assess progress and understanding. The group will put the objects in order from shortest to longest and compare their results written in their *learning log*. Ask the students if they can think of another way these objects can be sorted. (Possible responses could include-tallest to shortest, heaviest to lightest, thickest to thinnest). Have students sort by each attribute named.

Example:

**Activity 12: Heavy/Light/Short/Long (CCSS: K.CC.1, K.MD.1, MP.8)**

Materials List: shoe box with a variety of objects that have different weights (mass) and lengths for each group

Small groups: Have students arrange the objects by weight from lightest to heaviest. Have them record the order of the objects in their math *learning logs* ([view literacy strategy descriptions](#)). The math *learning log* will be used as a reference to guide further study and to assess progress and understanding.

Next, have students put the same objects in order from shortest to longest and record those results on another page in their math *learning logs*. Have students compare the results of the objects sorted by weight to the objects sorted by length. Ask students, “Are the objects in the same order? Why or why not?”

Activity 13: Professor Know-it-All (CCSS: K.CC.1, K.CC.2, K.CC.4a, K.CC.4b, K.CC.6, K.MD.1, MP.2, MP.7, MP.8, SL.K.1b, SL.K.2)

Materials List: numeral cards 11-20, objects to count

Small Groups: Allow the students to play a modified version of *professor know-it-all* ([view literacy strategy descriptions](#)). Discuss possible questions with the class before the activity begins. The student pretending to be the teacher will hold up a numeral card 11 – 20 and tell the group members the number and count aloud that many objects. The group will ask the *professor know-it-all* questions about the number such as, “What is one more than your number? What is a number smaller than your number? What is something that is about as many paper clips long as your number? Can you count to your number if you begin with 4?” As the *professor-know-it-all* responds to questions, students should listen for accuracy and provide help if needed.

Sample Assessments

General Guidelines

Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Teacher observation, anecdotal notes, and portfolios
- Use number cards 11 – 20 and connecting cubes. Ask the student to place the cards in order, 1 – 20. Point to a number in random order and have the student name the number and count out the corresponding number of cubes.
- Show the student a pile of loose counters (more than 20) and ask the student to count as many cubes as possible.

Activity-Specific Assessments

- Activity 3: Provide the student with at least 20 cubes, and show a card with a numeral (11–20) on it. Have the students count out the corresponding number of counters.
- Activity 7: Have the student roll 2 or 3 dot number cubes. Have student count the dots to himself/herself and write the corresponding numeral. Have the student roll again and tell which number of the 2 rolls is larger/greater.
- Activity 10: Using a desk-size number path, have the student choose two numeral cards and place objects on the corresponding numerals on the path. Have the student say a comparing statement about the two numerals.

- Activity 11: Provide the student with a variety of objects of different lengths. Using small paper clips, have the student measure two objects and compare the lengths. Have student use another attribute to arrange the objects. (possible attributes-height, width, weight)

Resources

Children's Books

Mitsumasa Anno, *Anno's Counting Book*

Websites

www.Internet4classrooms.com

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>

<http://www.canteach.ca/elementary/songspoems4.html>

**Kindergarten
Mathematics
Unit 4: Number Operations: Working with Numbers**



Time Frame: This unit should last approximately 5 weeks. The content of this unit should be taught throughout the year with activities integrated into all content areas.

Note: The Comprehensive Curriculum is designed to allow students to achieve end-of-grade goals in developmentally-appropriate increments. The Unit Description, Student Understandings and Guiding Questions describe the developmentally-appropriate increments for each unit. The chart containing the CCSS for Mathematical Content provides the end-of-grade goals.

Unit Description

This unit continues to focus on counting to 100 by ones and tens, using comparative vocabulary to describe two sets of up to 10 objects, and counting no more than 20 objects. It introduces adding and subtracting and finding number partners within 10.

Student Understandings

Students will count to 100 by ones and tens. They will count objects to 20 and represent that number of objects with a written numeral from 1-20. Students will use comparative vocabulary to describe items in two sets between 1–10. Students will compare two objects with a measurable attribute in common to see which object has more of/less of the attribute and describe the difference. They will be introduced to solving addition and subtraction word problems and to adding and subtracting within 10 using objects fingers and/or drawings. Students will decompose numbers up to 10 into partners in multiple ways (e.g. $5 = 2 + 3$ and $5 = 4 + 1$). They will begin to find a number that makes 10 when given any number from 1 – 9.

Guiding Questions

1. Can students count to 100 by tens?
2. Can students, when given a number from 1 – 20, count out that many objects?
3. Can students represent a number of objects with a written numeral from 0 – 20?
4. Can students compare and use the vocabulary, greater than, less than, or equal to, for comparing the number of items in two sets?
5. Can students compare two numbers between 1 and 10 presented as written numerals?
6. Can students 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?

7. Can students count to answer “how many” questions about as many as 20 things arranged in a line, a rectangular array, or a circle?
8. Can students represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps)?
9. Can students solve addition and subtraction word problems and add and subtract within 10 using objects and drawings?
10. Can students decompose numbers up to 10 into partners in multiple ways?
11. Can students find a number that makes 10 when given any number from 1-9?

Unit 4: Common Core State Standards (CCSS)

CCSS for Mathematical Content	
CCSS #	CCSS Text
Counting and Cardinality	
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 – 20. Represent a number of objects with a written numeral 0 – 20 (with 0 representing a count of no objects).
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. <ol style="list-style-type: none"> 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.
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.
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.
Operations and Algebraic Thinking	
K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps).
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 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.
Measurement and Data	
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. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>
K.MD.3	Classify objects into given categories, count the number of objects in each category and sort the categories by count.
Standards for Mathematical Practice (MP)	
MP.1	Make sense of problems and persevere in solving them.
MP.2	Reason abstractly and quantitatively.
MP.3	Construct viable arguments and critique the reasoning of others.
MP.4	Model with mathematics.
MP.5	Use appropriate tools strategically.
MP.7	Look for and make use of structure.
MP.8	Look for and express regularly in repeated reasoning.
CCSS for ELA Content	
CCSS#	CCSS Text
Reading Standards for Informational Text	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.
Speaking and Listening Standards	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ul style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Daily Routines

Count and Move (CCSS: K.CC.1, MP.7)

Have students count to 100 using a corresponding motion as they count. For instance, for numbers 1-10, tap legs; for numbers 11-20, clap; for numbers 21-30, snap; for numbers 31-40, pound fists; for numbers 41-50, lift both arms; for numbers 51-60, open and shut hands; for numbers 61-70, tap head; for numbers 71-80, bend arms to touch shoulders; for numbers 81-90, raise shoulders; and for numbers 91-100, tap legs with arms crossed. Make sure there is only one motion for each number. This activity can be used as a transition activity to start the math class.

Clap Ten (CCSS: K.CC.1, MP.7)

Have students stand and do jumping jacks as they count by tens to 100. Explain that ten fingers touch when their hands “clap.”

Calendar (CCSS: K.CC.1, K.CC.2)

Have students look at the calendar daily. Each day have students state the date to provide a real life experience for counting to 30/31. The following are some samples of calendar activities:

- Sing songs to practice the days of the week and the months of the year. <http://www.canteach.ca/elementary/songspoems4.html>. This site has several songs to use.
- Discuss the number of days in the week. Have students match the name for each day in a week to the number for each day of the week (e.g. Sunday is day 1, Monday is day 2, etc.). Do the same for the months of the year.
- Ask students to indicate the number that will be said next when counting the number of days in a month.
- Ask, “Today is the ___th day of the month. How many days have passed in this month?”
- Ask students to discuss patterns that they see on the calendar.

Computer Number Operations Practice (CCSS: K.OA.1, MP.7)

Center Activity: www.Internet4classrooms.com offers many standard-based links to help students practice what they have been taught.

[Beginning Addition](#) – The student drags the objects to create the problems and then counts and clicks on the correct answer.

[Beginning Addition - Bugabaloo Shoes](#) – Visuals are used to help students add.

[Farm Addition](#) – Students count the chicks and drag the number that tells how many.

For paper and pencil activities to use in a center, the site, <http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>, offers many standard-based links to help students practice what they have been taught.

Activity 1: Join In! (CCSS: K.CC.2, K.CC.3, K.CC.5, K.OA.1, K.OA.2, MP.1, MP.8)

Materials List: chart paper, pen

Using an *anticipation guide* ([view literacy strategy descriptions](#)), have students respond to these statements.

- When two groups are joined, the number of objects in the new group is greater than either of the two groups that were joined.
- When two groups are joined and one group is a set of zero, the number of objects in the new group remains the same.
- A number sentence tells a story.

Record the students’ responses using tally marks. The *anticipation guide* involves giving students statements about the topic to be studied and asking them to respond to the statements before reading and learning, and then again after reading and learning. *Anticipation guides* can check for prior knowledge of a topic and help students set a purpose for learning. They are especially helpful to struggling and reluctant learners as they elevate motivation and focus attention on important content.

Example:

When two groups are joined, the number of objects in the new group is greater than either of the two groups that were joined.	
Yes	No
When two groups are joined and one group is a set of zero, the number of objects in the new group remains the same.	
Yes	No
A number sentence tells a story.	
Yes	No

Have students act out simple addition stories. Explain that numbers, words and drawings can be used to show a story. Using any of the models, write their story on the board after the students act it out. Allow a student to help write the number sentence or complete the drawings. Ask the student to explain his/her work. Ask the class to show if they agree (give a thumbs up) or if they

disagree (give a thumbs down) and to explain why. After each story, refer to the *anticipation guide* for discussion by the students. Do they want to change their answers? Why or why not?

For example:

1. Two friends are playing with blocks. One more friend joins in. How many friends are playing with blocks now?



Write: 2 and 1 more is 3

2. One child is reading a book. Another child says, “I am also reading a book.” How many children are reading books?
3. Two boys are drawing pictures. Two girls join them and also begin drawing. How many children are drawing?
4. Three children are coloring. Another friend joins them. How many friends are coloring now?
5. One child is waiting for the bus. While she is waiting, 0 children come to join her to wait for the bus. How many children are waiting for the bus?

Teacher Note: When using comparative words such as larger and greater, make sure to follow them by what they surpass in size or quantity. Thus, “...greater than either of the two groups...”

Activity 2: Animals on Board (CCSS: K.CC.2, K.CC.3, K.CC.5, K.CC.6, K.OA.1, K.OA.2, K.MD.3, MP.3, MP.4, MP.7, MP.8, RI.K.1, SL.K.2)

Materials List: *Animals on Board* by Stuart Murphy, *QtC* poster, large sheets of paper, scissors, glue, markers, magazines or stickers or stamps

Animals on Board is a simple math book about addition, written by Stuart Murphy. In the book, a caravan of trucks, each carrying a group of animals, is shown. For example, there are 3 tigers on the first truck, followed by a second truck carrying 2 more tigers. The author asks, “How many in all?” An addition sentence, including supporting pictures, helps students answer the question. The animals are gathered together at the end to reveal that the purpose is to become a merry-go-round.

Use a modified *QtC* ([view literacy strategy descriptions](#)) to read *Animals on Board*. Students need to be taught that they can, and should, ask questions of authors and of the content as they read. The goal of *QtC* is to teach students to use a questioning process to construct meaning of content and to think at higher levels about the content they are reading and from which they are expected to learn. The teacher and the class work together to build understanding during the reading and learning of the content. The teacher is a facilitator and responder. The teacher keeps the students focused on what is to be learned.

Make a poster beforehand of the types of questions students could ask. Read the questions before reading the book. As the book is read, stop and ask questions from the *QtC* poster to

guide student understanding. Continue to model this process with other texts and encourage students to ask questions related to those in the goal column when they read on their own.

Example:

QtC
What do you think this story is about? <i>Students respond</i> It says “add them up,” but what does that mean? Why was “add” used? How does the number sentence show “add them up”? Does 9 and 0 is 9 make sense? Why or why not? What do I need to figure it out? Did the story tell me that? Did the picture show the answer to 9 and 0 is 9?

Teacher notes:

QtC	
Goal	Questions
Initiate discussion Take a Picture Walk (Show pages in book before reading)	What do you think this story is about?
Focus on content’s message	It says, “add them up,” but what does that mean? Why was “add” used?
Link information Identify problems with understanding	How does the number sentence show “add them up”? Does 9 and 0 is 9 make sense? Why or why not? What do we need to figure it out?
Students refer to the text to find support for answers.	Did the story tell me that? Did the picture show the answer to 9 and 0 is 9?

As the book is read, make a list of the animals seen and the number of animals in each group. When the story is complete, cut the list apart by animals and have the students rearrange the animals by count.

Example: Class List



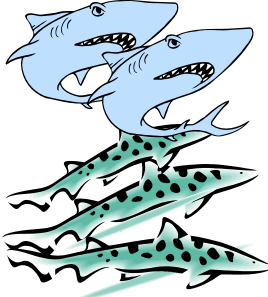


5 Tigers
7 Swans
8 Frogs
10 Horses
9 Pandas

Cut apart and rearranged by students

5 Tigers
7 Swans
8 Frogs
9 Pandas
10 Horses

Small group extension: For added practice with counting, writing numerals, classifying objects, comparing objects by a measurable attribute and sorting by count, have the students work in groups to choose their own animals for a merry-go-round. Have students work together in groups of four cutting out pictures of animals from magazines, stickers, or stamps. Have students state by which attribute they sorted (real/make-believe, kind of animal, lives in water/jungle, etc.) Have each person in the group glue his/her animals on a sheet of paper and describe the number of animals with a number combination. Have students use their pictures to sort their animals by count.

Example:

<p>2 and 1 is 3</p>   <p>2 black and white and 1 brown</p>	<p>2 and 3 is 5</p>  <p>2 mean and 3 not mean</p>	 <p>7 and 1 is 8</p> <p>7 tall and 1 tallest</p>	<p>1 and 8 is 9</p> <p>1 Mom and 8 babies</p> 
---	---	---	--

Activity 3: Gathering Apples (CCSS: K.CC.2, K.CC.4b, K.CC.5, K.OA.1, K.OA.2, MP.1, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials List: Gathering and Picking Apples BLM, Apples BLM

Have students act out addition stories about apples on a tree using the Gathering and Picking Apples BLM and the Apples BLM. After they have solved a word problem, have a student write the corresponding number sentence on the board. Allow students to solve the problem a different way. They may draw a picture, use cubes, fingers, etc.

For instance:

1. Todd saw two red apples on the tree. He also saw two red apples on the ground. How many apples are there altogether?

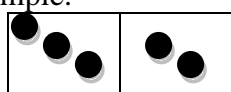
2. Three green apples grew on a tree. Two more green apples grew on the tree. How many apples are there now?
3. One apple fell from the tree. The wind blew three more apples down. How many apples are now on the ground?
4. John saw four apples on the tree. He saw two apples on the ground. How many apples did John see?
5. Mom used 2 red apples and 2 green apples in her pie. How many apples are in Mom's pie?

Activity 4: Domino Addition (CCSS: K.CC.2, K.CC.3, K.CC.4a, K.CC.5, K.CC.6, K.OA.1, K.OA.2, MP.4, MP.7, MP.8, SL.K.1a)

Materials List: dominoes, Domino Addition BLM

Partners: Distribute the Domino Addition BLM to each student. Have students place the dominoes face down. Use only dominoes whose sums are not greater than 10. Have Partner A turn over a domino and record the number of dots on one side of the domino in the first box and the number of dots on the other side of the domino in the third box on the BLM. Have Partner A count all the dots together and write that numeral in the last box. Have Partner B check Partner A's work by counting the total number of dots aloud, beginning with the larger number of dots and counting on from that number. Have Partner B take a turn and record his/her answers on his/her BLM. Monitor students as they play the game to see that they are following the directions given, taking turns listening and speaking and checking their partner's work. Answer any questions the students may have or give any needed clarification.

Example:





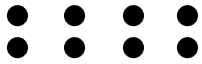
3	and	2	is	5
----------	------------	----------	-----------	----------

Activity 5: Roll and Add (CCSS: K.CC.2, K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.5, K.OA.1, K.OA.2, MP.1, MP.2, MP.4, MP.7, MP.8, SL.K.1a)

Materials List: dot number cubes, Roll and Add BLM, manipulatives

Partners: Distribute the Roll and Add BLM and manipulatives. Manipulatives are available to support student learning, if needed. Have Partner A roll a dot cube, draw that number of dots in the first box of the BLM, and write the numeral under it. Have Partner B roll a dot cube, draw the number of dots in the third box and write the number under it. Together, students add the dots and complete the addition sentence. Tell students they may count the dots, use their fingers, or use other manipulatives as tools for solving "how many" dots, if they want. Monitor that all directions are being followed and that students are taking turns listening and speaking.

Example:

Dots 	and		is	
3	and	5	is	8
Number				

Activity 6: Froggie Hop (CCSS: K.CC.2, K.CC.4a, K.CC.4c, K.CC.5, K.OA.1, K.OA.2, MP.2, MP.4, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: Froggie Hop Number Path BLM, Froggie Hop BLM or plastic frog manipulatives, craft sticks

Teacher Note: Prior to this lesson, cut out the frogs from the Froggie Hop BLM and glue each frog to the end of a craft stick. Each student will need 1 stick. Construct a number path from Froggie Hop Number Path BLM for each student. (After completing this activity, store these materials to be used again in Activity 13.)

Small Groups: Give each student a frog glued to a craft stick or a plastic frog manipulative and a number path. Call out a starting number. Have students place their frogs on that numeral. State how many hops to take. Students will count on from the starting place as the frog hops forward from numeral to numeral. Write the corresponding number sentence on the board as the students act out each number sentence. Continue the activity with other numerals. Explain that they are adding hops each time the frog hops forward.

Example:

Starting place	Hop forward	Number of hops	is	Stopping place
3	⇒	2		5

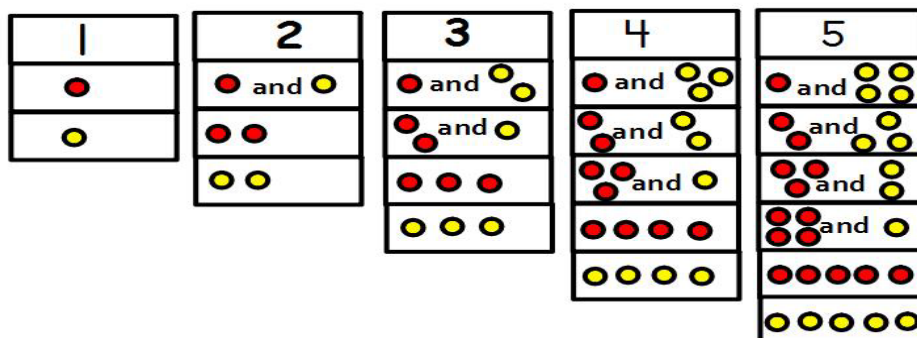
Activity 7: Five Frame Adding (CCSS: K.CC.2, K.CC.3, K.CC.4c, K.OA.1, K.OA.2, K.OA.3, MP.4, MP.7, MP.8)

Materials List: Five Frame Adding/Subtracting BLM, two-colored chips, chart paper (five sheets), red marker, yellow marker

Give each student a five frame made from the Five Frame Adding/Subtracting BLM and 5 two-colored chips. Explain that they will be making combinations with the chips up to 5. Write the numerals 1-5 on pieces of chart paper, 1 numeral per page. Have students place 1 chip on the five frame with either side up. Encourage students to use addition sentences to describe the chip on the five frame such as “I have 1 red chip and 0 yellow chips. I have 1 chip in all,” or “I have 0 red chips and 1 yellow chip. I have 1 chip in all.” On the chart paper, record their addition sentences by drawing the corresponding chips. These charts are types of *graphic organizers* ([view literacy strategy descriptions](#)). Have each student put one more chip on the five frame either side up. Have students describe their chips using an addition sentence. Record the

combinations for two chips. Have students continue adding one chip at a time to the five frame, having students discover all the possible combinations for each number. Each time, have students state the number of red chips first, then have them say the number of yellow chips.

Example:



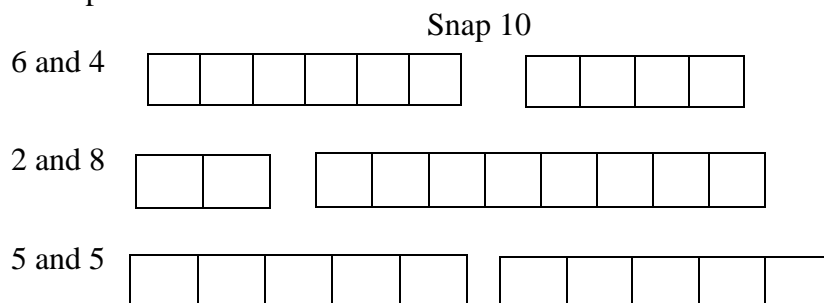
Activity 8: Snap It (CCSS: K.CC.3, K.CC.4a, K.CC.5, K.OA.1, K.OA.2, K.OA.3, K.OA.4, MP.8)

Materials List: connecting cubes, chart paper, Snap It! BLM *learning logs*, scissors

Give each student 10 connecting cubes. Have the students connect the cubes and count them aloud. Have students hold the cubes behind their backs. When “Snap it!” is said, have the students break their connecting cubes into two groups. Have them hold one group of cubes on the pointer finger of the right hand and the other group of cubes on the pointer finger of the left hand. Using the chart paper, make a list of all the combinations of 10 that the students show, recording each combination only one time.

Distribute the Snap It! BLM and have students cut out the strips of ten. Students will use the strips to show all of the combinations for 10 in their *learning logs* ([view literacy strategy descriptions](#)). Using the Snap It! BLM, students will cut each strip of ten into two parts as shown by the combinations on the class list of “Snap 10.” They will glue the two parts in their *learning logs*. Next to the strip of ten combinations, students will write the combination in numerals. The math *learning logs* will be used as a reference for future learning.

Example:



Activity 9: Elevator Magic (CCSS: K.OA.1, K.OA.2, MP.1, MP.2, MP.3, MP.4, MP.7, MP.8, RI.K.1)

Materials List: *Elevator Magic* by Stuart Murphy, chart paper, Elevator Buttons BLM

Use a modified *lesson impression* ([view literacy strategy descriptions](#)) to introduce the book *Elevator Magic*. *Elevator Magic* is about a boy named Ben who meets his Mom at her office on the 10th floor. When they go down to the first floor in the elevator, they make several stops along the way. Ben subtracts his way down to the lobby. Subtraction number sentences are written in the book using words and numerals.

A *lesson impression* creates interest in the content to be presented. Students are asked to compile a written impression of the content to be covered based on key words and to later compare his/her written impression to the actual content. A *lesson impression* provides a meaningful purpose for the learning that follows and builds on a student's natural curiosity to see how closely their impression matches the content. This strategy is helpful to struggling and reluctant learners because it helps them focus on important content. Display some of the words from the book *Elevator Magic* on a chart to create interest in the concept to be taught. Slowly read the words aloud.

Have the students think about the impression words and discuss their impressions (what they think this story will be about/what will they learn from this story). Have the students share their impressions. Write down all the different impressions that the students dictate. Read the story, stopping along the way to compare the story to the impressions. Write the subtraction sentences on the board as they come up in the story. After the story is read, have students retell the story and compare how close the story was to their impression sentences.

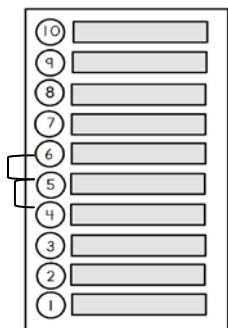
Example of chart:

Impression words for <i>Elevator Magic</i> buttons, down, up, noisy, floor 10, down 2, (10 take away 2 is 8) floor 8, down 3, (8 take away 3 is 5) floor 5, down 1, (5 take away 1 is 4) floor 4, down 3, (4 take away 3 is 1) home Example of student impressions: People are riding on an elevator. Press the button to make the elevator go down. Magic appears on each floor.

Make a set of demonstration elevator buttons using construction paper to resemble the Elevator Buttons BLM. Start at the top. Have the students tell what floor Ben met his mother. Write the numeral 10 next to that button. Continue going down the elevator buttons writing the numerals as the students identify each floor. Explain that the buttons create a kind of number path but

instead of going from left to right, this path goes from bottom to top. Give each student an Elevator Buttons BLM. Reread the story, *Elevator Magic*. Have students act out each time the elevator moves to another floor using their own Elevator Buttons BLM. Explain as the elevator goes down, it is really subtracting (taking away) floors.

Example:



We're on 6.
We go down 2.
We end up on 4.

Teacher Note: This story could be acted out in the gym, classroom or outside by creating an "elevator." To create the elevator, consider using stairs, if available, or put squares on the floor and number them with the corresponding floors 1-10. This book and activity could also be used for addition. This would be a good opportunity to show that addition is the opposite of subtraction. Moving up the elevator means to add. Moving the opposite way (down the elevator) means to subtract.

Activity 10: Comparing Measurable Attributes (CCSS: **K.CC.6**, **K.OA.1**, **K.OA.2**, **K.MD.2**, **MP.8**)

Materials List: various objects of different lengths in a bag (enough for each group of children), small paper clips

Small Group: Have students participate in a modified *DL-TA* – *directed learning-thinking activity* ([view literacy strategy descriptions](#)). *DL-TA* helps students to make predictions, and then check their predictions during and after the learning. Have one student from each group take out the same object and measure its length by making a paper clip ruler. To make the ruler, have students connect the paperclips together. The ruler should be the same length as the object. Have another student take out another object and measure its length by making a paper clip ruler the length of that object. Have all of the students compare the two objects and the length of the two paper clip rulers. Using *DL-TA*, begin a discussion about any observations the students have about the lengths of the 2 objects. For instance: Which object is longer or shorter? How many clips long is each item? Direct students' learning by asking, "How can we find out how much longer one object is than another?" Write down a few students' predictions on the board and ask why they think their method will work.

Example of student responses:

- Count both of the clips on both of the rulers and see who has more paperclips.
- Start with the smallest paper clip ruler and then count how many more clips the longest one has.
- Match the clips and see how many paperclips are left over.

Have students try each prediction. After each try, revisit the prediction and discuss whether it worked. If no one comes up with the predictions of matching the paper clip rulers one to one or subtracting to find the answer, add them to the predictions. Have the students try these predictions and discuss the results.

Activity 11: Picking Apples (CCSS: K.CC.5, K.OA.1, K.OA.2, K.OA.3, MP.1, MP.2, MP.3, MP.4, MP.5, MP.7, MP.8)

Materials List: Gathering and Picking Apples BLM, Apples BLM

Have students act out subtraction stories about apples on a tree using the Gathering and Picking Apples BLM and the Apples BLM. After they have solved the word problem, have a student write the corresponding number sentence on the board. Allow students to solve the problem a different way. They may draw a picture, use cubes, fingers, etc.

For instance:

1. There are 5 apples on the tree. Janna picked 2 of them. How many apples are left?
2. There were 6 apples growing on a tree. 4 apples fell down. How many apples are left?
3. Carlos counted 7 apples on the tree. He picked 3 apples, one apple for his mom, one apple for his dad and one apple for himself. How many apples are still on the tree?
4. There were 4 apples on the ground. A worm was in 1 apple. How many apples were still good to eat?

Activity 12: Clothespin Subtraction (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.2, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: clothespins, large plastic jars, Clothespin Subtraction BLM, chart paper, marker,

Display a *word grid* ([view literacy strategy descriptions](#)) written on a large chart paper to compare addition and subtraction. Students will write (Y) yes or (N) no as each heading is discussed. A *word grid* provides students with an organized framework for learning words by analyzing the similarities and differences of key features.

Example:

	Has a total number of objects	Has two smaller groups of objects	Puts together	Takes apart	Takes away
adding	Y	Y	Y	N	N
subtracting	Y	Y	N	Y	Y
Y = Yes N = No					

Have students use the *word grid* to make a simple definition for addition and subtraction.

Example:

- Adding is putting together two smaller groups of objects to make a greater number of objects. The greater number of objects is the total.
- Subtracting begins with a total number of objects. Some objects are removed from the total and that leaves a smaller number of objects.

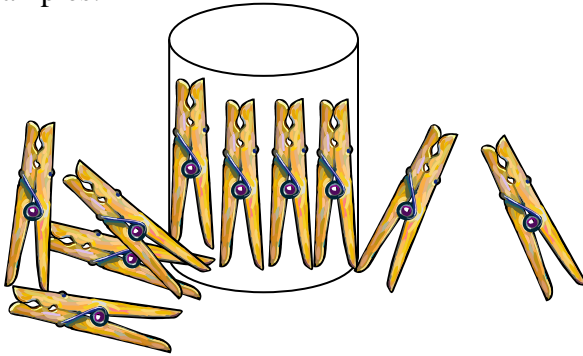
A *word grid* is a good way to explain that subtraction is the opposite of addition. Use their definitions to help them understand the relationship between addition and subtraction.

Small Group: Give each group 10 clothespins. Tell students, “Ten clothespins is the ‘whole’ (total) and they will find two parts of ten by playing ‘Clothespin Drop.’ “

How the game is played:

One student holds the clothespins waist high and tries to drop the clothespins one at a time into the jar. Students record their subtraction results on the Clothespin Subtraction BLM.

Examples:



10 take away 4 is 6 left on the floor.

Total	
10	
4	Floor 6


Activity 13: Froggie Hop (CCSS: K.OA.1, K.OA.2, K.OA.3, MP.2, MP.4, MP.7, MP.8, SL.K.1a, SL.K.2)

Materials List: Froggie Hop Number Path BLM, Froggie Hop BLM or plastic frog manipulatives, craft sticks

Teacher Note: Use materials stored from Activity 6.

Small Groups: Give each student a frog glued to a craft stick or a plastic frog manipulative and a number path. Call out a starting number. Have students place their frogs on a given number, and count back from there as the frog hops backward from number to number. Write the

corresponding number sentence on the board as the students act out each number sentence. Continue the activity with other numbers. Encourage students to ask questions about the activity for clarification and understanding.

Starting place	Hop backwards 	Number of hops	is	Stopping place
----------------	--	----------------	-----------	----------------

Activity 14: Subtracting Bears in the Cave (CCSS: K.CC.3, K.OA.1, K.OA.2, K.OA.3, MP.1, MP.2, MP.3, MP.4, MP.5, MP.7, MP.8)

Materials List: bowls, teddy bear counters or other manipulatives to count, Bears in a Cave

Small Groups: Start with a set of 5 teddy bear counters and have students count them orally, pointing to each bear as they count. Cover the bears with a cave (bowl). Without uncovering the bears, have the students watch as the cave is lifted slightly and a bear is taken out of the cave. Explain that when one bear comes out of the cave, one bear is subtracted from the total in the cave. Ask the students to predict how many bears are now in the cave. Lift the cave and have the students count to check. Replace the bear and say that once again, there are 5 bears in the cave. Continue the activity by subtracting bears from those in the cave, one at a time and then two at a time. Each time a bear is taken away, have the students state the number of bears left in the cave. Have students count to check. Have a student write the subtraction number sentence on the board after each check.

Partners: Have partners take turns repeating the above activity and writing the numerals on the Bears in a Cave BLM.

Teacher Note: Increase the number of bears hidden in the cave as students increase their understanding of subtraction.

Activity 15: Subtracting on the Five Frame (CCSS: K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.OA.1, K.OA.2, K.OA.3, MP.1, MP.2, MP.3, MP.4, MP.5, MP.7, MP.8)

Materials List: Five Frame Adding/Subtracting BLM, chips, chart paper

Give each student a five frame made from the Five Frame Adding/Subtracting BLM and 5 chips. Have them place the 5 chips on the five frame. Tell students that they are going to take away chips. Ask, “How many chips do you have on your frame? If you didn’t take any away, how many would you have on the frame?” Encourage students to use subtraction sentences such as “I have 5 chips and I took away 0 chips. I still have 5 chips.” Explain that 0 represents a count of no chips. On chart paper, record their subtraction sentences or draw the picture of the corresponding chips on a *graphic organizer* ([view literacy strategy descriptions](#)). Have students put all 5 chips on the five frame again, this time take away 1 chip. Record this subtraction sentence. Continue placing 5 chips down and subtracting one more chip each time. After all

possible subtraction sentences are written, repeat the activity for 4, 3, 2, and 1 chips. Place the *graphic organizer* in a location in the classroom where students can refer to it frequently. It will be used throughout upcoming units to check for accuracy and aid in the development of fluently adding and subtracting within 5.

Example:

5	4	3	2	1	0
5 take away 0 =	5 take away 1 =	5 take away 2 =	5 take away 3 =	5 take away 4 =	5 take away 5 =
	4 take away 0 =	4 take away 1 =	4 take away 2 =	4 take away 3 =	4 take away 4 =
		3 take away 0 =	3 take away 1 =	3 take away 2 =	3 take away 3 =
			2 take away 0 =	2 take away 1 =	2 take away 2 =
				1 take away 0 =	1 take away 1 =

After the *graphic organizer* is complete, have students share anything they noticed about the numbers. Through questioning help students discover:

- what happens to the number of objects when you don't take any objects away. (The number of objects stays the same.)
- what happens to the number of objects when you take all of the objects away. (There are zero objects left.)

Activity 16: Make 10 (CCSS: K.CC.2, K.CC.3, K.CC.4a, K.CC.5, K.CC.6, K.CC.7, K.OA.1, K.OA.2, K.OA.3, K.OA.4, MP.8)

Materials List: number cubes, Make 10 BLM, crayons, pencil

Partners: Have Partner A roll the 1-6 number cube and color in that number of squares on the Make 10 BLM. Have Partner B count the number of squares not colored in and color that number of squares in a different color. Have partners write down the numeral for the number of squares colored in each color on the BLM. Together, have them decide which color of cubes has a greater number of squares colored in and circle that numeral.

Example:

Make 10



6 and 4 is 10

Teacher Note: Place this activity in a math center so students can practice it often. This will help students develop an understanding of the commutative property of addition.

Sample Assessments

General Guidelines

Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Teacher observation and anecdotal notes
- The student's work products or pictures of student's products will be put in the student's portfolio to measure his/her progress.
- Student makes up his/her own math story using drawings or manipulatives to show objects being added and subtracted.

Activity-Specific Assessments

- Activity 8: Have students correctly model addition sentences using manipulatives. Provide oral addition sentences for students to model with manipulatives.
- Activity 14: Have the student count the total number of counters (5-10). Put all the counters under the cup. Have the student close his/her eyes while some of the counters are taken from under the cup. Have the student correctly determine the number of counters that are still under the cup.
- Activity 16: Using two different colors of linking cubes, have students make a group of 10 when given one number. Have students pull a numeral card to determine the first number of cubes to link. Have students use the second color of cubes to show how many more cubes are needed to make 10. Have the students state a number sentence for their combined cubes. (Example: I have 4 red cubes and 6 blue cubes. I have 10 cubes in all.)

Resources

Children's Books

Murphy Stuart, *Animals on Board*

Murphy Stuart, *Elevator Magic*

Websites

www.Internet4classrooms.com

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>

Teacher Resource

Use “Read It! Draw It! Solve It! K-3” to find ideas for integrating drawing and math problem solving. The author is Elizabeth Miller. It is available in limited quantities from ETA/Cuisenaire.

**Kindergarten
Mathematics
Unit 5: Geometry: Shapes, Attributes, and Solids**

Time Frame: This unit should last approximately 4 weeks. The content of this unit should be taught throughout the year with activities integrated into all content areas.



Note: The Comprehensive Curriculum is designed to allow students to achieve end-of-grade goals in developmentally-appropriate increments. The Unit Description, Student Understandings and Guiding Questions describe the developmentally-appropriate increments for each unit. The chart containing the CCSS for Mathematical Content provides the end-of-grade goals.

Unit Description

This unit focuses on identifying, describing and classifying two- and three-dimensional shapes. Activities also continue to reinforce counting to 100 by ones and tens.

Student Understandings:

Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes, such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes. Students directly compare two objects with a measurable attribute in common to see which object has “more of”/“less of” the attribute.

Guiding Questions

1. Can students describe objects in the environment using the names of shapes?
2. Can students describe the relative positions of objects in the environment using terms such as above, below, beside, in front of, behind, and next to?
3. Can students correctly name shapes regardless of their orientations or overall size?
4. Can students identify shapes as two-dimensional or three dimensional?
5. Can students use informal language to describe the similarities and differences of two- and three-dimensional shapes?
6. Can students analyze and compare two- and three-dimensional shapes, in different sizes and orientations?
7. Can students compose simple shapes to form larger shapes?
8. Can students draw a two-dimensional figure with some accuracy?

Unit 5: Common Core State Standards

CCSS for Mathematical Content	
CCSS #	CCSS Text
Counting and Cardinality	
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.4	Understand the relationship between numbers and quantities; connect counting to cardinality. <ul style="list-style-type: none"> 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.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.
Measurement and Data	
K.MD.1	Describe measurable 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. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>
K.MD.3	Classify objects into given categories, count the number of objects in each category and sort the categories by count
Geometry	
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 orientation or overall size.
K.G.3	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”)
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 lengths).
K.G.5	Model shapes in the world by building shapes from components (e.g., stick and clay balls) and drawing shapes.
K.G.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>

Standards for Mathematical Practice (MP)	
MP.3	Construct viable arguments and critique the reasoning of others.
MP.6	Attend to precision.
MP.7	Look for and make use of structure.
CCSS for ELA Content	
CCSS#	CCSS Text
Reading Standards for Informational Text	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.
Speaking and Listening Standards	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ul style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Note: Per the Common Core State Standards, the following shapes are required: square, triangle, circle, rectangle, hexagon, cube, cone, cylinder, and sphere. Rectangular prism and rhombus are not required, but should be included because students encounter them in numerous ways on a daily basis.

Daily Routines

Counting On (CCSS: K.CC.1, K.CC.2)

Materials List: plastic cup, craft sticks

Write a numeral 1-20 on each craft stick and place them face-down in the plastic cup. Each day choose one child to be the “Count Leader.” The “Count Leader” pulls a number, reads the number aloud, and leads the class in counting on from that number to 100. The “Count Leader” points to each number as it is said on the hundreds chart. This will reinforce the numeral with its name.

Counting Tens (K.CC.1)

Materials List: none

Each day, have students count by tens to 100. Have them hold up both of their hands, displaying their 10 fingers. Students will open and close their hands as they count to 100. They will say the next consecutive count of 10 each time their hands are open until they reach 100. Later on, these numbers can also be identified on the number path or hundreds chart.



Counting Calculator (CCSS: K.CC.1, K.CC.4)

Materials List: Counting Calculator BLM

Teacher Note: Introduce the proper use of the selected calculator and its basic functions before having students use this center.

Center: Using calculators, have students practice counting to 100 by ones and tens. Cut apart the directions on Counting Calculator BLM and place in a center so students can often practice counting by ones and tens to 100.

Example:

	Press 1 Press + 1= Begin counting by 1s Press = to 100		Press 10 Press + 10= Begin counting by 10s Press = to 100
--	---	--	--

Calendar (CCSS: K.CC.1, K.CC.4c, K.G.2)

Use geometric shape calendar cut-outs for the dates on the calendar as a way to review the geometric vocabulary daily. Have students identify the shape(s) of the cut-outs each day. Vary the orientation of the shapes.

Have students look at the calendar daily. Have students state the date each day to provide a real-life experience for counting to 30/31. The following are some calendar activities:

- Sing songs to practice the days of the week and the months of the year.
<http://www.canteach.ca/elementary/songspoems4.html> This site has several songs to use.
- What number do you think will be said/come next?
- If today is the ___th day of the month, how many days have passed in this month?
- Discuss the number of days in the week. Remind students that each number represents one day and have students match the day to the number that stands for that day.
- Have students state the names of the days of the week in order and the names of the months in order.
- Do you see a number pattern on the calendar?

Teacher Note: A pattern will be most apparent if the sequence of days begins on Sunday. If the first day falls in the middle of the week, a pattern may not be as obvious to young students.

Exploring Shapes (CCSS: K.G.3, K.G.4, K.MD.1, K.MD.2)

Materials List: plastic or wood two-dimensional and three-dimensional shapes

Center: Hold a brief class discussion to introduce the names of the two-dimensional and three-dimensional shapes to be used in this center. Be sure to use correct mathematical terminology (e.g., use sphere rather than ball, cylinder not can). Point out that some of the shapes are flat (two-dimensional), and other shapes are solid (three-dimensional). Provide a variety of two-dimensional and three-dimensional shapes of different sizes and widths for students to freely explore. Encourage students to move the shapes around and change the orientation of the shapes as they explore. This will help students discover that the placement or orientation of a shape does not change the shape. Encourage them to find ways to group the shapes that are alike in some way. As the center is monitored, have students explain how the shapes have been grouped (classified). It is important to give students many opportunities to manipulate the shapes to develop a better understanding of the shapes' attributes.

Teacher Note: Bringing in a variety of empty cardboard or metal 3-D boxes (e.g., small cereal, pudding, rice, juice, round cheese, crystal lite, etc.) from home will create a collection that can be sorted into groups described in the center activity above.

Tracing Shapes (CCSS: K.G.2)

Materials List: cardboard template shapes (circle, square, rectangle, triangle, trapezoid, hexagon, rhombus) drawing paper, crayons, chalk, or dry erase boards and markers

Center: Provide large cardboard templates of various sizes of two-dimensional shapes. Make sure to include an assortment of triangles (triangles with different types of angles, including right angles; triangles with 3, 2, and 0 sides of equal lengths). Have students trace around the cardboard template onto drawing paper or a dry erase board. Encourage the students to help each other as they figure out how to trace around the template to complete the figure. Allow students to color the inside of their shapes. Check student drawings to see if the shapes are complete and accurate. Have students discuss their drawings with friends and have them name all of their shapes regardless of size or orientation. Students should be exposed to many types of triangles in many different orientations in order to eliminate the misconception that a triangle is always right-side-up and equilateral. *Teacher Note: Students do not need to name the different kinds of triangles.*

Variation: Shape and Color Game

Place large cardboard templates and crayons (red, blue, yellow, green and orange) in the center of each student table. Have each student choose one template, trace it on drawing paper, and

color it using only one color. Call students to line up by a specific shape. (Example: Circles line up first, squares second, triangles third, etc...) Take students outside. Using chalk, draw large shapes on the ground. Students identify each shape as it is drawn. Students will follow the teacher's directions to play the game of Shape and Color.

Example:

- All students holding a square; stand inside the rhombus.
- All students holding a triangle; stand outside the circle.
- All students holding a trapezoid; stand inside the square
- All students holding a circle; stand to the left of the triangle.
- All students holding a rectangle; stand to the right of the trapezoid.
- All students holding a rhombus; stand inside the hexagon.
- All students holding a hexagon; stand outside the rectangle.

Repeat the activity, having students move again according to the color of their shape.

Teacher Note: Colored shapes can be stored to play the game often.

Pattern Blocks Exploration (CCSS: K.G.2, K.G.6)

Materials List: Pattern blocks, Pattern Blocks Exploration Cards BLM

Cut apart the Pattern Blocks Exploration Cards BLM. Display the cards in the Pattern Blocks Exploration center and have students make the suggested shapes using the pattern blocks. Students should also be allowed to create their own larger shapes or designs. This will give students an opportunity to see shapes in different orientations and how shapes can go together to create larger shapes.

Exploring the Web: (CCSS: MD.3, K.G.1, K.G.2, K.G.4, K.G.5, MP.6, MP.7)

Materials List: computers

Center Activity: www.Internet4classrooms.com offers many standard-based links to help students practice what they have been taught. Students can explore geometry using virtual manipulatives and online activities.

- <http://more2.starfall.com/m/math/geometry-content/load.htm?f&d=demo&n=enviro-shapes&y=1> This activity is on the free version of starfall.com. Students drag shapes to match 2-D and 3-D shapes to real-life objects.

For paper and pencil activities to use in a center, the site:





<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html> offers many standard-based links to help students practice what they have been taught.

Activity 1: Attribute Scavenger Hunt (CCSS: K.MD.1, K.MD.2)

Materials List: objects around the classroom

Have students with white shoes stand in one place. Have students with shoes of a different color stand in another place. Explain that the color of the shoes is an attribute of the shoes. It tells a way that the shoes are alike or different. Some attributes can be measured easily, some cannot. Some of the measurable traits of objects are length, weight, size, depth (thickness) and color. Have students go on a scavenger hunt to find two objects in the room that they can use to describe using a measurable attribute other than color. When students have their two objects selected, have them be seated and take turns describing their objects using a measurable attribute. Write their descriptions on a class chart. Explain that in this unit, they will often look at the attributes of shapes. This will be a way that they can describe how shapes are alike or different.

Example:

Length	Weight	Depth (Thickness)
<ul style="list-style-type: none"> ▪ This pencil is shorter than that pencil.  <ul style="list-style-type: none"> ▪ This clip is longer than that clip. 	<ul style="list-style-type: none"> ▪ The calculator is heavier than the eraser. 	<ul style="list-style-type: none"> ▪ The black book is thicker than the orange book. 

Teacher Note: Students need many opportunities to find shapes in their environment (including in nature, in buildings, and in the classroom). Students should use positional words in their descriptions, such as above, below, beside, in front of, behind, and next to.

Activity 2: The Language of Shapes (CCSS: K.G.1, K.G.2, MP.7, RI.K.1, SL.K.1a, SL.K.2)

Materials List: plastic shapes in large zipper bag (enough for everyone in the class), chart paper

Use a modified *vocabulary self-awareness* ([view literacy strategy descriptions](#)) to assess the students' vocabulary knowledge before beginning an in-depth discussion of shapes. This awareness is valuable for students because it focuses on their understanding of what they know, as well as what they still need to learn.

- On chart paper, make a list of important shape words in a vocabulary self-assessment chart. (A sample chart is shown below.) Complete the chart as a class before the lesson begins by asking students to rate each vocabulary word according to their level of

familiarity and understanding. Students will give a thumbs up (a plus sign (+) indicates a high degree of comfort and knowledge), or a sideways thumb (a check mark (√) indicates uncertainty), or a thumbs down (a minus sign (–) indicates the word is brand new to them). Record the number of students making each choice on the chart.

- Ask students to try to give an example and a definition/description for each word. For words with check marks or minus signs, students may have to make guesses about examples and definitions/descriptions.

Teacher Note: Some of the students' answers will be more of a description than a definition. Introduce correct mathematical terms when restating their description. Through guided questioning, help students focus on the attributes of a given shape.

For instance: Child says, "A box of tissue is a rectangle.

Teacher asks, "Where do you see a rectangle on this box?"







Child, "This side."


Teacher, "Yes, This 'face' of the box is a rectangle; not the entire box. The box is not flat like a rectangle, but this side is flat. The math word, 'face' is what we call the flat side of a solid shape.

- Over the course of the unit, allow time for students to revisit their *vocabulary self-awareness* chart often to add new information and update their growing knowledge about key vocabulary.

The goal is to bring all students to a comfortable level with the unit's important content terminology. Because students continually revisit the vocabulary chart to revise their entries, they have multiple opportunities to practice and extend their growing understanding of the words. Post the graphic organizer so students can use it throughout this unit as a reference to check their work and as a study guide for future assessments.

Example of possible responses:

Word	+	√	--	Example	Definition/Description
<i>circle</i>	+				<i>a face of a clock</i>
<i>square</i>	+	√			<i>a face of a box</i>
<i>rectangle</i>	+	√	–	 	<i>a face of a long box</i>
<i>triangle</i>	+	√		 	<i>three sides</i>
<i>hexagon</i>	+	√	–	<i>(unable to draw or give example)</i>	<i>that yellow shape</i>
<i>rhombus</i>	+	√	–	<i>(unable to draw or give example)</i>	
<i>trapezoid</i>	+	√	–	<i>(unable to draw or give example)</i>	
<i>cylinder</i>	+	√	–	<i>(unable to draw or give example)</i>	a pipe

<i>cone</i>	+ 20	√ 0	– 0		You put ice cream in it.
<i>cube</i>	+ 11	√ 8	– 1	ice cube	All the faces are squares.
<i>(rectangular prism)</i>	+ 20	√ 0	– 0	block	It looks like a shoe box. Some are big and some are little.

Key: + I'm sure of the meaning. √ I know a little about it. – I have no idea.

Activity 3: Shapes All Around Us (CCSS: K.MD.1, K.G.1, K.G.2, K.G.3, K.G.4, K.G.5, MP.3, MP.7, RI.K.1, SL.K.1a, SL.K.2)

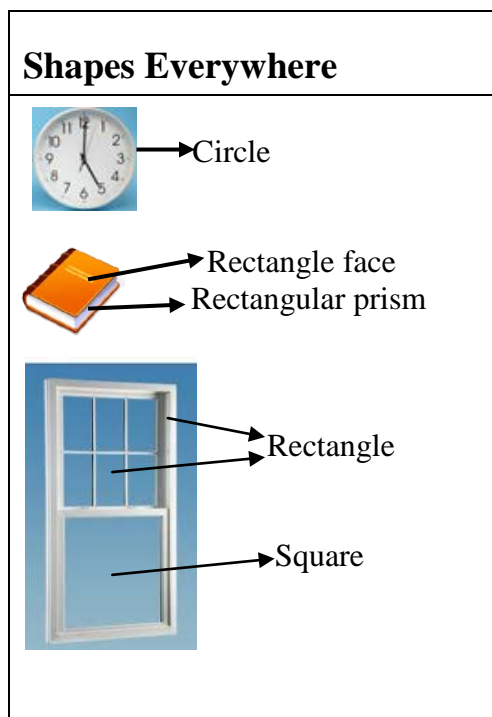
Materials List: *Shapes, Shapes, Shapes* by Tana Hoban, *Shapes Everywhere* BLM, chart paper, glue stick

Whole Group: Use Round Robin *discussion* ([view literacy strategy descriptions](#)) to have students engage in creating a *graphic organizer* ([view literacy strategy descriptions](#)). Have students form Round Robin groups of five students. Ask, “Can you name a shape?” Have each student go around the circle quickly naming any shape he/she knows. Ask, “Where have you ever seen one of these shapes?” Have each student go around the circle quickly naming where he/she has seen any of the shapes named. Explain that some of the shapes named are flat. They are called two-dimensional shapes. Two-dimensional shapes have length and width. Some of the shapes named are solid. They are called three-dimensional shapes. Three-dimensional shapes have length, width and height.

Cut apart the *Shapes Everywhere* BLM and show one picture at a time to the students and glue the picture on a large chart paper to create a *graphic organizer*. Have the students name all the shapes they see in the picture. Label the shapes as the students name them. Ask if the shape named is two-dimensional or three-dimensional. Point out that some shapes have been named more than once on the *graphic organizer*, but the shapes are different sizes and are in a different position. Show students the same shape in various sizes and/or positions. Then ask questions, such as “What can you tell me about all of these shapes?” This will provide more internal guidance for students to understand that a shape is named by its attributes.

Teacher Note: Students should be exposed to triangles, rectangles, and hexagons whose sides are not all congruent. They first begin to describe these shapes using everyday language and then refine their vocabulary to include sides and vertices/corners. Opportunities to work with pictorial representations, concrete objects, as well as technology helps students develop their understanding and develop descriptive vocabulary for both two- and three-dimensional shapes.

Example:



Share and discuss the book *Shapes, Shapes, Shapes*. This is a wordless book compiled of photographs depicting everyday scenes. The book is an excellent opportunity to develop a rich, meaningful conversation with students of where geometric shapes are seen in our world. Point out that in the book some shapes are pointing in a different direction but the name of the shape is still the same. Have students add any new ideas from the book to the *graphic organizer* created earlier.

Activity 4: The Shape of Things (CCSS: K.G.1, K.G.2, MP.7, RI.K.1, SL.K.1, SL.K.2)

Materials List: *The Shape of Things*, Shapes BLM (2 pages), The Shape of Things BLM, paper, crayons, markers

Read and discuss *The Shape of Things* by Dayle Ann Dodds, a book of rhyme that focuses on everyday objects that are made of shapes. There is a rhyme and shape on the left page and a picture made with that shape on the right page framed with a pattern of shapes. As the book is read, have students identify the shape on the left page and describe some of the shape's attributes (how many sides, corners, size, etc.). On the next page, have a student point to the same shape in the picture. Before leaving that page, have students name the pattern of shapes in the frame around the picture.

Small group: Using a modified *text chain* ([view literacy strategy descriptions](#)), have students create their own shape page to develop class books. The *text chain* strategy gives students the opportunity to demonstrate their understanding of newly learned material. By writing out new

understandings in a collaborative context, students provide themselves and the teacher a reflection of their developing knowledge. *Teacher Note: This is an excellent opportunity for formative assessment to evaluate evolving understanding of shapes and their names.*

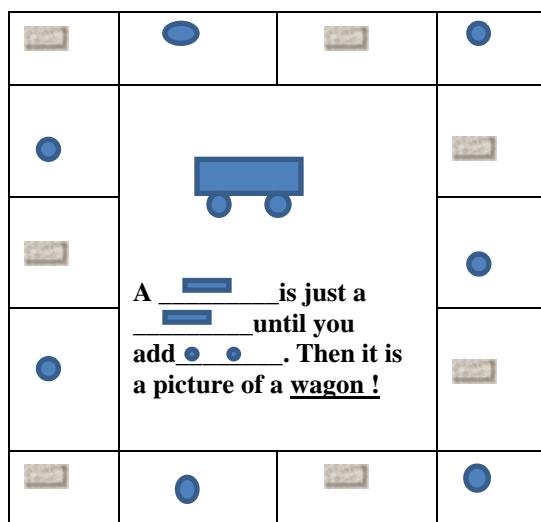
Have each student design one page, choosing one or two 2-D shapes. Give each group a copy of the Shapes BLM as a reference sheet for drawing shapes. Each student will need his/her own copy of The Shape of Things BLM to complete.

Remind students:

- Each page has its own shape or shapes (Choose a square, circle, triangle, rectangle, rhombus, trapezoid, and/or a hexagon.)
- The border of each page is a repeating pattern. (big rectangle, little rectangle; triangle pointing up, triangle pointing to the right)
- Each two-dimensional shape from the border makes a part of your picture.

When each small group has completed their pages, collect them to make a class book. Place the class book of *The Shape of Things* in the classroom library so students can read it often to reinforce understanding of shapes.

Example:








Activity 5: Three-Dimensional Shape Hunt (CCSS: K.CC.6, K.G.2, K.G.5, K.MD.3, MP.6, MP.7, SL.K.1a)

Materials List: three-dimensional shapes, Three-Dimensional Shape Hunt BLM, chart paper, marker .

Teacher Note: In advance of this lesson, prepare a chart with three-dimensional shapes to record students' responses. Ask parents to send in items or empty containers for each shape being studied. If a container doesn't meet a description of a shape, then it can be classified as "Not a can" or "Not a cylinder," etc.

Place three dimensional shapes on each table of four students. Use Think-Pair-Share discussion ([view literacy strategy descriptions](#)) to create a list of where solids are found. Discussion can be used to promote deeper processing of content and can develop interest for newly learned content. To be effective, discussion strategies should be identifiable, purposeful, planned, and adequately described. Show students a three-dimensional shape and state its geometric name. Have students find the matching shape on the table and pass the shape around to each student at the table to examine closely. Have students think on their own as to where they have seen that shape. Next, have students share their ideas with partners at the table. Have the four students at the table then share their ideas. One person at each table reports (names) a real-life object that has the given shape. Student responses are recorded on a class chart. Keep the chart posted to refer to during other activities and to update as other objects are discovered.

Example and sample answers:

<p><i>sphere</i></p>  <p><i>globe ball</i></p>	<p><i>cylinder</i></p>  <p><i>can chalk pencil</i></p>
<p><i>cube</i></p>  <p><i>ice number cube</i></p>	<p><i>cone</i></p>  <p><i>birthday hat ice cream cone tee pee</i></p>
<p><i>rectangular prism</i></p>  <p><i>tissue box color box pencil case</i></p>	

After the chart is completed, give the students a Three-Dimensional Shape Hunt BLM and have them go on a shape hunt of the room. Have them record their findings by using inventive spelling. Have the table groups discuss any new findings and add the findings to the list.

Activity 6: Comparing Solids (CCSS: K.CC.6, K.G.2, K.G.3, K.G.4, MP.6, MP.7, RI.K.1, SL.K.1a, SL.K.2)

Materials List: chart paper, marker, three-dimensional shapes (sphere, cone, cylinder, cube, rectangular prism)

Place a group of three-dimensional objects (sphere, cone, cylinder, cube, rectangular prism) in the middle of each table of students. Have students work together to explore the objects to sort the objects by the following attributes:






- Objects that have a face with the following shape
 - Circle
 - Square
 - Triangle
 - Rectangle

- Objects that roll
- Objects that stack

Put a blank *word grid* ([view literacy strategy descriptions](#)) on chart paper. Have students name the three-dimensional shapes they have studied. Draw or use a picture of the shape named vertically in each row. Have students identify some of the flat, two-dimensional shapes that form the faces of the solid, three-dimensional shapes. Write those shapes horizontally in the first row of the *word grid* as students say them. Add rolls and stacks to the end of the row as new attributes to discover. Explain that Y will stand for yes (if the shape has that attribute) and N will stand for no (if it does not have that attribute). When the *word grid* is complete, demonstrate how partners can make up questions using the chart to help one another prepare for an assessment. Examples, “Name two shapes that have a circle? What flat shapes are on a cylinder?” Allow time often for students to quiz one another in this manner.

**Teacher Note: Have students discuss their reasoning. Have students compare the attributes of a rectangle and a square to determine that a square is a special kind of rectangle.*

Example:

Three-Dimensional Shapes						
	circle	square	triangle	rectangle	rolls	stacks
	N	N	N	N	Y	N
	Y	N	N	N	Y	Y
	N	Y	N	Y*	N	Y
	Y	N	N	N**	Y	Y/N***
	N	N	N	Y	N	Y
Y = yes N = no						

***If a student says that a cone has a triangle face, allow him/her to explain his/her reasoning. A student may think a cone appears to have a triangle face, if it is placed on its side. Review the attributes of a triangle to help the students understand that a triangle is made up of 3 straight connected lines/edges that enclose a shape. A cone has no straight edges on it.*

****If a student says that a cone can be stacked, have him/her explain his/her reasoning. A cone can stack on some solids (cube, cylinder, rectangular prism), but a cone cannot be stacked on another cone. After a class discussion is held, have the class decide how to mark the graphic organizer.*

Activity 7: Making Real World Models (CCSS: K.CC.4, K.CC.6, K.MD.1, K.G.2, K.G.4, K.G.5, K.G.6, MP.6, MP.7)

Materials List: three-dimensional shapes (sphere, cone, cylinder, cube, rectangular prism), modeling clay, craft sticks, toothpicks

Small Groups and Centers: Model building real-life shapes using craft sticks or toothpicks and clay balls. Provide students with examples of geometric solids and books about shapes as references. Encourage students to observe the three-dimensional shapes carefully before attempting to make their own solids. Have each student orally describe his/her solid using informal language describing the model by size, number of faces, and other attributes.

Teacher Note: It can be hard for young students to understand that the models they created can be called **SOLID** when they can see through them. It may help to relate their models to our human bone structure and what their shapes would look like if covered with a “skin.” Art tissue paper could be used to go around the creations to make them seem solid.

Activity 8: Hide and Seek Shapes (CCSS: K.CC.4a, K.CC.6, K.MD.1, K.MD.2, K.MD.3, K.G.1, K.G.2, K.G.3, MP.6, MP.7, RI.K.1, SL.K.1a)

Materials List: attribute blocks, pattern blocks, solids

Choose a shape without showing it to the students and verbally describe some of its attributes. Ask students to guess what shape it could be. Repeat this activity until the attributes in the examples below have all been discussed.

Have students close their eyes as two-dimensional and three-dimensional shapes (one for each child) are hidden around the room. Have them open their eyes and allow the boys to go and find one shape each. Have them bring back their shapes and sit on the floor. When the boys are seated, have each of the girls seek and find a shape and join the boys on the floor. Have each student name his/her shape. State an attribute and have students classify their shapes by that attribute. Have students count the number of objects in each category, compare the number to the number of objects not in the category, and state which set has fewer/less or more.

To give students practice with a variety of shapes, collect the shapes used each time and put them in two bags. Pass the bags around the circle, starting one on the left and one on the right. Have students pick a shape that is different from the one they just had and one that is different from their neighbor’s shape.

Examples:

- By size (large, small)
- By width (thick, thin)
- By color
- By triangle/not a triangle
- By name of shape (square, circle, rectangle, triangle, trapezoid, rhombus, hexagon)

- By number of sides
- By straight sides
- By no sides
- By more than 3 corners
- By 2-dimensional and 3-dimensional
- By 3-dimensional shapes with at least one face that is the same

Teacher Note: Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision within this unit are squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, spheres, flat, solid, side, corner, edge, face, along with positional vocabulary (e.g., above, below, beside, in front of, behind, next to, same, different, etc.).

Activity 9: Pattern Block Pictures (CCSS: K.G.2, K.G.6, MP.6, MP.7, SL.K.1a, SL.K.2)

Materials List: pattern blocks, Pattern Blocks Pictures BLM (7 pages)

Use a modified *SQPL* ([view literacy strategy descriptions](#)) to help students discover that shapes do not change regardless of their orientation. *SQPL* helps students to develop the ability to read, listen, and learn with a purpose. When students learn purposefully, they focus and sustain attention. *SQPL* promotes purposeful reading and learning by prompting students to ask and answer their own questions about content.

- Write this statement on the board, “Triangles always point up.” Read the statement to the class.
- Have students work in small groups and based on the statement, discuss what they know about triangles. Circulate and listen to students as they talk and help them develop questions about triangles.
- When you have helped all student groups come up with a question, ask someone from each group to share questions with the whole class. As students ask their questions aloud, display the questions. Students may need help wording the questions.
- Once all questions have been shared, look over the list and decide whether other questions need to be added.
- At this point, students will be ready for the pattern block picture activity (Small Group activity below), so they can find answers to their questions. Tell them to pay attention to their activity as they work and see if what they are doing helps answer questions from the board.
- Stop periodically and have students discuss with their group which questions could be answered, and then ask for volunteers to share.

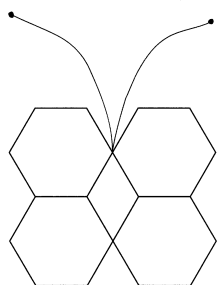
Example of possible student-generated questions:

- How many sides does a triangle have?
- If the point is not up, does the shape have another name?
- Do all shapes have to stay the same way?

- Can shapes be moved?

Small Group activity: Provide each group of students a set of the seven Pattern Block Picture BLMs and pattern blocks. Have them work individually or with partners to complete the pictures by covering them with pattern blocks. Remember to stop periodically and have students discuss with their group which questions could be answered, and ask for volunteers to share. Point out that not all students are using the same shapes to make the same picture. Hold a brief discussion to compare the different shapes used. Display a copy of each pattern block picture with the combination and number of each shape used.

Example:



1st way: 4 hexagons

2nd way: 8 trapezoids

3rd way: 24 triangles

4th way: 12 rhombus shapes

(There are many possibilities. At this time, record only the ones that the students actually make.)

Teacher Note: Simple downloadable animal pattern block pictures can be found at <http://prekinders.com/pattern-blocks/>.

Activity 10: My Pattern Block Picture (CCSS: K.CC.4a, K.CC.6, K.MD.3, K.G.1, K.G.2, K.G.3, K.G.6, MP.6, MP.7, SL.K.1a)

Materials List: pattern blocks, Pattern Blocks BLM (5 pages) (or pattern block stickers, di-cut pattern blocks, pattern block stamps), My Pattern Blocks Picture BLM, glue, scissors

Hold a class discussion about the shapes used to make the pattern block pictures in Activity 9. Have students share all the observations they made about shapes, including the variety of shapes that could be used to make a design.

Have students use pattern block stickers, di-cut pattern blocks, pattern block stamps, or the Pattern Blocks BLM to make a picture of their favorite block design. Before students begin, model the entire activity including the gluing of the shapes on the My Pattern Blocks Picture BLM and the recording of the number used of each shape.

Give students these instructions:

- Make a simple pattern block design using real pattern blocks on your desk.
- Use the Pattern Blocks BLM to color and cut out the number of paper shapes (or pattern block stickers, di-cut pattern blocks, pattern block stamps) needed to recreate your design.
- Looking at your pattern block design, glue the paper shapes in the same place on the My Pattern Blocks Picture BLM.

- Count how many you have of each shape and record that number on the table at the bottom of the My Pattern Blocks Picture BLM.

Students can use their pictures to talk about shapes with others. Have the students find anyone who used the same number of each shape. Are the pictures the same? Why or why not? Monitor that students are following the directions given and the types of questions and answers that are being given.

Activity 11: Copy That! (CCSS: K.CC.6, K.MD.3, K.G.1, K.G.2, K.G.3, K.G.4, K.G.6, MP 3, MP.6, MP.7, RI.K.1, SL.K.1a, SL.K.1b, SL.K.2)

Materials List: attribute blocks, pattern blocks, solids

Model this activity with one student (or classroom adult helper) for the entire class before the students work with a partner.

Partners: Have students choose partners. Have partners sit back to back. The Partner A chooses 4 shapes (either two-dimensional, three-dimensional or a combination of both). Partner A tells Partner B which 4 shapes have been chosen by describing the shapes using their attributes. Partner B identifies the shapes chosen, and the game begins. Partner A arranges the shapes in front of him/her and describes the position of each shape using terms, such as above, below, beside, in front of, behind, next to, on the right side of, on the left side of, etc. Partner B may ask questions for clarification. When Partner B thinks he/she has copied the shape design, both students stand up and compare the shape designs. Allow students to repeat this activity often by placing it in a center. It will help them solidify their vocabulary and explanations.



Activity 12: Creating Hexagons and Other Shapes (CCSS: K.CC.4a, K.CC.6, K.MD.3, K.G.1, K.G.2, K.G.3, K.G.4, K.G.6, MP.3, MP.6, MP.7, RI.K.1, SL.K.1a, SL.K.2)

Materials List: pattern blocks, Creating Hexagons Spinner BLM, Creating Hexagons Gameboard BLM, Creating Hexagons Recording Sheet BLM, paper clips or bobby pins* to be used as spinners, pencils

*See explanation of how a bobby pin can be used in place of a paper clip in Unit 1, Activity 11.

Model this activity with one student (or classroom adult helper) for the entire class before the students work with a partner.

Partners or Small Group: Provide each group with one Creating Hexagons Spinner BLM and each student with a Creating Hexagons Gameboard BLM. Explain that the goal of the game is to create hexagons by putting different shapes together.

Game rules:

- Spin the Creating Hexagon Spinner BLM.
- Place the matching pattern block on one of the hexagons on the Creating Hexagons Gameboard BLM.
- Once the shape is put down, it cannot be moved.
- The next player repeats the above steps on his/her game board.
- Players continue taking turns until all the hexagons on one of the boards have been covered.
- If there is no place to put the pattern block that was spun, the player loses a turn.
- The first player to cover all of the hexagons is the winner.

Optional: Students may trace the shapes on the Creating Hexagons Recording Sheet BLM and color the shapes in to make a permanent record of the pattern block combinations.

When the game is complete, have the students complete a modified *process guide* ([view literacy strategy descriptions](#)) similar to the example below. A *process guide* helps struggling students make sense of their learning as they process the information and concepts being taught. It stimulates students' thinking during or after their reading, listening, or involvement in any content area of instruction. *Process guides* help students focus on important information and ideas, making their reading or listening more efficient.

It is important to prepare students to use the *process guide*. Explain that the *process guide* will help them focus on what they learned while playing the game, Creating Hexagons. Students may talk to the other people in their group before giving their answer. After student responses are recorded, encourage the students to explain how they know their answer is correct. (Students may demonstrate their answer with pattern blocks or if the Creating Hexagons Recording Sheet BLM was used, students can show their recorded response.) Ask students if they noticed that they made other pattern block shapes when they put pattern blocks together to cover the hexagons. Have them explain (3 triangles made a trapezoid, 2 triangles made a rhombus, etc.) . It may not be obvious that 3 green triangles can be arranged to cover a red trapezoid, so take time for all students to make the shapes explained. Remind students that some of these combinations were found when they made pattern block pictures and when they worked in the Pattern Block Exploration center.

Example:

Creating Hexagons using Other Pattern Blocks

When playing the game, Creating Hexagons, you spin a trapezoid. What other shapes will you need to make a hexagon? (Students demonstrate each answer given.)
(possible answers)

- *another trapezoid (explanation— Student makes a hexagon using two trapezoids.)*
- *a rhombus and a triangle (explanation---Student shows a hexagon that has been colored in this way.)*

When playing the game, Creating Hexagons, you spin a triangle. What other shapes/blocks will you need to make a hexagon? (Students demonstrate each answer given.)
(possible answers)

- *five more triangles*
- *one more triangle and two rhombi (rhombuses can also be used for the plural of rhombus)*
- *three more triangles and one rhombus*
- *one trapezoid and two more triangles*

When playing the game, Creating Hexagons, you spin a rhombus. What other shapes will you need to make a hexagon? (Students demonstrate each answer given.)
(possible answers)

- *two more rhombi (or rhombuses)*
- *four triangles*
- *one rhombus and two triangles*
- *one trapezoid and one triangle*

Activity 13: Professor Know-It-All (CCSS: K.CC.6, K.G.1, K.G.2, K.G.3, K.G.4, K.G.6, MP.3, MP.6, MP.7, RI.K.1, SL.K.1a, SL.K.2)

Materials List: pattern blocks, three-dimensional shapes, attribute blocks

Students will review their knowledge of shapes by using *professor know-it-all* ([view literacy strategy descriptions](#)). *Professor know-it-all* is an effective review strategy. It allows students to act as “experts” on a topic and to share information with their peers. It also allows their peers to challenge them and hold them accountable.

Form groups of two or three students. Review how to ask questions and allow time for groups to discuss possible questions. Have students refer to the Three-Dimensional Shapes *word grid*, The Three Dimensional Shape Hunt BLM, and the Creating Hexagons with Other Shapes *process guide* to formulate questions. These charts were made and used in other activities in the unit. Next, choose a group to come to the front of the room where the pattern blocks, the three-dimensional shapes and the attribute blocks are displayed. Have a student not in the group ask a

question. Have the group huddle and discuss the answer. (Have two-dimensional and three-dimensional shapes available to help students answer questions posed.) One student in the group will give the answer on which the group agreed. Continue with a few more questions, then give another group a turn to be the *professors know-it-all*.

Sample questions:

- What three dimensional shapes have at least one square face? (pyramid, rectangular prism, cube)
- What two shapes can you use to make a hexagon? (two trapezoids)
- What shape has three sides? (triangle)
- What shape has no sides? (circle)
- What two-dimensional shapes have 4 corners? (rectangle, square, rhombus, trapezoid)

Sample Assessments

General Guidelines

Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Teacher observations and anecdotal notes.
- Work products or pictures of student products placed in the student’s portfolio to measure progress of the student.

Activity-Specific Assessments

- Activity 1: Show the student several objects. Have the student choose two objects that show the described measurable attribute.
Example: The teacher says, “Show me two objects. One object must be heavier than the other.” The student chooses a bottle of glue and a pencil and says, “The glue is heavier than the pencil.” (Other measurable attributes to be shown include taller/shorter, longer/shorter, thicker/thinner, lighter color/darker color)
- Activity 5: Ask the student to name the 3-dimensional shape of given objects (possible objects: box, paper towel roll, birthday hat, ball, marker, pencil case, crayon box, can, etc.)
- Activity 8: Ask the student to sort shapes (rectangle, circle, square, triangle, rhombus, hexagon, sphere, cone, cylinder, cube, and rectangular prism) into two-dimensional and

three-dimensional shapes. Have the student sort the shapes again using another attribute selected by the student and explain how the shapes were sorted.

- Activity 12: Allow the student to form larger shapes by combining smaller shapes using the pattern blocks or other two dimensional shapes.
- Activity 13: Take anecdotal notes as students ask and answer questions during *professor know-it-all*.

Resources

Children's Books

Hoban, Tana. *Shapes, Shapes, Shapes*.
Dodds, Dayle Ann. *The Shape of Things*

These books can be substituted if the two above books are not available.
They may also be placed in a center for students.

MacDonald, Suse. *Sea Shapes*.
Ehlert, Lois. *Color Zoo*
Rogers, Paul. *The Shapes Game*
Knighten, Rosalind. *Shapes*

Websites

www.Internet4classrooms.com
<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html>
<http://www.canteach.ca/elementary/songspoems4.html>
<http://more2.starfall.com/m/math/geometry-content/load.htm?f&d=demo&n=enviro-shapes&y=1>

**Kindergarten
Mathematics
Unit 6: Place Value: Exploring Teen Numbers**

Time Frame: This unit should last approximately 4 weeks. The content of this unit should be taught throughout the year with activities integrated into all content areas.



Note: The Comprehensive Curriculum is designed to allow students to achieve end-of-grade goals in developmentally-appropriate increments. The Unit Description, Student Understandings and Guiding Questions describe the developmentally-appropriate increments for each unit. The chart containing the CCSS for Mathematical Content provides the end-of-grade goals.

Unit Description

This unit focuses on working with numbers 11-19 to gain foundations for place value.

Student Understandings

The students will understand the foundation of place value as it relates to numbers 11-19. They will be able to compose and decompose numbers 11-19 into ten ones and one, two, three, four, five, six, seven, eight, or nine ones by using drawings or objects.

Guiding Questions

1. Can students, using objects or drawings, decompose numbers less than or equal to 10 into partners/pairs in more than one way?
2. Can students, using objects or drawings, compose and decompose numbers 11-19 into 10 ones and some further ones?
3. Can students, using objects or drawings, record each composition and decomposition by a drawing or an equation?
4. Can students, using objects or drawings, understand that numbers from 11-19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones?

Unit 6: Common Core State Standards

CCSS for Mathematical Content	
CCSS #	CCSS Text
Counting and Cardinality	
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).
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. <ul style="list-style-type: none"> 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.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.
Operations and Algebraic Thinking	
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.
Number and Operations in Base Ten	
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.
Standards for Mathematical Practice (MP)	
MP.2	Reason abstractly and quantitatively.
MP.4	Model with mathematics.
MP.7	Look for and make use of structure.
MP.8	Look for and express regularity in repeated reasoning.

CCSS for ELA Content	
CCSS#	CCSS Text
Speaking and Listening Standards	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ol style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Daily Routines

Calendar (CCSS: K.CC.1, K.CC.2)

Have students look at the calendar daily. Each day, have students state the date to provide a real-life experience for counting to 30/31. The following are some samples of calendar activities:

- Sing songs to practice the days of the week and the months of the year. <http://www.canteach.ca/elementary/songspoems4.html>. This site has several songs to use.
- Discuss the number of days in the week. Have students match the name for each day in a week to the number for each day of the week (e.g., Sunday is day 1, Monday is day 2, etc.) Do the same for the months of the year.
- Ask students to indicate the number that will be said next when counting the number of days in a month.
- Ask, “Today is the ___th day of the month. How many days have passed in this month?”
- Ask students to discuss patterns that they see on the calendar.

Teacher Note: Choose one or two of the following activities to do daily.

Take It to the Bank: (K.CC.1, K.CC.2, K.CC.4a, K.CC.4c, K.CC.6)

Materials List: 100 pennies, 10 dimes plastic or real (preferred), bank or jar,

Give each student a few pennies. Have students take turns putting their pennies in the bank as they sequentially count the pennies by 1s to 100.

Give 10 students a dime. Ask students to take turns putting their dimes in the bank as they sequentially count the dimes by 10's to 100.

Teacher Note: If at all possible, especially during introductory activities, using real coins is better for students to gain understanding of these coins. Repeat this activity two or three times a week depending on student understanding. This activity should be continued with in-need small groups as long as necessary.

Three Cheers for 10 (CCSS: K.CC.1, MP.7)

Materials List: Decade Numeral Cards BLM (3 pages)

Cut apart the Decade Numeral Cards BLM and mix the order of the cards. Choose 10 students to participate and hand one card to each student. Students will say the numeral on their card when it is handed to them. The ten students chosen will then put themselves in the correct numerical order. When everyone has lined up, each student will take turns raising the decade card above his/her head and the class will shout out the numeral. When 100 is reached, the class will say, "Hip-hip hooray! Hip-hip hooray! Hip-hip hooray!"

Teacher Note: Run Decade Numeral Cards BLM on card stock and/or laminate before cutting to create a more permanent set.

Counting Songs (CCSS: K.CC.1, MP.7)

Materials List: teacher-made numeral cards (5 by 7 index cards with one numeral from 1-20 written on each card)

Hand out the teacher-made numeral cards 1-20 to individual students. As students sing counting songs, have them raise the correct numeral when it is named in the song.

Examples:

Counting 1 to 20 by Jack Hartmann (Math In Motion CD)

Number Rock by Greg and Steve (We All Live Together, Vol. 2 CD)

Extend simple counting songs to include teen numbers such as *Ten Little Indians*, *Over in the Meadow*, *Ten in the Bed*, *This Old Man*, etc.

Classroom Counting (CCSS: K.CC.1, MP.7)

Have students count using one-to-one correspondence as they perform classroom duties such as attendance head counting; lining up; passing out/collecting papers, pencils, paper plates, etc.

Movin' to the Teen Numbers (CCSS: K.CC.1, MP.7)

Materials List: craft sticks with one numeral 11-20 written on them, plastic cup

Place craft sticks with numerals on them in a plastic cup. Have a student pick a stick, read the numeral, and state a motion for the class to do the chosen number of times. Encourage students to use directional words when stating the motion.

Example:

Raise your hands above your head 12 times.

Clap your hands in front of you once and then behind your back once. Clap 16 times.

Slide to the right 11 times.

Counting Jar: (K.CC.4b, K.CC.4c, K.CC.6)

Materials List: two same-sized jars, variety of objects

Review the meaning of estimation (a number close to an exact number). Discuss words that are used when estimating (about, near, more than, less/fewer than, same, between, etc.). Encourage students to use estimation words when stating their estimation. Use 2 same-sized jars. Fill one with 10 objects and label it as 10. Fill the other jar with more than 10, but fewer than 20 objects. Have students estimate how many are in the second jar.

Once estimations are made, have the class count the objects aloud and compare the actual count to their estimations. Vary the size and/or shape of objects daily as well as the size of the container. Make sure the students 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. Understand that each successive number name refers to a quantity that is one larger.

Activity 1: Make 10 (K.CC.3, K.CC.4b, K.CC.4c, K.OA.4, MP.2, MP.4, MP.7, SL.K.2)

Materials List: Make 10 Gameboard BLM, 10 linking cubes in a zipper bag (different colors for each partner), paper clip or bobby pin, and pencil for each group

Model this activity for the class using a student as your partner. Explain that math symbols will be used to record the ways that 10 is made. The math symbol (+) means “and.” It is called a

plus sign. The math symbol (=) means “is.” It is called an equal sign. Demonstrate how an equation is written using words and then how the equation will be written using math symbols.

Partners: Have students work with partners and play “Make 10.” Partner A places the paper clip or bobby pin in the middle of the spinner and holds it in place with a pencil. Partner A spins and places that number of cubes on the ten frame. Partner B adds the remaining cubes to “make 10.” Students will record their results with drawings or numbers in their *learning log* ([view literacy strategy descriptions](#)). Partner B goes first on the next spin.

Example:

Partner A spins 6 and places 6 orange cubes on the ten frame.



Partner B fills in the ten frame with 4 yellow cubes to make 10.

Both students write 6 and 4 is 10 in their learning logs and/or draw a picture.

$$6 + 4 = 10$$

Activity 2: Calculators and Teen Numbers (K.CC.3, K.CC.4b, K.CC.4c, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.2)

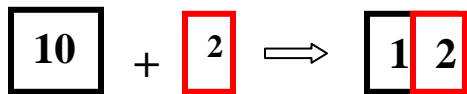
Materials List: calculators, Calculators and Teen Numbers BLM, Numeral Cards BLM

Help students understand that a teen number is 10 and some extra ones by demonstrating how the numeral is made. Using the Numeral Cards BLM, show the numeral 10 and then place the numeral card that stands for the other ones over the 0.

Example:

10 and 2 other ones is 12.

$$10 + 2 = 12$$



Explain that the calculator will help them make teen numbers by hiding the 0 with the numeral that shows how many extra ones they have added. Give each student a calculator and a Calculators and Teen Numbers BLM. Model with students how to follow these steps:

Press 10.

Press +.

Press 3.

Press =.

Read the teen number.

Record your actions on the Calculator and Teen Numbers BLM.

Example:

10	+	3	=	13
----	---	---	---	----

Have students work independently to complete the Calculators and Teen Numbers BLM while circulating and asking questions to check as formative assessment for student understanding.

Activity 3: Illustrating Numbers 11-19 (K.CC.3, K.CC.4b, K.CC.4c, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, MP.8, SL.K.2)

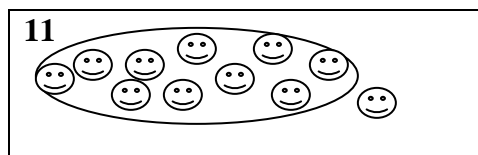
Material List: learning logs, large number cards 1-20

Have students use a modified *DL-TA* ([view literacy strategy descriptions](#)) to create their own record of numbers 11-19. *DL-TA* is an instructional approach that invites students to make predictions and then check their predictions during and after the learning.

Teaching Process

1. First, activate and build background knowledge for the content to be learned. Give students number cards 1-20 in mixed order and have them put them in correct numerical order. Ask, “How can you check to see if your numbers are in the right order?” (Possible answers-count it again, look on the number path/hundred’s chart/calendar to see if the numbers are in correct order.) Explain that the numbers 11-19 are called “teen” numbers.
2. Next, encourage students to make predictions about what they will learn. Ask questions, such as “What do you think you are going to learn about numbers 11-19 today?” Guide students to understand that they will be working on an easier way to check a large number of objects by grouping a set of 10.
3. Guide students through the activity of illustrating numbers 11-19 in their *learning logs*. Have students draw 11 objects in their *learning logs* ([view literacy strategy descriptions](#)) and check their drawing by circling 1 group of 10. Have students count on from 10 (10, 11) and write the numeral 11. They will continue in this same manner for numbers through 19. This activity may take two days to complete.

Example:



4. Once students have completed writing and representing all numbers 11-19 in their *learning logs*, have them respond to the questions, “Was counting on from 10 an

easy way to check the number of shapes drawn? Did doing this make it easier for you to remember how to correctly write the numbers 11-19?” Explain that the numeral on the left, the first numeral, 1, shows how many groups of ten were circled. The second numeral shows how many other ones were drawn.

5. Students should be encouraged to use this modified *DL-TA* (predicting and checking) when learning.

Teacher Note: Special attention needs to be paid to numbers 11-19 as they do not follow a consistent pattern in the verbal counting sequence.

- *Eleven and twelve are special number words.*
- *“Teen” means one “ten” plus extra ones.*
- *The verbal counting sequence for teen numbers is backwards –the ones digit is stated before the tens digit. For example “27” reads tens to ones (twenty-seven), but 17 reads ones to tens (seven-teen).*
- *In order for students to interpret the meaning of written teen numbers, they should read the number as well as describe the quantity. For example, for 15, the students should read “fifteen” and state that it is one group of ten and five ones and then record that $15 = 10 + 5$.*

Teaching the teen numbers as one group of ten and extra ones is foundational to understanding both the concept and the symbol that represent each teen number. For example, when focusing on the number “14,” students should count out fourteen objects using one-to-one correspondence and then use those objects to make one group of ten ones and four additional ones. Students should connect the representation to the symbol “14.” Students should recognize the pattern that exists in the teen numbers; every teen number is written with a 1 (representing one ten) and ends with the digit that is stated first.

Activity 4: One More/One Less (K.CC.3, K.CC.4b, K.CC.4c, K.CC.6, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials List: One More/One Less Spinners BLM, One More/One Less Number Path BLM, One More/One Less Numeral Cards BLM, paper clip or bobby pin, pencil

Teacher Note: Prior to playing the activity, run the One More/One Less Spinners BLM, One More/One Less Number Path BLM, One More/One Less Numeral Cards BLM on card stock and laminate. Cut the One More/One Less Number Path BLM apart and tape it together to make a number path. Cut the One More/One Less Numeral Cards apart to make individual numeral cards.

Model with a student how to play the game before partners play the game.

Partners: Partner A spins the top spinner on the One More/One Less Spinners BLM and reads the numeral aloud. Partner B spins the bottom spinner to determine if they are to find a number that is one more or one less Partner A’s number. Partner B should state the number that the partners need to find.

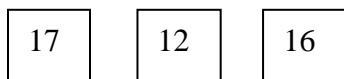
Working together, both players use the One More/One Less Numeral Cards BLM to find the numeral card and place it on the number path. The game continues until all numeral cards have been successfully placed on the One More/One Less Number Path BLM.

Example:

One More/One Less Number Path

10	11		13	14	15			18	19	20
----	----	--	----	----	----	--	--	----	----	----

One More/One Less Numeral Cards

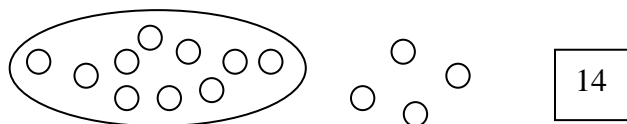


Activity 5: In the Nick of Time (K.CC.3, K.CC.4b, K.CC.4c, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.2)

Materials List: clock, paper, pencil

Have students draw as many simple objects (circles, squares, rectangles, etc.) as they can during a given time. Begin with 10 seconds and adjust the time according to the number of objects the students can draw in that time. Give a signal and have students begin drawing. When time is up, have the students circle the group of 10, count the extra ones, and write the number that was illustrated.

Example:

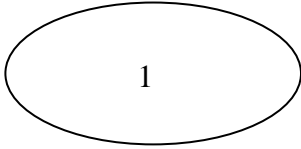


Activity 6: Grab and Count (K.CC.3, K.CC.4b, K.CC.4c, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.1, SL.K.2)

Materials List: large zipper bags of small objects, Grab and Count BLM

Prepare several zipper bags with objects. Choose objects that are small enough that the students will be able to hold from 11-19 objects in one hand (e.g., small paper clips, bear counters, crayons, cm cubes). Write the name of each object on the zipper bag for students to copy on the Grab and Count BLM. Have students grab one handful of objects and separate them into 1 group of ten and left-over objects. Have students complete the Grab and Count BLM and compare their results with partners. Have them discuss which objects they had the most of, the fewest/least of, or equal numbers of.

Example:

Objects	Group of 10	Extra Ones	Total
Paper clips		3	13

Activity 7: Mystery Bags (K.CC.3, K.CC.4b, K.CC.4c, K.CC.6, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.2)

Materials List: 4 paper bags labeled A, B, C, and D for each group of four students, variety of objects, learning log, Mystery Bags BLM


Divide students into groups of four. Give each group four “mystery bags” containing various numbers of objects from 11-19. Using modified *split-page notetaking* ([view literacy strategy descriptions](#)), have the students glue the Mystery Bags BLM in their learning logs. Each student in the group should take one of the bags.

Have the student with Bag A pour the objects from his/her bag, make a group of ten and set aside the extra ones. Encourage students to count on from 10 when counting the “extra ones.” Other students in the group should recount the objects to check for accuracy. All students in the group should then write the number of items in Bag A on his/her BLM. The process is repeated with the student having Bag B going next, followed by the student with Bag C, and the student with Bag D going last.

Allow the members of the group to compare their answers to be sure that all have the same information. Students can quiz each other using their notes with questions such as:

- Which bag had the greatest number/most objects?
- Which bag had the fewest/least number of objects?
- Which bag had three more than 10?

Example:

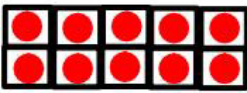
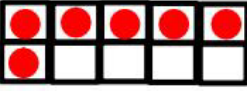
How many?	Group of 10	Other Ones	Number of objects
	1	4	14

Activity 8: Ten and “Some Extras” (CCSS: K.NBT.1)

Materials List: numeral cards 11-19, chips, zipper bags, Ten and “Some Extras” BLM

Give each student a Ten and “Some Extras” BLM and a zipper bag with 20 chips. Use the teacher-made numeral cards from the Daily Routine, Counting Songs. (11-19) and show one numeral at a time to the students. Have students use the Ten and “Some Extras” BLM to show the number. Have students put one chip in each space on the first ten frame starting on the top row, filling across left to right and then moving to the bottom row. Place the “extras” on the second ten frame following the same procedure. Using a blank Ten and “Some Extras” BLM, have one student record the information for the class. Continue this process for all the “teen” numbers. Display the recorded Ten and “Some Extras” BLMs for the class to use as a reference.

Example:

How many ten frames are full? <u>1</u>	
How many extra ones? <u>6</u>	
How many chips in all? <u>16</u>	

Teacher Note: Ten and “Some Extras” BLM can be run on card stock and laminated. Students can use a dry erase marker and record their answers directly on the card each time. If dry erase markers do not wipe off easily on the laminated cards or access to laminating is unavailable, try inserting the cards in a clear plastic sleeve (page saver). Dry erase markers will wipe off easily.

Activity 9: Clip It! (K.CC.3, K.CC.4b, K.CC.4c, K.CC.6, K.OA.3, K.OA.4, K.NBT.1, SL.K.2)

Materials List: Clip It BLM, 18 clothespins, gallon zipper bag, permanent marker

Center Activity: This activity will need to be put together ahead of time. Copy the Clip It! BLM on card stock and laminate it. Also, using a permanent marker, write on both sides of a clothespin, one of the numbers or expressions shown below in such a way that the number or expression will be right-side-up no matter where it is clipped. The example below shows $10 + 4$ as it would appear when the clip part is to the right and where $10 + 4$ should be placed when the clip part is to the left.



Front

Back

14 (written on 2 clothespins)	13	16 (written on 2 clothespins)	15
11	18	12	17
$10 + 8$	$10 + 5$	$10 + 1$	$10 + 9$
$10 + 7$	$10 + 2$	$10 + 3$	$10 + 4$

Place the laminated Clip It! BLM and the clothespins in a gallon zipper bag.

Have students work with partners. Student A pulls a clothespin and reads what is written on it and clips it to a matching numeral/picture/number sentence/expression*. For example, if Student A picks the clothespin with 14, he/she could clip the clothespin on the rectangle that has the expression $10 + 4$, on the rectangle with the numeral 14, or on the rectangle that has 10 circled squares and the 4 extra squares. Student B then pulls a clothespin, reads what is written on it and states if it is greater than/less than/equal to the previous numeral. Partner B clips the clothespin to a matching number/picture/number/sentence/ expression. The game continues until all the clothespins have been used.

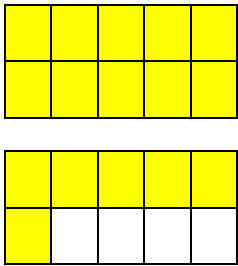
Teacher Note: * A number sentence or equation has an equal sign; an expression does not.

Activity 10: Spin Some More (K.CC.3, K.CC.4b, K.CC.4c, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials List: Spin Some More Spinner BLM, Spin Some More BLM

Partners: Have students take turns spinning the Spin Some More Spinner BLM. Have them write the number on which they landed in the Spin Some More Number column of the Spin Some More BLM. In the last column, have students write the new numeral and color in the ten frames to match it. Have partners check each other’s work for accuracy.

Example:

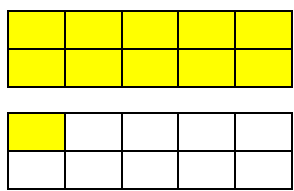
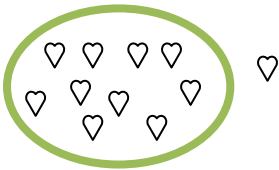
		Spin Some More Number		New Number
10	+	6	=	16
				

Activity 11: Making a Graphic Organizer (K.CC.3, K.CC.4b, K.CC.4c, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials: List Graphic Organizer BLM (3 pages), learning log

Have Students create a *graphic organizer* ([view literacy strategy descriptions](#)). *Graphic organizers* are visual displays used to organize information in a visual way (to promote visualization of data) that makes the new information easier to understand and learn. Have students complete a *graphic organizer* using the Graphic Organizer BLM. Have them color in the number of corresponding squares using the ten frames, draw a picture in the second column, and write a number sentence in the third column. Once the graphic organizer is completed, have students glue it into their *learning logs* ([view literacy strategy descriptions](#)). Demonstrate for students how the *graphic organizer* can be used as a reference for future activities and a study guide for assessments.

Example:

11		
		$10 + 1 = 11$

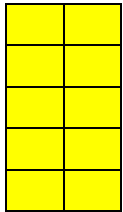
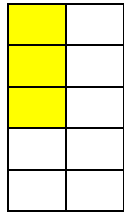

Activity 12: Match Game (K.CC.3, K.CC.4b, K.CC.4c, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, MP.8)

Materials List: Match Game BLM (3 pages), zipper bags

Teacher Note: Run the Match Game BLMs on card stock and laminate before cutting cards apart. Store cards in zipper bags. Marking each set with a letter on the back of cards will make it easier to find misplaced pieces.

Partners: Cut out the Match Game BLMs. Students will shuffle the cards, then put them in a stack. Have students take turns choosing a card and placing the card face up next to a matching number card until all numbers have 4 cards displaying the same number.

Example:

			1 ten and 3	$10 + 3 = 13$
---	---	---	-------------	---------------

Activity 13: Teen Number Stories (K.CC.3, K.CC.4b, K.CC.4c, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.2)

Materials List: Teen Number Story BLM, counters

Small Groups: Students use the Teen Number Story BLM to make a *text chain* ([view literacy strategy descriptions](#)). The group chooses stamps or stickers to illustrate the teen numbers. When everyone is finished, the group will make up a *text chain*. The *text chain* strategy gives students the opportunity to demonstrate their understanding of newly learned material. *Text chains* have a beginning, middle, and logical ending

Example:

First Small Group of Five Students.

Person 1 says – There are 10 boats together. 1 more boat comes. Ten and 1 more is 11.

Person 2 says – There are 10 boats together. 2 more boats come. Ten and 2 more is 12.

Person 3 says – There are 10 boats together. 3 more boats come. Ten and 3 more is 13.

Person 4 says – There are 10 boats together. 4 more boats come. Ten and 4 more is 14.

Person 5 says – There are 10 boats together. 5 more boats come. Ten and 5 more is 15.

Second Small Group of Five Students

Person 1 says – There were 10 boats together. 6 more boat come. Ten and 6 more is 16.

Person 2 says – There are 10 boats together. 7 more boats come. Ten and 7 more is 17.

Person 3 says – There are 10 boats together. 8 more boats come. Ten and 8 more is 18.

Person 4 says – There are 10 boats together. 9 more boats come. Ten and 9 more is 19.

Person 5 says – There are 2 groups of 10 boats. Ten and 10 more is 20.

When groups complete their *text chains*, have one person from each group share with the class. The other students should listen for accuracy and be encouraged to ask questions for clarification.

Activity 14: What If? (K.CC.3, K.CC.4b, K.CC.4c, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.2)

Materials List: chart paper, markers

Students will use a modified *SPAWN* ([view literacy strategy descriptions](#)) writing prompt to practice drawing, writing an equation and writing teen numbers. *SPAWN* is an acronym that stands for five categories writing prompts (*Special Powers, Problem Solving, Alternative Viewpoints, What If?* and *Next*). In this modified *SPAWN* writing, students will use the What If? prompt. Write and read the following *SPAWN* prompt:

What if you were in charge of making all the numbers?
How would you show numbers 11-19?

Have students write their responses on a chart and discuss their accuracy.

Possible responses for 14:

10 + 4 = 14

1 ten and 4

I'd write 14 and say that says 14 (fourteen).

10 and 4 more

I'd call it ten-four.

I'd call it one-four.

I'd draw it.



Activity 15: Professor Know-it-all (K.CC.3, K.CC.4b, K.CC.4c, K.CC.6, K.OA.3, K.OA.4, K.NBT.1, MP.2, MP.4, MP.7, SL.K.1, SL.K.2)

Materials List: number cards, objects

Small Groups: Allow the students to play a modified version of *professor know-it-all* ([view literacy strategy descriptions](#)). Begin by forming groups of three or four students. The students should be given time to review the content in their *learning logs* and numbers 11-19. Tell them they will be called on randomly to come to the front of the room and provide “expert” answers to questions from the other students. Discuss possible questions with the class before the activity begins. The student, pretending to be the teacher, will hold up a number card 11-19 and tell the group members the number. The group will ask the *professor know-it-all* questions about the number such as, “Can you show your number using a group of ten and some extras? Can you show a drawing of your number? Can you write a number sentence using 10 and some more for your number? Can you count to your number if you begin with 10?” As the professor-know-it-all responds to questions, students should listen for accuracy and provide help if needed.

Teacher note: Use of props such as glasses, clip boards, ties, hats, white coats, etc. for the professor will enhance the activity and heighten the enthusiasm of becoming the professor.

Sample Assessments

General Guidelines

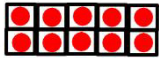
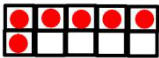
Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Teacher observations and anecdotal notes
- Place in the student's portfolio work products or pictures of student products to measure progress of the student.


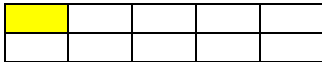
Activity-Specific Assessments

- Activity 1: Ask the student to draw his/her favorite teen number and tell why he/she likes it.
- Activity 8: Have students use Ten and "Some Extras" BLM to show a given teen number.

How many ten frames are full? <u>1</u>	
How many extra ones? <u>6</u>	
How many chips in all? <u>16</u>	

- Activity 11: Using a copy of the Graphic Organizer BLM, give the student one part and have the student fill in the missing parts.

Example:

11		
 		$\underline{10} + \underline{1} = 11$

- Activity 12: Using the Match Game BLM, have students match all the given cards for a given "teen" number.

Kindergarten Mathematics

Unit 7: Number Operations and Algebraic Thinking



Time Frame: This unit should last approximately 4 weeks.

Unit Description

This unit focuses on understanding addition as putting together and adding to, and understanding subtraction as taking apart and taking from. Fluency in adding and subtracting within 5 and counting by ones and tens to 100 are also focuses.

Student Understandings

The students will continue counting by ones and tens to 100. The students will understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. Students will solve addition and subtraction word problems, and add and subtract within 10 via the use of things such as objects or drawings to represent the problem. Students will fluently add and subtract within 5.

Guiding Questions

1. Can students solve addition and subtraction word problems within 10 with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations?
2. Can students fluently add and subtract within 5?
3. Can students understand how to decompose numbers less than or equal to 10 into pairs in more than one way?
4. Can students count by ones and tens to 100?

Unit 7: Common Core State Standards

CCSS for Mathematical Content

CCSS #	CCSS Text
Counting and Cardinality	
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).

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. 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.
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.
Operations and Algebraic Thinking	
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.
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.
Standards for Mathematical Practice (MP)	
MP.2	Reason abstractly and quantitatively.
MP.4	Model with mathematics.
MP.7	Look for and make use of structure.
MP.8	Look for and express regularity in repeated reasoning.
CCSS for ELA Content	
CCSS#	CCSS Text
Speaking and Listening Standards	
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Sample Activities

Some activities provide suggestions for context; however, classroom themes and events will often provide the context in which the activities should be used and may affect the order of the activities.

Daily Routines

Pass the Ball (CCSS: K.CC.1, K.CC.2, K.CC.4a)

Materials List: ball, numeral cards from 1-100

Students sit in a circle. Choose a student to pick a numeral card and read it aloud. Students will begin counting from that number as they pass a ball to one another around the circle as each student counts the pass by 1s to 100.

Students sit in a circle and pass a ball to one another around the circle as each student counts the pass by 10s to 100. When students reach 100, they begin the count again starting with 10.

Count and Check (CCSS: K.CC.1, K.CC.4a)

Materials List: Hundred Board BLM (2 pages), various objects, gallon zipper bags, glue or tape

Teacher Note: Prepare center by putting a large number of one kind of object in each bag. Run the Hundred Board BLM on card stock and glue or tape them together.

Center Activity: Students choose a bag of objects and count them. Using the Hundred Board BLM, students check their counting by placing one object in each space of the Hundred Board BLM.

If the objects are too large to fit the Hundreds Board's windows, students can replace their counted items with an equal number of smaller items, such as counters, cubes, beans, etc., to fill in the windows.

Counting Calculator (CCSS: K.CC.1, K.CC.2)

Materials List: Counting Calculator BLM

Introduce the proper use of the selected calculator and its basic functions before having students use this center.

Center: Using calculators, have students practice counting to 100 by ones and tens starting at a number other than number one or ten. Cut apart the directions on Counting Calculator BLM and place it in a center so students can often practice counting by ones and tens to 100. For variation, write a different numeral on a sticky note and place it over the starting number on the directions to change the beginning counting point.

Example:



Press 15.
Press + 1=
Begin counting by 1s.
Press = to 100.



Press 30.
Press + 10=
Begin counting by 10s.
Press = to 100.

Hand Jive (CCSS: K.CC.1)

Partners: Have each student choose a partner and sit facing each other. As they count by 10s to a hundred, they clap each other's opposite hands to touch ten fingers.

Calendar (CCSS: K.CC.1, K.CC.4c, K.CC.2)

Have students look at the calendar daily. Have them state the date each day to provide a real-life experience for counting to 30/31. The following are some calendar activities.

- Sing songs to practice the days of the week and the months of the year. <http://www.canteach.ca/elementary/songspoems4.html> has several songs to use.
- What number do you think will be said/come next?
- If today is the ___th day of the month, how many days have passed in this month?
- Discuss the number of days in the week. Remind students that each number/**numeral** represents one day and have students match the day to the numeral that stands for that day.
- Have students state the names of the days of the week in order and the names of the months in order.

Computer Number Operations Practice (CCSS: K.OA.1, MP.7)

Center Activity: www.Internet4classrooms.com offers many standard-based links to help students practice what they have been taught.

[Beginning Addition](#) – The student drags the objects to create the problems and then counts and clicks on the correct answer.

[Beginning Addition - Bugabaloo Shoes – Visuals are used to help students add.](#)

[Farm Addition](#) – Students count the chicks and drag the number that tells how many.

For paper and pencil activities to use in a center, the site:

<http://www.k-5mathteachingresources.com/kindergarten-math-activities.html> offers many standard-based links to help students practice what they have been taught.

Activity 1: Button Box (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.4, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: buttons, *The Button Box* by Margaret S. Reid, How Many Buttons BLM,

Teacher note: Prior to this activity, run the Button Box Mat BLM on card stock and laminate. Send a note home to parents asking them to send a variety of buttons, different styles and sizes, to school to be used during math class.

Read the story, *The Button Box*, by Margaret S. Reid. The main character sorts his grandmother's buttons into different categories based on shape, size and color. As the book is read, stop and ask addition questions.

For example:

One page from the book says: “Ten have flowers painted on them, just like Grandma’s china dishes. I like to sort them first.”

The illustration shows: 5 buttons on the top row and 5 buttons on the bottom row

Teacher says: How many buttons in the top row?

How many buttons in the bottom row?

What is the total number of buttons?

Review the symbols used in writing an addition equation, (+) means and/put together/add to, (=) means is/is the same as). Write the addition equation that corresponds to the pictures in the book.

Have students use the How Many Buttons BLM and buttons to solve addition word problems.

Example 1:

Put 2 blue buttons in Box 1.

Put 4 black buttons in Box 2.

Move all the buttons to the Button Box.

What is the total number of buttons in the Button Box?

Example 2:

Put 5 big buttons in Box 1.

Put 3 small buttons in Box 2.

Move all the buttons to the Button Box.

What is the total number of buttons in the Button Box?

Word problems can be varied based on the attributes of the buttons sent to school by the parents. For instance, attributes might include buttons with 2 holes/4 holes, buttons that are round or square, etc.

Activity 2: It All Adds Up! (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.4, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

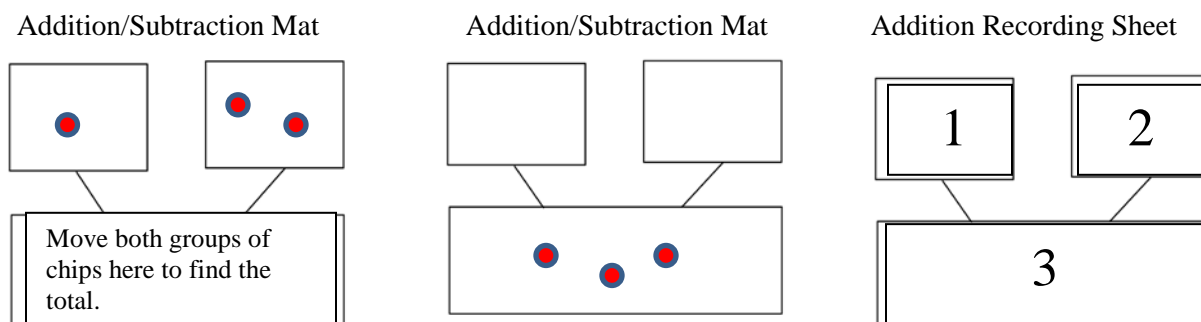
Materials List: chips or other small manipulatives, Addition/Subtraction Mat BLM, Addition Recording Sheet BLM

Teacher Note: Prior to activity, copy the Addition/Subtraction Mat BLM on card stock and laminate.

Introduce the Addition/Subtraction Mat BLM by explaining that at this time, the mat will be used to put together or join addends (numbers that are added) to find a total. Give each student 3 chips or other small manipulatives. Have students place 1 chip in the left box. Have students place 2 chips in the right box on the Addition/Subtraction Mat. Ask students, “How many chips

are in the left box? How many chips are in the right box?” Have students move the two groups of chips to the Total box and ask, “What is the total number of chips?” Have students record the corresponding numerals on the Addition Recording Sheet BLM. Check that students are recording the numerals correctly. Have students suggest other combinations for 3 and have the class use the chips and the Addition/Subtraction Mat to make as many different combinations as possible for 3 and record them on the Addition Recording Sheet. If no one suggests adding 0 to 3, pose the question, “What will happen if you use 0 as an addend?” Have students demonstrate $0 + 3$ and $3 + 0$ on their mats. Monitor students for accuracy and for following the directions throughout the activity.

Example:



After the recording sheets are completed, hold a class discussion to name all the combinations made by the students.

Model the recording of all the combinations for 3 using modified *split-page notetaking* ([view literacy strategy descriptions](#)). Have students record all the combinations in their *learning logs* using a modified *split-page notetaking strategy*. This strategy will help students to organize their thinking and will make it easier to recall the addition facts. Students can refer to these combinations for future study and individual practice to develop fluency.

Example of modified *split-page notetaking*:

3 =	2 + 1
3 =	1 + 2
3 =	3 + 0
3 =	0 + 3

Teacher Note: This activity should be repeated using each of the numbers from 1 to 10 as the total. Use only one number of counters at a time to make the combinations so as not to confuse students. Since fluency for facts within 5 is required, focus more on the combinations of 5 or less. More than one number may be done a day based on students' understanding. This activity can be repeated for numbers 6-10 at a later date or for students who are ready to move on.

Activity 3: Two-Colored Chip Toss (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.4, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: two-colored chips, Two-Colored Chip Toss BLM, Addition/Subtraction Mat

Have students toss 4 two-colored chips. Have students make two groups based on the color of each chip (e.g., if the two side chips are red and yellow, have them make one group of reds and one group of yellows). Then, have students record the number for each color on the Two-Colored Chip Toss BLM. Have students write the number sentence for each toss. Model and answer questions from the students for clarification on the use of the Two-Colored Chip Toss BLM.

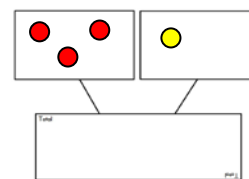
The Addition/Subtraction Mat can be used to reinforce the concept of addition for students having difficulty by having students place chips on the mat each time the chips are tossed to check the combination before writing the addition equation on the Two-Colored Chip Toss BLM.

Example:

Red ○	Yellow ○
3	1
2	2

Addition Equations				
Red		Yellow	=	Total
3	+	1	=	4
2	+	2	=	4

Use mat, if needed



Teacher Note: This activity can be repeated using each of the numbers 1 to 10 as the total.

Activity 4: Gumball Subtraction (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.4, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: chips, Gumball Subtraction Mat BLM

Teacher Note: Prior to activity, copy the Gumball Subtraction Mat BLM on card stock and laminate.

Tell the students that sometimes the total number of objects is known and some of the objects are taken from the total or the total number is taken apart.

Say:

There are 7 gumballs in the gumball machine.

Sam took 4 gumballs.

Maria had the gumballs that were left.

How many gumballs did Maria have?

Model how to use the Gumball Subtraction Mat to solve this word problem.

Ask, “What is the total number of gumballs that were in the gumball machine.”

Place 7 chips in the gumball machine.

Ask, “How many gumballs did Sam take?”

Have a student move 4 gumballs to the left rectangle for Sam.

Ask, “How many gumballs were left for Maria?”

Have another student move 3 gumballs to the right rectangle for Maria.

Explain there is a math symbol ($-$) that means take away/taken from. The same symbol ($-$) is used to take a number apart. Write the subtraction equation $7 - 4 = 3$ on the board and read it aloud.

Give each student a Gumball Subtraction BLM and 10 two-colored chips. Use various totals (1-10) to make subtraction word problems similar to the one above. Tell them how many chips are yellow and how many chips are red in the gumball machine each time. Have students move the yellow chips to the left rectangle. At this point, have students count the number of red chips that remain in the gumball machine* and state a subtraction word problem similar to the ones above.

Have students check their answer by moving the leftover chips into the right rectangle. Ask, “If I move these 2 gumball sets or partners together again, how many gumballs would I have?”

For example:

If there are 7 total chips and students move 2 yellow chips to the left rectangle, have them stop and count how many red chips remain. They should count 5 red chips and state a problem to match the situation such as:

There are 7 gumballs in the machine.

Marcus took 2.

How many gumballs are left?

Have a student write the corresponding subtraction equation on the board for the class to see and read aloud, $7 - 2 = 5$.

To make a connection to addition, ask, “If I moved two ‘gumball’ sets or partners back together again, how many gumballs would I have?” If students don’t know, have them move the chips back together and count, saying 2 yellow chips plus 5 red chips are the same as 7 chips.

Repeat this activity multiple times with different numbers.

Teacher Note: In subtraction, “taking away” or “moving” a number from the total is a physical action. There is no physical action associated with those that are left. Have students complete their written problem without moving those that remain.*

Activity 5: Subtraction Fun (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.4, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: counters, Addition/Subtraction Mat BLM, Subtraction Recording Sheet BLM, learning log

Tell students that this activity is on subtraction which is taking from a total or taking a total number apart. Explain the Addition/Subtraction Mat BLM will be turned upside down so the total box is at the top.

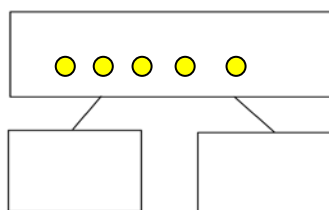
Teacher Note: Subtraction comes to be understood as reversing the actions involved in addition and as finding an unknown addend.

Give each student 5 counters. Have students place the 5 counters in the large rectangle at the top of the Addition/Subtraction BLM mat. Explain that these chips are the total number of chips. Have students take 2 chips and place them in the left small box. Ask students how many chips are left? Have them move those chips to the right small box. Explain that the right box shows what part is left. Have students record the corresponding numerals for each box on the Subtraction Recording Sheet. Check that students are recording the numerals correctly. Have students use the 5 chips and the Addition/Subtraction Mat to make as many combinations as possible for 5 and record them on the Subtraction Recording Sheet. Monitor students for accuracy and for following directions of the activity as they work independently.

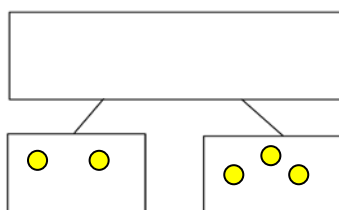
Teacher Note: Make sure to model subtracting 0 using the Addition/Subtraction Mat BLM.

Example:

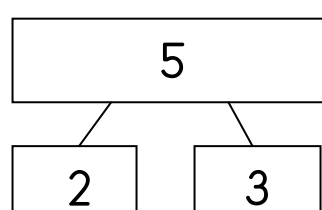
Addition/Subtraction Mat



Addition/Subtraction Mat



Subtraction Recording Sheet



After the recording sheets are completed, hold a class discussion to name all the subtraction number sentences made. Model the recording of all the subtraction equations for 5 using modified *split-page notetaking* ([view literacy strategy descriptions](#)). Students record the subtraction equations for 5 in their *learning logs* ([view literacy strategy descriptions](#)) using pictures and equations. This strategy will help students to organize their thinking and will make it easier to recall the subtraction facts. Students can refer to these equations for future study and individual practice to develop fluency.

Example of *split-page notetaking*:

$5 - 1 = 4$	○ ○ ○ ○ ○
$5 - 2 = 3$	○ ○ ○ ○ ○

This activity should be repeated using each of the numbers from 1 to 10 as the total. Use only one number of counters at a time to make the combinations so as not to confuse students. Since fluency for facts within 5 is required, focus more on the combinations of 5 or less. More than one number may be done a day based on student’s understanding. This activity can be repeated for numbers 6-10 at a later date.

Activity 6: Behind My Back (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: chips or other small objects, Behind My Back BLM

Model with a student how to play “Behind My Back.” After the game is modeled ask students, “What operation do you think is being used when we play Behind Your Back?”

Partners: Give each pair of students 3 chips or other small objects. Together, have partners count how many objects they have and write that number of objects in the first box on the Behind My Back BLM. Have Partner A close his/her eyes while Partner B takes away some of the chips, hides them in his/her hand, and puts that hand behind his/her back. Partner A opens his/her eyes, counts how many chips are left on the table and writes that number down on the Behind My Back BLM. Partner A then says how many objects are behind Partner B’s back. Partner B opens his/her hand to check if Partner A is correct, shows how many objects were “taken away” and writes that number on The Behind My Back BLM.

Example:

Total Number of Objects		Objects Left		Objects Behind My Back
3	—	1	=	2


This activity should be repeated using each of the numbers 1 to 10 as the whole.

Activity 7: In the Jar (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.4, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: clothespins, jars (one for each group, In the Jar BLM

Partners: Explain “In the Jar” will be played with 6 clothespins and a jar. Have Partner A stand close to the jar, hold a clothespin waist high and try to drop it into the jar. After all 6 clothespins have been dropped, have Partner A record how many clothespins he/she had, how many are on the floor and how many are in the jar. Have Partner A read the subtraction sentence out loud to Partner B. Partner B will check the number sentence for accuracy and then take a turn.

Teacher Note: This activity should be repeated using each of the numbers 1 to 10 as the whole.

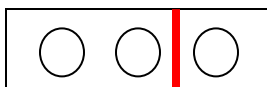
Total Number of Clothespins 6	−	Clothespins on the Floor 4	=	
----------------------------------	---	-------------------------------	---	---

Activity 8: Snap It! (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

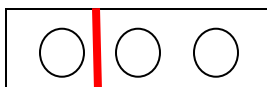
Materials List: Snap It! Card BLM (3 pages), Snap It! Record Sheet BLM (3 pages), rubber band, scissors

Have students practice addition combinations within 5 to develop fluency by using the Snap It! Card BLM and a rubber band. Copy the Snap It! BLM (3 pages) on cardstock and laminate before cutting for greater stability. Have the students cut out each card. Have students put a rubber band around the Snap It! Card to divide the five circles into two groups. Have students use the Snap It! Record Sheet BLM to record the groups by drawing a line to show where the rubber band was placed and then writing the corresponding addition sentence.

Example:



2	+	1	=	3
---	---	---	---	---



1	+	2	=	3
---	---	---	---	---

Teacher Note: Introduce the “turn around” (commutative property of addition) by turning the Snap-It card upside down with the rubber band still in place and having the students record both

addition sentences. Repeat using 4 and 5 as the total. This activity may be extended to include totals for 6-10 for students who need to be challenged.

Activity 9: Fold It! (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: Fold It! Card BLM (3 pages), Fold It! Record Sheet BLM (3 pages), scissors

Have students cut out the card on the Fold It! Card BLM. Ask them to count the circles on the card.



Explain that (3) is the total number of circles. Using the Fold It! Record Sheet BLM, have them write the number three in the first space.

3	-		=	
---	---	--	---	--

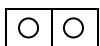
Ask the students what will happen to the Fold It! Card if they fold back 0. Have them write 0 in the third space.

3	-	0	=	
---	---	---	---	--

Ask the students how many circles are showing on the Fold It! Card when 0 circles have been folded back. Have them write 3 in the last space.

3	-	0	=	3
---	---	---	---	---

Have the students read the number sentence aloud. Continue in this manner folding one additional circle back each time until all circles have been folded back.



3	-	1	=	2
---	---	---	---	---



3	-	2	=	1
---	---	---	---	---

3	-	3	=	0
---	---	---	---	---

Teacher Note: Make sure students begin with the whole number of circles displayed each time. Repeat this activity using 4 and 5 as the whole. This activity may be extended to include totals for 6-10 for students who need to be challenged.

Activity 10: Vocabulary Cards (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: Addition Vocabulary Card BLM, Subtraction Vocabulary BLM, large zipper bags

Have students make modified *vocabulary cards* ([view literacy strategy descriptions](#)) to reinforce their learning using the Addition Vocabulary Card BLM and the Subtraction Vocabulary BLM. *Vocabulary cards* are a good way for students to organize their understanding in a concrete way. They create a personalized reference as well as a quick study guide for follow-up activities. Have students store their cards in a zipper bag for easy access. Allow time for students to review

their cards individually and with a partner to develop fluency when adding and subtracting within 5.

Teacher Note: Have students make cards for all addition and subtraction facts within 5. This may take two to three days.

Examples:

The image shows two examples of student-made cards. Each card has three main sections: 'Show with circles', 'Fill in the equation', and 'Write a number story'.
 Example 1 (Addition):
 - 'Show with circles': Three yellow circles and two red circles.
 - 'Fill in the equation': $3 + 2 = 5$
 - 'Numerical': A circle containing the numeral 5.
 - 'Write a number story':
 3 cats
 and 2 cats
 is 5 cats.

Example 2 (Subtraction):
 - 'Show with circles': Five yellow circles, with two crossed out with an 'X'.
 - 'Fill in the equation': $5 - 2 = 3$
 - 'Numerical': A circle containing the numeral 3.
 - 'Write a number story':
 There were 5 dogs.
 and 2 dogs went away.
 There are 3 dogs left.

Activity 11: Gone Fishing Problems (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.2, K.OA.3, K.OA.4, K.OA.5, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials List: small manipulatives, Gone Fishing Mat BLM, Gone Fishing Problems BLM, chart paper, marker

Teacher Note: Prior to activity, copy the Going Fishing Mat BLM (one for each student) on card stock and laminate.

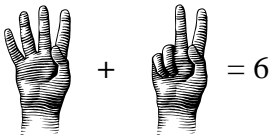
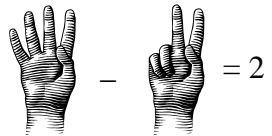
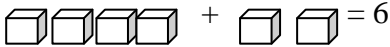
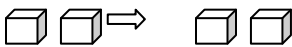
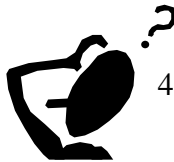



Explain that addition and subtraction story problems can be solved in many ways. Have the class use Think Pair Square Share *discussion* ([view literacy strategy descriptions](#)) to develop a *graphic organizer* ([view literacy strategy descriptions](#)) for ways to solve addition and subtraction problems.

Think Pair Square Share *discussion* procedures:

- Have students form groups of four.
- Give them an example of a word problem: There were 4 boys playing. Two more boys came to play. How many boys are playing now?
- Ask students to think a moment about how they would solve this word problem.
- Have students share their idea with their neighbor.
- Have students discuss their ideas with the group.
- Have one person from each group tell a way that the problem could be solved.

Record and discuss all group answers on a chart labeled: Ways to Solve Addition and Subtraction Word Problems. Add any strategies that were not mentioned.

Example:

Ways to Solve Addition and Subtraction Word Problems					
<u>Counting on Fingers</u>					
<u>Using Objects</u>					
<u>In your Head</u>		$4 + 2 = 6$			$4 - 2 = 2$
<u>Drawing It</u>					
<u>Acting it Out</u>	4 boys pretend to play. 2 more boys walk over.			4 boys play. 2 go away.	
<u>Use Numbers</u>	$4 + 2 = 6$			$4 - 2 = 2$	

After the strategies have been discussed, give students the Gone Fishing Mat BLM and small manipulatives such as square tiles, two-colored chips, cubes, beans, etc. to solve problems on the Gone Fishing Problems BLM. Explain that the manipulatives and the Gone Fishing Mat BLM can be used to help solve word problems along with any other strategy listed on their *graphic organizer*.

Read each problem to the students and have students share how they solved the problem. If no one uses a number sentence to solve the problem, ask if anyone can write a number sentence. If not, then show the students how to write the correct number sentence for the problem and give them other problems in which they must use two processes, one of which is to write an equation.

Teacher Note: If no one uses a number sentence to solve the problem, ask if anyone can write a number sentence. If not, then show the students how to write the correct number sentence for the problem and give them other problems in which they must use two processes, one of which is to write an equation.

Activity 12: Going Shopping (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.2, K.OA.3, K.OA.4, K.OA.5, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials List: Going Shopping Mat BLM, Going Shopping Story Cards BLM, pennies (real or cutouts)

Prior to the activity, copy the Going Shopping Mat BLM (one for each student) on card stock and laminate.

Copy the Going Shopping Mat BLM on card stock. Provide real pennies or cut out the pennies on the bottom of the mat for students to use. The pennies are to be used as manipulatives to solve the Going Shopping Stories. Read each story card aloud and allow students to solve the problem. Students will record how they solved each word problem in their *learning logs* ([view literacy strategy descriptions](#)) to use as a reference or review of problem-solving strategies. Encourage students to solve the problems in more than one way.

Activity 13: Practice Makes Perfect! (CCSS: K.CC.5, K.OA.5, MP.2, MP.7, MP.8)

Materials List: Practice Makes Perfect BLMs (3 pages), scissors, zipper bags, craft sticks, plastic cup, CRASH Template BLM

Teacher Note: Have students cut out the number sentence cards on the Practice Makes Perfect BLMs and store them in a zipper bag. Allow time for students to review and practice these addition and subtraction facts often either alone or with a partner.

Choose any of the following activities to help students develop fluency when adding and subtracting within 5.

Partners:

Tap It! Have students use the number sentence cards cut from the Practice Makes Perfect BLMs to play this game and become fluent in adding and subtracting within 5. The cards are shuffled and are placed face down. Players take turns flipping one card over at a time. The first person who knows the answer will tap the card with one finger and give the answer. If correct, that person will keep the card. The person with the most cards wins.

Whole class/small groups:

Around the World Have students use the number sentence cards cut from the Practice Makes Perfect BLMs to play this game and become fluent in adding and subtracting within 5. Have students sit in a semicircle. Sit in the front of the group. Have the first two students on one side of the semicircle stand next to one another. Show them a number sentence card. The person who answers correctly first, moves to the next person in the semicircle and the play continues. The person who “beats” everyone has made it “around the world.” If no one makes it all the way around, the person who has won the most rounds is the winner.

Teacher Note: Some students may find this game too challenging. If this game makes your students feel uncomfortable, do not play it.

Small group:

Golden Star Write a number equation that has a sum or difference within 5 on each craft stick, except one. On one stick, place a gold star. Put all craft sticks, equation side down, in a cup. Pass the cup around. Have each student choose a stick, read the equation and state the answer. If the answer is correct, the student keeps the stick. If not, the correct answer is given and the stick is returned to the cup. If the golden star is pulled, the student keeps the stick, and the next student takes a turn. There are two winners in this game, the student with the golden star and the student with the most sticks.

Example:



$$4 + 1 =$$

Small group:

Crash Using the CRASH Template BLM, cut out 30 car shapes. Write one addition or subtraction equation within 5 on each car shape. Write the word CRASH on several other car shapes. Place all cars face down. Have students take turns turning over a car and answering the equation. If the answer is correct, the student keeps the car. If the answer is incorrect, the correct answer is given, and the car is returned to the pile. When a CRASH car is turned over, the student loses a turn. The winner is the student with the most cars.

Activity 14: I Have, Who Has (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.2, K.OA.3, K.OA.4, K.OA.5, MP.2, MP.4, MP.7, MP.8, SL.K.2)

Materials List: I Have, Who Has BLMs (4 pages/2 sets), Our Own “I Have, Who Has” Cards BLM, large index cards, zipper bags

Cut out the cards from I Have, Who Has BLM. Using a modified *text chain* ([view literacy strategy descriptions](#)) students will use the cards to become a human *text chain*. Distribute one card to each student. The student with the star card reads first. The person with the answer to that card stands and reads his/her card and the *text chain* continues until it returns to the first student. The *text chain* strategy gives students the opportunity to show their understanding of composing and decomposing of numbers through 10. *Text chains* are especially useful for promoting application of content area concepts through writing and reading.

Small Group: Students will use their knowledge of composing and decomposing of numbers through 10 to help them develop their own “I Have, Who Has” game using a modified *text chain*.

Teacher Note: Students may use large index cards to write their own “I Have, Who Has” card or use the Our Own “I Have, Who Has” Cards BLM.

- The first student takes an index card and writes: I have _____. (any number)

I have 6.

- The second student chooses a number sentence and writes: Who has ____? (any number sentence whose answer is different from the first number chosen)

I have 6.
Who has $2 + 3 = ?$
- The third person takes another index card and writes: I have ____ . (answer to previous number sentence)

I have 5.

- The last child writes: Who has ____? (answer for this number sentence must be the first number chosen)

I have 5.
Who has $7 - 1 = ?$

Each small group will then share their I Have, Who Has game with the class. After all groups share, collect the groups' cards and store them in a zip bag. Place all "I Have, Who Has" student-made games in a center for students to practice adding and subtracting and developing fluency

Teacher Note: Code each set with a symbol on the back to facilitate sorting should a card inadvertently be left out of the bag or lost at the end of the day.

Activity 15: Missing Addends (CCSS: K.CC.3, K.CC.5, K.OA.1, K.OA.3, K.OA.5, MP.4, MP.7, MP.8, SL.K.2)

Materials List: Missing Addends Five Frame Cards BLM, Missing Addends Ten Frame Cards BLM, Five/Ten Frame BLM, small manipulatives

Prior to this activity, copy the Missing Addends Five Frame Cards BLM and the Missing Addends Ten Frame Cards BLM; on card stock, laminate and cut cards apart. Copy the Five/Ten Frame BLM on cardstock and laminate.

Shuffle the Missing Addends Five Frame Cards to mix the order of the cards. Show one card to the class.

Ask, "How many circles are on this five frame?"

"How many more circles are needed to have five circles?"

State $\underline{\quad} + \underline{\quad} = \underline{5}$

Have a student write the equation on the board.

Allow students to use the Five/Ten Frame BLM (copy on card stock and laminate for durability) and small manipulatives to duplicate the card's being shown and help them solve for the missing addend. Continue in the same manner until all Missing Addends Five Frame Cards have been shown. Make sure to show the Missing Addends Five Frame Card with zero circles..

Repeat the above activity using the Missing Addends Ten Frame Cards BLM.

Sample Assessments

General Guidelines

Documentation of student understanding is recommended to be in the form of portfolio assessment. Teacher observations and records as well as student-generated products may be included in the portfolio. All items should be dated and clearly labeled to effectively show student growth over time.

General Assessments

- Teacher observations and anecdotal notes
- Student's portfolio work products or pictures of student products to measure progress of the student

Activity-Specific Assessments

- Activity 2: Use the Addition/Subtraction BLM. Place manipulatives on each “part” section (up to 10). Have students move the parts to the whole and tell what the total is.
- Activity 5: Use the Addition/Subtraction BLM. Place manipulatives in the “Total” section (up to 10). Students will separate the “total” into two parts and will name the number in each part.
- Activity 11: Have students solve addition and subtraction word problems by using objects or drawings to represent one of the following problems:
 - a. 1 big fish.
2 small fish.
How many fish?
 - b. 5 worms.
2 wiggle away.
How many worms are left?
- Activity 12: Using the Going Shopping BLM, have students demonstrate two ways to solve one of the following problems:
 - a. You have 9 pennies.
The ball costs 6 pennies.
How many pennies do you have left?
 - b. An animal cookie costs 4 pennies.
A chocolate cookie costs 5 pennies.
How many pennies will you need to buy both cookies?

- Activity 13: Use the Practice Makes Perfect BLM cards to check that students can fluently add and subtract within 5 by showing them one card at a time and having them give the correct answer. Rubric for grading
 - 4-----Answers accurately and quickly
 - 3-----Answers accurately but hesitates
 - 2-----Makes 5 or fewer mistakes
 - 1-----Makes 6 or more mistakes
 - 0-----Unable to consistently answer accurately
- Activity 15: Show a Missing Addends Five Frame Card. Ask, “How many circles are on this five frame? How many more circles are needed to have five circles?” Repeat this activity using a Missing Addends Ten Frame Card. Observe if students can respond without counting empty spaces OR if counting is still necessary. If that’s the case, more practice will be needed.