Soaring Heights CharterSchool
2nd Grade Math - Big Ideas

Adopted July 2023
Revised August 2024

Chapter 1- Numbers and Arrays

STANDARDS: 2.OA.C.3, 2.0A.B.2, 2.0A.C.4, MP. 1,2,3,4,5,6

- Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
- With accuracy and efficiency, add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.
- Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
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Objectives:

- Tell whether a number is even or odd.
- Use an addition equation to model even and odd numbers.
- Determine the total number of objects in equal groups.
- Determine the total number of objects in an array.
- Make an array to solve a word problem.

Activities:

1. Mine! by Rachel Bright; After reading the story, ask students whether it is easier to share an even or odd number of toys, and why. Ask students to explain why having only one stuffed

rabbit was a problem for the girls in the story. Have students come up with strategies for sharing, either using examples from the story or their imagination, for when there is an odd number of something that two people both want.
2. The Odds Get Even: The Day the Odd Numbers Went on Strike by Pamela Hall; Discuss the story with students. How did the odds get even? Why did they go on strike? As a follow-up activity, group students into pairs. Each student should get one sheet of the Supermarket Cards Instructional Resource. Teachers may cut the cards for the students ahead of time or have the students cut the cards themselves. Students will place their cards in a pile facedown. Each student will select one card from their pile. fI the sum of the prices on the two cards is an even number, the students collect the items and set them to the side. If the sum of the prices is an odd number, the students must put the cards back in their piles. The g a m e ends when the students have collected at least one of each of the nine items on the sheet.

Gifted and Talented

1. "Is there a way to decide if a number is even or odd by just looking at the number? For instance, do you think 24 is even or odd?Why? What pattern do you notice when you say even numbers in order?"
2. Have students play the game "Odds and Evens." Divide students into pairs (this may also be a teachable moment for the topic of even and odd numbers). In each pair, one student will be "evens" and the other student will be "odds". Students will say together, "One, twothree, SHOOT!". When they say shoot, each student will put out one hand with one, two, three, four, or five fingers extended. The students must add the total number of fingers on both hands and determine if it is even or odd. If the number is even, the student assigned "evens" gets a point. If the number is odd, the student assigned "odds" gets a point. The first student to get ten points Wins!

Chapter 2 - Fluency and Strategies within 20
STANDARDS: 2.OA.A.1, 2.OA.B.2, 2.NBT.B.5, MP. 1,2,3,4,5,6

- Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- With accuracy and efficiency, add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.
- With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Objectives:

- Add in any order to find a sum.
- Use the doubles plus 1 and doubles minus 1 strategies to find a sum.
- Add three numbers.
- Use the make a 10 strategy to add two numbers.
- Use the count on and count back strategies to find a difference.
- Write related addition and subtraction equations.
- Use the get to 10 strategy to subtract.
- Add and subtract within 20.
- Solve addition and subtraction word problems.

Activities:

1. "Who remembers what doubles are when we add? Tell your partner." Pause. "Can you find a doubles fact on the Addition Fact Chart?" Solicit responses or have volunteers demonstrate at the board. Each time one is pointed out, ask students to color that cell. After two or three doubles, have students color all of the doubles on the chart.
2. In math journals, have students describe how to use one of the strategies: doubles plus one or doubles minus one. Encourage students to use pictures, numbers, and words to describe their thinking.

Gifted and Talented:

1. The Mission ofAddition by Brian P. Cleary; While reading the story, stop periodically allowing students to create additional fact families for the situations presented. For example, there are 6 buses and then 3 more are added, totaling 9. Students would create a fact family for this scenario. After, have students complete the following sentence stem as a journal entry: We are able to add in any order because
2. Have students play the game "Roll a Sum" using two dice. Students wil take turns rolling two dice. The numbers on the dice will be used as addends for a number sentence. In their math journals, students are to write the number sentence. Students can count on the dice if they need added support. Then students should write the corresponding addition fact family before rolling the dice again. Students may play independently or with partners, and should complete a total of 5 rounds.
3. Challenge some students to use a double that they would not normally choose. fI most students use a doubles plus 1 strategy, encourage them to use doubles minus 1.

Chapter 3 -Addition to 100 Strategies
STANDARDS: 2.OA.1, 2.NBT.B.5, MP. 1,2,3,4,5,6

- Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Objectives:

- Use an open number line to add tens.
- Use an open number line to add tens and ones.
- Use place value to add two numbers.
- Break apart a number to add.
- Use compensation to add.
- Choose a strategy to add two numbers.
- Solve two-step addition problems.

Activities:

1. Display a large hundred chart for students to see and provide a Hundred Chart for each pair of students. Students observe the patterns in the ones and tens place when counting by tens. The counting is then written as an addition sentence.
2. Display a large hundred chart for students to see and provide a Hundred Chart and color pencils for each pair of students. Students relate the directional movement to patterns in ones and tens when adding a non-decade number.
3. Partner students. Give Partner A5 unit cubes and Partner B 8 cubes. Each student places the cubes in their own circle of string. Students use base ten blocks to realize compensation by trading has no effect on the sum of two addends.

Gifted and Talented Activities:

1. Show students images of pixel art. Explain that in pixel art, the entire image is a grid of squares and each square is filled in with a color. Ask students questions about the numbers of squares, such as "18 of the squares are blue. 26 of the squares are purple. How many squares are blue or purple?" Have students model the problem with base ten blocks and use compensation to find the sum. Repeat with different numbers.
2. Have students work with a partner. Give each student a bag with some base ten blocks in it. Each student counts their b a s e ten blocks and writes the number the blocks represent. Partners use their numbers as addends in an addition sentence and show using compensation with the base ten blocks to solve.

3. Divide students into groups of four. Give each group a different addition problem. Have each student in the group use a different strategy to solve. Students compare their answer with the rest of the group and explain how they used their strategy. Groups can make a poster showing the four different ways to find the sum and present to the rest of the class.

Chapter 4 - Fluently Add within 100
STANDARDS: 2.OA.A.1, 2.NBT.B.5, 2.NBT.B.6, MP. 1,2,3,4,5,6

- Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- Add up to four two-digit numbers using strategies based on place value and properties of operations.

Objectives:

- Use partial sums to add.
- Use regrouping to add.
- Use regrouping when needed to add.
- Add two-digit numbers.
- Add up to 3 two-digit numbers.
- Solve one- and two-step addition problems.

Activities:

1. Students use base ten blocks to model the sum of 2 two-digit numbers. A quick sketch supports their model. Equations are written for the value of the rods and value of the units.

2. Begin with a quick game of What's My Number? Students then use base ten blocks to model the sum of 2 two-digit numbers on a Place Value Mat. They exchange 10 ones for a rod when needed.

3. Play Addition Flash where you reveal an addition problem for students to solve on their whiteboard. The goal is to review addition facts and mental math strategies within 20.

Gifted and Talented Activities:

1. Organize students into pairs. Give each pair a pile of 100 objects like pennies or paperclips. Each student takes a random number of objects and organizes the objects into groups of ten, and one group of any remaining ones. Using this information, each student writes their total number of objects. Students should check each other's work. Next, have students work together to add their totals. Then, students merge their two piles into one large pile and repeat the process to check their answer. If possible, use an overhead or document camera to model the activity before students begin. When students are finished, ask, "Did you have to regroup? Why or why not?" If they did not have to regroup, ask, "Would you have had to regroup if you had 1 more object? 2 more? 3 more?" and so on.

2. One Hundred Hungry Ants by Elinor J. Pinczes; Read the story aloud to students. Then, ask students to draw a picture with 10 red and more than 5 black ants. Have students write the total number of ants on their picture. Then, have students work with a partner to add their 2 sums together.

3. Write 2 two-digit numbers on the board. Have students represent the numbers with base ten blocks. Then, have students combine their models to find the sum of those numbers. Give students time to work, then ask a student volunteer for the answer. Repeat several times.

Chapter 5 -Subtraction to 100 Strategies
STANDARDS: 2.OA.1, 2.NBT.B.5 MP. 1,2,3,4,5,6

- Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Objectives:

- Use an open number line to subtract tens.
- Use an open number line to subtract tens and ones.
- Use addition to subtract on an open number line.
- Break apart one-digit numbers to subtract.
- Break apart two-digit numbers to subtract.
- Use compensation to subtract.
- Choose a strategy to subtract.
- Solve two-step subtraction problems.

Activities:

1. Display a Hundred Chart and provide a Hundred Chart for each pair of students. Students observe the patterns in ones and tens places when counting back by tens. The counting is then written as a subtraction equation.
2. Students see a hundred chart model of a problem and are asked to write the problem.There are two, the related addition and subtraction equations.
3. Whiteboards are used to write partner numbers. Students hold up their whiteboard if one of the partner numbers would be helpful for a subtraction problem you give.

Gifted and Talented Activities:

1. Have students write down a number between 60 and 100. Students can choose their own number or assign a number to the class. Have students roll a die to determine which decade number to subtract. For example, if a student rolls a4, they subtract 40 from their number. Have student use an open number line to model their subtraction problem and solve to find the difference, and write a subtraction equation. Repeat with different numbers.
2. Ask students if any of them have pet fish, such as goldfish. Explain that goldfish live in glass containers called aquariums. The number of goldfish that can live in an aquarium depends on the size of the aquarium. Ask students to consider why that might be. Create problems for students about fish in aquariums, such as, "An large aquarium can hold 42 goldfish. There are 21 goldfish in the aquarium. How many more fish can the aquarium hold?" Have students use a number line to subtract 42 -21 to determine how many more fish the aquarium can hold. Students can also create and illustrate their own aquarium problems and trade with a partner to solve.
3. Lay out a variety of different sized magnets for students to hypothesize and experiment with while discussing the strength of magnets in class. Provide each pair of students with the same strength magnet and a cup of 100 paper clips. Taking turns, students wil place their magnet into the cup of paper clips and gather as many as they can. Have students count the paper clipson the magnets and record the numbers on a piece of paper. Using addition to subtract, have students find the difference between their numbers of paper clips.

Chapter 6 -Fluently Subtract within 100
STANDARDS: 2.OA.1, 2.NBT.B.5, MP. 1,2,3,4,5,6

- Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Objectives:

- Use models and regrouping to subtract a one-digit number from a two-digit number.
- Use models to subtract a one-digit number from a two-digit number.
- Use models to subtract a two-digit number from a two-digit number.
- Subtract a one- or two-digit number from a two-digit number.
- Use addition to check subtraction.
- Subtract two-digit numbers.
- Solve one- and two-step problems.

Activities:

1. A collection of base ten blocks are placed in the center of the circle. Students identify the number, and then blocks are removed. The subtraction problem is recorded and a quick sketch is made.
2. Partners use base ten blocks to model a number and then explore how to subtract a two-digit number. "Use your base ten blocks to model 48." Partners model 48. "I want you to subtract 26,

Chapter 7 Understand Place Value to 1,000
Standards: 2.NBT.A.1, 2.NBT.A.3, MP. 1,2,3,4,5,6

- Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

    a. 100 can be thought of as a bundle of ten tens — called a “hundred.”

- Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Objectives:

- Identity groups of tens as hundreds.
- Model and write numbers to 1,000.
- Understand the values of digits in a number.
- Write numbers in standard form, expanded form, and word form.
- Represent numbers in different ways.

Activities

1. Partners alternate turns. One student models a number less than 100 with base ten blocks. The other student names the numbers in two ways, such as, 45 is 4 tens plus 5 ones and 45 is 45 ones. Distribute the base ten blocks and explain what you want partners to do. Model one example if needed.
2. Students count by ones to 120 beginning at 89. Base ten blocks are used to model each number. Students identify the number of ones, tens, and eventually, hundreds. "On your whiteboard write tens and ones. Iwil model a number and Iwant you to record the number of tens and ones on your board."

Gifted and Talented Activities:

1. Give students a hundreds number (between 200 and 700) to model on paper with paint. Students will paint lines to represent rods or tens. However, each set of 10 tens wil be drawn with a different color of paint. Students will be able to count the different colors to show how many groups of 10 tens there are. For example, to model 400, students could paint 10 blue lines, 10 yellow lines, 10 red lines, and 10 green lines, as shown.
2. Post three-digit numbers around the room on notecards, large enough for all students to see. Have students play, "The Detective Sees ...," in which students will describe a number by two of its place value digits, without saying the 3-digit number they are describing. Students will need to use the description to guess the number. For example, students might say, "The Detective sees a number with 5 hundreds and 2 tens." There may be more than one three-digit number posted with a 5 in the hundreds place, but students will be able to use the two clues together to guess the three-digit number that the detective sees. Repeat several times.

Chapter 8- Count and Compare Numbers to 1,000

STANDARDS

2.NBT.A.2, 2.NBT.A.4, 2.NBT.B.8,MP. 1,2,3,4,5,6

- Count within 1000; skip-count by 5s, 10s, and 100s.
- Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
- Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

Objectives:

Skip count within 120 in different ways. For example, if Player C calls out a difference of 4, and Player B has a 7 card, Player A can perform mental math to find and determine that he/she has a 3. The first player to correctly state which card they are holding keeps both cards.

Activities:

1. Students will practice counting by tens and hundreds using base ten blocks. They will say the numbers as the models are made. They record the numbers modeled. This can be done as a whole group or small group activity. Distribute base ten blocks (if small group) and whiteboards. Adjust notes below for small group activity
2. Students count aloud the numbers in a row or column of a hundred chart. Identify a clap number (i.e. 4). Ifa number contains the clap number, they clap instead of saying the number aloud (i.e. 54). If it contains two clap numbers (i.e. 44), they clap twice. "We are going to be detectives today and look for patterns! The pattern will help us find a missing number."

Gifted and Talented Activities:

1. Have students skip count while plate weaving. Provide students with a shoelace to weave through the holes around the plate that skip count according to the skip count number indicated in the middle of their plate. Create skip counting plates by punching holes around the outside of the plate and randomly labeling each hole with a different skip count number. Label each plate counting by ones, fives, or tens. Extension: Create challenging skip count plates that show not only numbers, but symbols for students to skip count by.
2. Write numbers that skip count by hundreds on sheets of paper and tape them to the floor in a hopscotch arrangement. Students will skip count by hundreds out loud while they skip to each hundred number, until they reach 1,000. There can be multiple hopscotch arrangements that skip count by ones, fives, or tens, so that multiple students can skip at a time.
3. Discuss erosion and how it occurs on Earth's surface. There are several techniques to help reduce erosion, one of them being beach replenishment. Beach replenishment is the process of dumping sand onto eroding shorelines to create or widen a beach. This process does not stop erosion, but allows beaches to last longer. Create a scenario about a company bringing in and dumping 100 pounds of sand each day during week 1 of replenishment. Ask students how much sand was replenished after week 1. Then, during week 2, a company brings in and dumps 10 pounds of sand. After the two week period, how much sand was brought in to replenish the beach? When using the word week in this

scenario, discuss how many days would be included, a work week (5 days) or a full week (7 days)?

Chapter 9- Add Numbers within 1,000
STANDARDS
2.NBT.B.6, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9 MP. 1,2,3,4,5,6

- Add up to four two-digit numbers using strategies based on place value and properties of operations.
- Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
- Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
- Explain why addition and subtraction strategies work, using place value and the properties of operations. (Clarification: Explanations should be supported by drawings or objects.)

Objectives:

- Use mental math to add 01 and add 10.
- Use an open number line to add hundreds and tens.
- Use an open number line to add.
- Use Compensation to add.
- Use partial sums to add.
- Use models to add.
- Add three-digit numbers.
- Add up to 4 two-digit numbers.
- Choose and explain a strategy to add.

Activities:

1. Students will practice counting by tens, beginning at a multiple of ten and progressing to a non-multiple of ten. "We are going to work on mental math strategies today, adding 10 and 100. To prepare for this, let's practice counting by tens." "Let's count together by tens, starting at 100."Choral count together 110, 120, 130, 140, 150,..200. Write each number as students say .ti
2. 2. Students roll a die to determine how many tens they add to a start number. The goal is to reach a number greater than the target number. Each student needs an Open Number Line and one die. "Mark the starting number of 144 on your first number line." Pause as

students plot 14. "You and your partner wil take turns rolling your dice. The number you roll tells you how many tens to add to 144." Model what this would look like. "Continue to take turns until one of you ends at a number greater than 300." Each partner models a three-digit number using base ten blocks. One partner is asked to give some of their blocks to the other partner so that their number will be easy to add using mental math.

Gifted and Talented Activities:

1. Discuss decade, meaning 10 years, and century, meaning 100 years. Have students calculate how old they would be in 4 decades. What About in 3 centuries? Have students tell one thing that they predict about their life or the world when they are those ages. Ask multiple questions about adding specific decades and centuries to students' current age. Note: Living to be more than 1 century old is unrealistic, however, have students discuss futuristic "what if..." statements
2. Have students work with a partner. Partners work together to write three-digit numbers (less than 900) in a 4-by-4 grid. Write "+10" on one side of a counter and "+100" on the other side. Students take turns tossing the counter onto the grid and finding the sum. Students can compare to see who has the greater sum, or "claim" a square they land on and try to get four in a row.
3. Provide a three-digit addition equation to each pair of students. The two partners are challenged to represent the equation in two different ways. Oneway is to count on by making jumps by hundreds, tens, and ones, and another way is to make larger jumps on the number line. Once partners solve their equation, have one student from each pair circle their answer and stand in numerical order from least to greatest in front of the classroom.

Chapter 10 - Subtract Numbers within 1,000
STANDARDS
2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9, MP. 1,2,3,4,5,6

- Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
- Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
- Explain why addition and subtraction strategies work, using place value and the properties of operations. (Clarification: Explanations should be supported by drawings or objects.)

Objectives

- Use mental math to subtract 10 and subtract 100.
- Use an open number line to subtract hundreds and tens.
- Use a number line to subtract.
- Use compensation to subtract.
- Use models to subtract.
- Subtract three-digit numbers.
- Subtract from three-digit numbers with zeros.
- Use addition to subtract on an open number line.
- Choose and explain a strategy to subtract.

Activities:

1. Dig In (Circle Time) Base ten blocks are used to model regrouping from the tens place and then regrouping from the hundreds place. Think-Pair-Share: "What do you know about the problem 63- 28?" Elicit ideas from students. Comment or follow-up on incorrect statements.
2. Display subtraction problems written in the vertical format. Students use signals to tell if there are 0, 1, or 2 regroupings needed in the problem. They are not finding the difference. Students used the same signals in the last chapter with addition.
3. Students review how to read the answer when they use a number line to add on or subtract back. Students work with a partner. Each does a different, but related problem. Are they clear about what the answer is when they've used a number line?

Gifted and Talented Activities:

1. Place three sets of number cards 0-9 in a container. Give each student a paint sample with three sections. Have students choose six cards, to create 2 three-digit numbers and write a subtraction equation at the top of their paint sample. Students will then use an open number line to show their subtraction equation two different ways. Remind students that they can count back by hundreds, then by tens, then by ones, or make larger jumps on their number lines. Decide ahead of time if the open number lines should be provided on the paint samples for students, or if students can draw them.

2. Provide each group of three students a deck of cards (1 through 10). Have Player A and Player B sit facing each other, while Player C sits off to the side, still being able to see both partners. Player A and B will each pick up a card, and without looking at it, place it on their foreheads. These players can see what card each other has, but will not know which card they have themselves. Player C (who can see both cards) will mentally subtract the two cards and say the difference out loud. Player A and B will need to figure out what card *he*/she is holding.

   For example, if Player C calls *out* a difference of 4, and Player B has a 7 card, Player A can perform mental math to find and determine that he/she has a 3. The first player to correctly state which card they are holding keeps both cards.

Chapter 11- Measure and Estimate Lengths

STANDARDS

2.M.A.1, 2.M.A.2, **2.M.A.3, 2.M.A.4, MP. 1,2,3,4,5,6**

- Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- Estimate lengths using units of inches, feet, centimeters, and meters.
- Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Objectives:

- Measure the length of an object in centimeters.
- Measure the length of an object in centimeters or meters.
- Estimate the length of an object in centimeters or meters.
- Measure the length of an object in inches.
- Use an inch ruler, yardstick, or measuring tape to measure an object in inches, feet, or yards.
- Estimate the length of an object in inches, feet, or yards.
- Measure the same object using two different measurement units.
- Compare the lengths of two objects.

Activities:

1. Students measure a line using centimeters. In this case, they line up centimeter cubes to find the length. Pass out sheets with 3 lines drawn on them (lengths vary from 5 centimeters to 12 centimeters long). Pass out 15 centimeter cubes to each pair of students.
2. A key skill students use when measuring an object is to make a mental estimate before measuring. The more references students have for lengths, the better estimates they will make. Students work in threes. Ask students in each group to use their meter-length yarn to measure the distance between outstretched arms, fingertip to fingertip. "What did you find? Is a meter longer or shorter than your outstretched arms? Could we say your arms are about 1 meter across?" "Let's try another.

Gifted and Talented Activities:

1. Have students work with a partner. Partner A will find an object around the room and measure it in centimeters. Partner B will need to find a different object from around the room that matches the length of Partner A's object. If Partner B succeeds in finding an object, he/she receives a point. If Partner B cannot find an object of that size, Partner A receives a point. Repeat by alternating roles four times.

2. Discuss metric and customary units of measure with students, and how both types of measurement are used in the United States. Have students think about why a scientist might want to use metric units. Share reasons with the class. This can either be done as a whole class activity or an individual writing activity.

Chapter 12- Solve Length Problems
STANDARDS: 2.M.B.5, 2.M.B.6, MP. 1,2,3,4,5,6

- Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
- Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Objectives:

- Use a number line to solve length word problems.
- Solve comparing length word problems.
- Solve length word problems to find missing measurements.
- Solve length word problems.

Activities:

1. Create a number line on card stock and connect a chenille stem with a pony bead on it. Students can use this as an interactive number line to help solve problems in class. Allow them time to write their own problems and exchange with a partner to solve using their number line.
2. Students compare the lengths of two lines using an inch ruler. Prepare a visual of an inch ruler with a bar along the top edge from 0-5, and another bar across the bottom edge from 0-9. "Which of these bars is longer? How do you know? Tell your partner."
3. Students represent a missing length problem using a centimeter ruler as a model. Pass out centimeter rulers and tell students they will use the rulers to make a number line that solves a missing length problem. Read this problem to the class. "Descartes has a 15-centimeter length of ribbon. He gives Newton 6 centimeters of the ribbon. What length of ribbon does Descartes have left?"

Gifted and Talented Activities:

1. Fill in the Bar Model Instructional Resource with numbers that can be part of a word problem. Leave one part on the model intentionally blank so that students write

a word problem that corresponds with the numbers provided to find the missing part. Have students show and explain how to solve the problem.

2. Provide students with dice, rulers or yardsticks, and tape with scissors or sidewalk chalk (if working outside on blacktop). Tell students to imagine that they are going to create and then climb a beanstalk. To create the beanstalk, have them roll dice to determine its length as a two-digit number in inches. Students will roll one die to find out the tens digit and roll the other die for the ones digit. They will use a ruler or yardstick to measure and make the line of the beanstalk by using either tape or chalk. They will roll again repeating the same process but this time adding on to their original line. They will determine the total length of their beanstalk and compare it to their neighbor's length. At the end, students can walk on their beanstalk lines and pretend to climb them.

Chapter 13- Represent and Interpret Data
STANDARDS 2.DL.A.1, 2, DL,A,2, 2.DL.B.3, 2.DL.B.4 MP. 1,2,3,4,5,6

- Understand that people collect data to answer questions. Understand that data can vary.
- Identify what could count as data (e.g., visuals, sounds, numbers).
- Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
- Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.

Objectives:

- Use a tally chart to organize and understand data.
- Understand the data shown by a picture graph.
- Use data to make picture graphs.
- Understand the data shown by a bar graph.
- Use data to make bar graphs double bar graphs
- Use data to make line plots.
- Measure objects and make line plots.
- Identify what could count as data
- Understand that data varies

Activities:

1. Students will review sorting by categories by describing how they sorted objects. They will group themselves in a variety of ways to determine categories for sorting. They will review how to draw tally marks to tell how many are in each category. Pour the collection of buttons (or other sortable objects) out for students to see. Sort them in one way (shape, color, or size). Ask students how they think you sorted them.

2. Students will be asked to vote for their favorite pet from a list of cat, dog, or fish. A tally chart of their answers is made, followed by a picture graph. Cut out the Picture Graph Pets and arrange them in three piles by pet.

3. Create a picture graph of the students' ages. Have students interpret the graph and write two questions about it to exchange with a partner. Allow time for them to answer each other's questions, check if they are correct, and share with the class.

Gifted and Talented Activities:

1. Keep track of weather as part of the calendar routine or during science. Organize the different types of weather that have occurred over the last two weeks or more in a picture graph on the board. Then have students interpret the graph. Ask questions like "How many sunny days were there?" or "What kind of weather did we experience the most?"

2. Have students come up with their own survey question to ask at least five students. There should be three different answers or categories to choose from. The student who asks the survey question will take that information to make a picture graph. Note: You can also give students a handful of three to five different kinds of stickers. Have them ask at least ten other students which is their favorite sticker and then post it on a picture graph that they create.

Chapter 14- Money and Time

STANDARDS : 2.NBT.A.2, 2.NBT.B.5, 2.M.C.7, 2.M.C.8, MP. 1,2,3,4,5,6

- Count within 1000; skip-count by 5s, 10s, and 100s.
- With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

Objective:

- Find the total value of a group of coins.
- Order a group of coins to find the total value.
- Show money amounts in different ways.
- Use coins to make one dollar.
- Solve word problems to make change from one dollar.
- Find the total value of a group of bills.
- Solve money word problems.
- Tell time to the nearest five minutes.
- Describe the time before or after the hour in different ways.
- Describe the time using a.m. and p.m.

Activities:

1. Students learn the value of common coins. Show four coins with a document reader; penny, nickel, dime, and quarter. Design a chart with students to record the name and value of each coin.
2. The Penny Pot by Stuart J. Murphy; Read the book aloud to students. Tell students the coins and have them find the total value. Show the page so students can see the total.
3. The Coin Counting Book by Rozanne Lanczak Williams; Read the book aloud to students. Have students draw their own combination of coins that make 100 cents on paper. They can compare and check their total number of coins and values with a partner.

Gifted and Talented Activities:

1. Provide each student with a cup and play money coins. Have students put the coins in the cup, shake it, and then empty it onto a table or the floor. Students will sort the coins by which landed on "heads" and which landed on "tails." Then they will order the coins in each set according to their values and count them. They can write their totals on paper in a t-chart with "heads" and "tails" as the labels. They can circle the greater number. Have them play at least five times and see which side of the coin has the most circled numbers.

2. Have students work with a partner. One student will scoop a handful of coins and determine the total while the other student has their back turned. The student with the coins will tell their partner how many of each coin they have. Their partner will draw out the coins and count them to determine the total. Partners will check to see if their totals are the same, then switch roles and play a new round.

Chapter 15- Identify and Partition Shapes
STANDARDS : 2.OA.B.2, 2.OA.C.4,2.G.A.1, 2.G.A.2, 2.G.A.3, MP. 1,2,3,4,5,6

- With accuracy and efficiency, add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
- Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. (Clarification: sizes are compared directly or visually, not compared by measuring)
- Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
- Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. For example, students partition a rectangle (i.e. the whole) into three equal shares, identify each of the shares as a 'third' and describe the rectangle as three 'thirds'.

Objectives:

- Identify and describe two-dimensional shapes.
- Identify angles of a polygon.
- Draw shapes given a description.
- Identify, draw, and describe cubes.
- Show a rectangle as equal squares.
- Identify shapes that show halves, thirds, and fourths.
- Draw lines to show halves, thirds, and fourths of a shape.
- Draw to show halves, thirds, and fourths in different ways.

Activities:

1. Have students choose a two-dimensional shape and draw it on a sheet of paper. On the back of the sheet of paper, have students write "What Shape Am I?" as their title. Then they will provide at least three sentences about the shape. They will describe the number of vertices and sides the shape has and name a real-life object that looks like it.

2. Students count vertices to identify one polygon in a group. "Today we are going to play Hide the Hexagon. You each need to draw seven shapes on a piece of paper. One polygon has to be a hexagon. The others have to be either pentagons or octagons. Try to draw the shapes so that it is tricky to find the hexagon. We are going to look at your shapes as a class." Once students have finished their shapes, show some of their shapes

under a document camera.

3. Have students create cubes with clay and straws or toothpicks. Then have them work with a partner to determine how many faces, vertices, and sides the two cubes have in all.

Gifted and Talented Activities:

1. Hand out geoboards to students. Have them use rubber bands to create a picture using two-dimensional shapes. Have students describe the picture to their partner without showing them it. Their partner will try to build the same picture on a geoboard based on their description.

2. Have students use pattern blocks to create a pattern or picture on a sheet of paper. Students will trace their blocks and exchange papers with a partner. The partner identifies the number of sides, vertices, right angles, and angles that each shape has and then names the shape. Papers are given back and students check each other's work.