# 2nd Grade Math Curriculum

## Scope and Sequence:

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Subject: Math
Grade: 2nd Grade
Name of Unit: Introduction
Length of Unit: 3 days

Overview of Unit:
The first week of school is focused on setting up the classroom culture for the year and developing routines that support the development of the Standards for Mathematical Practice. Teachers will get to know their students as the students get to know themselves as math learners.

Unit Objectives
- Establish math classroom norms, such as these:
  - Answers are important, but they are not the math.
  - Talk about each other's thinking.
  - Errors are gifts that promote discussion.
  - Ask questions until ideas make sense.
  - Use multiple strategies and multiple representations.

These norms are introduced in this unit, but they will be reinforced throughout the year.
- Students reflect on personal math strengths.
- Students learn.review signature strategies.
- Students learn classroom procedures and routines.

Getting Ready for the Unit:
In preparation for teaching the math this week, you will need to set up the following:

Math Norms (Day 1)
- Prepare and post a poster like the Math Norms BLM S C.

Daily Routines Area (Day 1)
- An area in the classroom (typically near the front of the room / rug) where students can see the daily schedule and there is a dedicated Math area of the wall
- For second grade this should include:
  - Schedule
  - Class Hundred Chart

Math Talks Area (Day 1)
- These are usually done in the same area as Daily Routines, typically the rug area.
- Make sure there is space for recording student thinking, such as a whiteboard or chart paper.
- Students may want to reference the Hundred Chart during Number Talks, so it’s best to use the same area as that used for the Daily Routines.

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In other words, make sure to have a copy of the math norms poster displayed in your room. Have supplies ready for the games, number talks, and skip counting routine to introduce and reinforce the norms.

**Essential Questions:**
- How should we use math tools in the classroom?
- How can we share and listen to others when talking about our thinking?
- How can we use errors to further our understanding?

**Enduring Understandings:**
- Establish math classroom norms, such as these:
  - Students learn routines and procedures.
  - Students work toward being part of a respectful, safe classroom community.
  - Students use math manipulatives with a purpose and to clarify/prove thinking.
  - Students begin to pay attention to using the language of math with precision.

**Mathematical Practices:**
- MP1 Make sense of problems and persevere in solving them.
- MP2 Reason abstractly and quantitatively.
- MP3 Construct viable arguments and critique the reasoning of others.
- MP4 Model with mathematics.
- MP5 Use appropriate tools strategically.
- MP6 Attend to precision.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

**Engaging Experience 1**
**Teaching Point:** Today I am going to teach you about two of our math norms: answers are important, but they are not the math; and use multiple strategies and multiple representations.

**Suggested Length of Time:** 1 day

**Detailed Description/Instructions:** Students learn and practice the routines and expectations involved in Daily and Number Routines. Tell students that math norms are agreements that the class follows to help them be successful in mathematics. Post the math norms in an area of your room that will allow the class to reference them when needed.

**What is this strategy?**
A Number Routine is a pedagogical tool for building math thinking and academic discourse in a student-centered, teacher-facilitated way. Number Routines should not be used to introduce math content, but when a topic is new, they can be an opportunity for informal assessment of student familiarity and background.

**Why would I use this strategy?**
Number Routines serve to further understanding of math content while addressing Standard for Mathematical Practice 3: *Construct viable arguments and critique the reasoning of others.* They give students the opportunity to develop flexibility and fluency with mental visualization and computation. They offer opportunities to revisit math topics, approach common misconceptions, and deepen understanding by sharing multiple strategies and perspectives on a concept or skill.
When do I use this strategy?
This strategy can be used at any time, but is often done at the beginning of a math lesson. Because it does not need to be focused on the lesson’s content, the content of the Number Routine can vary according to the needs of students. Number Routines should happen 3 to 5 times a week for 10–15 minutes each.

One way to do this… Practice a math talk with ten frames and dots to explore the idea that there are a variety of ways to both recognize and add two numbers. Introduce the hand signals students will show to represent they are thinking, or have 1 or more solutions. Afterwards introduce the math routine of skip counting or daily schedule, modeling for students to show them how they will use this math routine to use math in their everyday lives.

2.0 Math Talks BLM

Engaging Experience 2
Teaching Point: Today I am going to teach you about two more of our math norms: talking about each other’s thinking; and errors are gifts that promote discussion.

Suggested Length of Time: 1 day
Detailed Description/Instructions:
One way to do this… Have students practice fluency to 20 as they experience two different learning stations. Use these games to introduce classroom expectations for games/manipulatives, patterns of movement, cleanup signal, and norms for working with others. Of course it is also a good time to talk about good gamesmanship.

Here are some things to consider
Set norms for use and misuse of manipulatives.
● Think about how will you introduce each material/station to the class.
● Decide how students will work: individually, in pairs, or in small groups
● Decide whether students will choose their group or whether you will assign groups / Learning Stations / rotations.
● Decide how students will clean up materials and how they will be taught the procedure.
● Think about how you will debrief the Learning Stations. Will you use a Turn-and-Talk, class share out, or journal reflection?

Learning Station #1 – Addition Clash
● Addition Clash Rules BLM
● Deck of Playing Cards (1–10) or 0–10 Number Cards BLM copied on card stock and cut out

Supporting materials to have available at station:
● Double Ten Frames BLM
● Hundred Chart BLM
● 0–20 Number Line BLM
● Counters or cubes

Learning Station #2 - Cross Out
● Cross Out Rules Teacher
● 0-20 Number Line BLM

Supporting materials to have available at station:
● Double Ten Frames BLM
● Hundred Chart BLM
● Counters or cubes

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Engaging Experience 3
Teaching Point: Today I am going to teach you about our last math norm: ask questions until ideas make sense.
Suggested Length of Time: 1 day

Detailed Description/Instructions:
One way to do this is to... Have students use number charts to play a math mystery number game. This will have students asking questions until they are able to eliminate enough numbers to make an educated guess on the mystery number (a number between 1-100). Students can be given the following prompts to use:

Is my number greater than/less than _____?
Is my number between ______ and ____?
Is my number a number you can land on when you count by (2, 5, 10)?
Does my number have more tens than ones?

Have class discussion on how helpful it was to be able to ask questions vs. just randomly guess the correct mystery number. Maybe students could also record how many questions they had to use to arrive at their mystery number. Were some questions more helpful?
This will also be a great way to continue to practice your norms for games, math manipulatives, listening to others, and making errors or efforts before experiencing the “correct” answer.

Another way to do this is to. Complete a 3 ACT Math Experience with your class. You could use the first one from the Envisions 2020, or look up some that are already created on the internet. This would allow students to practice the skill of both thinking of information they would like to have, and information they feel is necessary to solving a problem. Students will see these every other topic, so it might be nice to have them somewhat familiar with the routine and format of these days. It will also be great practice for each of the math norms that were established in Days 1 and 2.
Unit 1: Operations and Algebra Part 1

Subject: Math  
Grade: 2  
Name of Unit: Operations and Algebra  
Length of Unit: 22 days (4-5 weeks)

Overview of Unit:  
In Topic 1, students use mental math strategies to add and subtract within 20. Strategies include: counting on and counting back, making 10, doubles and near doubles, and thinking addition to subtract.  
In Topic 2, students work with even and odd numbers, equal groups, and arrays to build a foundation for understanding multiplication.

Getting Ready for the Unit:  
Materials:  
- Counters- each student will need at least 20 counters  
- 10 and double 10 Frames available for each student  
- Classroom display number line to 20  
- Individual student number lines to 20  
- Optional: Connecting cubes may be used for even and odd numbers

Resource Provided Professional Development:  
- Look over Topic Planner for each topic  
- Review Professional Development Video- on Pearson Realize  
- Review Math background for both topics

Formative Assessment Options  
(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)  
- Math Interview/ Conference  
- Quick Checks (Check marks within lesson)  
- Topic Pretest  
- Convince Me  
- Lesson Assessment Practice

Summative Assessment Options  
(Administered at the end of unit or topic to assess mastery of learning objectives.)  
- Online version  
- Topic Assessment Practice  
- Topic Performance Task  
- Cumulative/ Benchmark Assessment (print or online)

Daily Routines  
Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

Daily Schedule  
Frequency: Daily  
Objective: To provide opportunities for students to develop their sense of time.

Materials  
Half Hour Schedule BLM  
Daily Schedule Activity Cards

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**Description:** In 2nd grade, students learn to tell time to the nearest 5 minutes. The Daily Schedule will help students see how the events of the day align with these times. The Daily Schedule should be proportional, so that students begin to notice that the length of time spent on an activity can be seen on the schedule. Use the Half Hour Schedule BLM S C and Daily Schedule Activity Cards BLM S C or a pocket chart or a commercially available product.

**Routine:** Review the sequence of activities of the day and the time each one starts. Note that in 1st grade, students read time to the half hour.

Reading time to the nearest 5 minutes is new in 2nd grade and will be formally introduced later in the year. For now, simply read the times aloud to students.

**Number of Days in School**

**Frequency:** Daily

**Objective:** To practice counting and regrouping of ones into tens and, later, tens into 100. To build familiarity with coin values.

**Description:** For each day of school, do both routines.

- **Add one cube** to the ones bag. When the bag has ten, exchange it for a rod and put it in the tens bag. Count the tens and ones to determine how many days the students have been in school. It is not necessary to count the tens and ones every day, but the daily cube must be added.

  **Note:** Base-10 blocks are more abstract than linking cubes. You may want to start the year with linking cubes, then switch to base-10 blocks.

- **Add one penny** to the bag. When you get to 5 pennies, exchange for a nickel. Exchange two nickels for a dime, and two dimes and a nickel for a quarter. Periodically determine the total value of the money. For example, when there is a quarter, a nickel, and 3 pennies, students can calculate that the total is 33¢ and that it is equivalent to 33 pennies.

**Materials**

- **Add One Cube**
  - 3 bags labeled “hundreds,” “tens,” and “ones”
  - Base-10 blocks or linking cubes

**Skip Counting** The routine is described in detail in the 2.0 Skip Counting Routine Teacher page.

**Frequency:** Daily

**Objective:** To practice counting in groups. This builds number sense by elucidating patterns such as odd / even; it brings out patterns in addition and, eventually, moves students toward multiplication.

**Description:** This Daily Routine can used as a warm-up for a lesson, during transitions, or any time during the day as an energizer. You decide on the pacing and numbers to use based on your students’ needs, moving on as

**Materials**

- **Class Hundred Chart**
they are ready. Take no more than 10 minutes per session.

See this Note about the Hundred Chart for more information.

Class Number Line
An Interactive Class Number Line can be created either horizontally or vertically as described on the Interactive Number Line Teacher page.

Math Review:
- Math Anytime
  - Daily Review
  - Today’s Challenge
  - Fluency
    - enVision 2020
- Topic Opener: Review What You Know
- Fluency Practice/Review Activity
- Vocabulary Review

Number and Operation Routines (enVision 2020)

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<td>● Once Each Month</td>
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<td>● Part-Part-Whole Cards</td>
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<td>● Table Patterns</td>
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<td>● Toss and Cover</td>
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Number Routines:

Images: Dot Cards

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**Description:** The following dot image number talks are each designed to be used in a single session, in any order. Dot image number talks consist of three to five problems, each sequentially labeled A, B, C, and so on. The sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems. As each problem is shown, ask students, "How many dots do you see? How do you see them?" Note that using two sets of dot images for each number talk provides an opportunity for students to unitize one quantity and count on.

Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

**Number Talk: Counting On/Counting All: Double Ten Frames**

Counting On is a transitional strategy used primarily in first and early-second grade. The students starts with one of the numbers and counts on from this point. When students are able to conceptualize a number, they will transition from Counting All to Counting On.

Ten-frames are an important tool to help students reason about numbers, subitize, build fluency, work with place value, and compute with addition and subtraction. (See Appendix D for a ten-frame template.) The following ten-frames number talks are each designed to be used in a single session, in any order. Frames number talks consist of three to five problems, each sequentially labeled A, B, C, and so on. The sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems. As each problem is shown, ask students, "How many dots do you see? How do you see them?"

When the focus is on the numbers 3 to 9, ask students, "How many dots do you see? How do you see them?" When the focus is on the number 10, the question shifts to, "How many more to make ten?"
Number Talk: Counting On/Counting All: Number Sentences

Counting On is a transitional strategy used primarily in first and early-second grade. The student starts with one of the numbers and counts on from this point. When students are able to conceptualize a number, they will transition from Counting All to Counting On.

The following number talks are each designed to be used in a single session, in any order. These number talks consist of three to five problems. The sequence of problems within a given number talk allows students to apply strategies from previous problems to subsequent problems.

Number Talk: Doubles and Near Doubles (Category 1 and 2)

Beginning as early as kindergarten, children are able to recall sums for many doubles. This strategy capitalizes on this strength by adjusting one or both numbers to make a double or near-double combination.

The following number talks consist of three or more sequential problems. The sequence of problems within a given number talk allows students to apply strategies from previous problems to subsequent problems. These number talk problems may be used in two ways:
• selected at random from each category; or
• navigated in a systematic order by selecting problems with smaller numbers from a specific category, then building to larger numbers.
Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

### Number Talk: Images of Arrays

More images can be found at: [http://ntimages.weebly.com/photos.html](http://ntimages.weebly.com/photos.html)

### Additional Personalized Practice and Application Suggestions:

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Learning Station Bank

Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

<table>
<thead>
<tr>
<th>Learning Station Descriptions</th>
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| **Title:** Material Exploration (From Unit 0)  
**Objective:** Establish learning station routines and behaviors; allow students to play and become familiar with math materials; provide opportunities for teacher to assess beginning numeracy skills on the K.0-1 Observation Sheet.  
- Continue with material explorations until students exhibit appropriate behaviors and numeracy skills of all students have been assessed.  
- These Materials Exploration stations may be switch out with new stations one or two at a time as the unit progresses. | Linking cubes  
Pattern blocks  
Bear counters  
3-D shape blocks  
Paper and crayons or markers  
Number cards or tiles |
| **Title:** Number Writing  
**Objective:** Practice writing numerals  
- Cut the Writing Numbers Example BLM into strips of individual numbers. The strips may be glued to the top of lined paper and laminated for reuse, or left for single use.  
- Choose a material for students to use and have students practice writing their numerals. Your choice may depend on the students’ interest level, ability to use alternative materials, or your need for a record. | Writing Numbers Example BLM  
Whiteboards, sand trays, shaving cream, Play-Doh, paper and pencils, or crayons |
| **Addition Clash** (This game is taught on Day 2.)  
**Objective:** To review adding within 20 to build fluency  
- Students practice addition within 20.  
- See Day 2 for details of play.  
Optional: Grade 2 BOY Assessment Guidelines has a checklist that can be used to make note of observations of students.  
- Which sums do students have fluency with?  
- Which supporting materials (if any) do students use?  
- How do they use them? | Addition Clash Rules BLM  
Deck of Playing Cards (1–10) or 0–10 Number Cards BLM copied on card stock and cut out  
Supporting materials:  
- Double Ten Frames BLM  
- Hundred Chart BLM  
- 0–20 Number Line BLM  
- Counters or cubes |
| **Cross Out** (This game is taught on Day 2.)  
**Objective:** To review adding and subtracting within 20 to build fluency in a strategy game  
- Students practice addition and subtraction within 20 on a number line.  
- See Day 2 for details of play.  
Optional: Grade 2 BOY Assessment Guidelines has a checklist that can be used to make note of observations of students.  
- Which sums and differences do students have fluency with?  
- Which supporting materials (if any) do students use? | Cross Out Rules Teacher  
0–20 Number Line BLM  
Supporting materials to have available at station:  
- Double Ten Frames BLM  
- Hundred Chart BLM  
- Counters or cubes |
• How do they use them?

**Equal Groups and Repeated Addition**

**Objective:** To divide objects into equal groups and write repeated addition equations for them

**Directions:**
- Grab a handful of counters. Count them.
- Try to put them into equal groups.
  - Can you put them into groups of 2? Are any left over? How many?
  - Groups of 3? Are any left over? How many?
  - Groups of 4? More?
- Each time you group your objects, write an equation to show the total.
- Try again with a different handful.

**Variations:**
- Try to make arrays with the objects.
- Show your equation on a number line.
- Try the Arrays and Equations Card Sort.

**Resources**
- Counters, such as bear counters or centimeter cubes
- Math notebooks or other recording paper
- Arrays and Equations Card Sort BLM

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**Close to 20**

- Player one rolls two dice and adds them together.
- A third die is rolled and also added to the sum. Record each roll, keeping track of the sum.
- Player one decides if they want to roll a fourth time in order to get as close to 20 as possible.
- Player two rolls the dice in the same way.
- After each round, compare who got closer to 20.

**Resources**
- Close to 20 BLM, 4 dice per pair.

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**What’s the Difference?**

**Objective:** Developing fluency with mental subtraction within 20.

- Shuffle the cards.
- Put the pennies or counters in one pile. This is the bank.
- Each player takes one card from the deck and takes the same number of pennies or counters.
- Determine the difference between the two values. Who has more? How many more? Who has fewer? How many fewer?
- The player with more pennies or counters keeps the difference.
- The rest of the pennies or counters go back in the bank.
- Play until there are no more pennies in the bank.

**Resources**
- Deck of cards (without the face cards)
- About 50 pennies or counters

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**Topic 1: Fluently Add and Subtract Within 20**

Students use mental math strategies to add and subtract within 20.

**Essential Questions:**
- What are strategies for finding addition and subtraction facts?

**Enduring Understandings:**
- Counting on is a strategy that can be used to find sums. The order of the addends does not change the sum

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- Basic addition facts that are near doubles can be found using a related doubles fact.
- Some addition facts can be found by changing to an equivalent fact within ten.
- A number line is a tool you can use to help you count on or count back to subtract.

**Priority Standards:**

- 2.RA.A.1 Demonstrate fluency with addition and subtraction within 20

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<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
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**Topic Vocabulary:**

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<td>Sum</td>
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<td>Doubles</td>
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<td>Bar diagram</td>
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**Engaging Experience 1**

**Teaching Point:** Today I want to teach you to add numbers in any order by counting on.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 2.RA.A.1

**Detailed Description/Instructions:**

- **One way to do this** use lesson 1-1 to teach students to count on by using connecting cubes. Emphasize that numbers can be added in any order.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

**Engaging Experience 2**

**Teaching Point:** Today I want to teach you to add quickly and accurately using doubles and near doubles.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 2.RA.A.1

**Detailed Description/Instructions:**

- **One way to do this** using lesson 1-2, teach students to use doubles and near doubles to add quickly and accurately. You can provide connecting cubes for extra support. Teach students that the equals sign means is the same as. This will come up throughout the entire curriculum.

- ***Highlight for students that the sum can appear at the beginning of the addition sentence or the end (6+6=12 or 12=6+6)***

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Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 3
Teaching Point: Today I want to teach you to add quickly and accurately using the make a ten strategy with counters and a ten frame.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.RA.A.1
Detailed Description/Instructions:
  □ One way to do this using lesson 1-3, teach students to add quickly and accurately by making tens using counters and a ten frame. Making a ten is an important strategy for mental math. Highlight that it is much more efficient to start with the greater number than the lesser number when making ten.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 4
Teaching Point: Today I want to teach you to add quickly and accurately using addition patterns.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.RA.A.1
Detailed Description/Instructions:
  □ One way to do this using lesson 1-4, teach students to add quickly and accurately by showing them the addition fact table and highlighting patterns within that table. Such as, the larger one addend is, the smaller the other addend will be.
  □ Another way to do this is to give students a sum, and they list all the addition facts that will make that sum.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 5
Teaching Point: Today I want to teach you to add count on and back back using a number line.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.RA.A.1
Detailed Description/Instructions:
  □ One way to do this using lesson 1-5, teach students two subtraction strategies using a number line to either start with the smaller number and count up, or to begin with the larger number and count backwards. Students are using a number line.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 6
Teaching Point: Today I want to teach you to subtract quickly and accurately by thinking addition.

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Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.RA.A.1

Detailed Description/Instructions:
  - **One way to do this** using lesson 1-6, teach students about the inverse relationship between addition and subtraction. Highlight the idea that every subtraction fact has a related addition fact students could use to help them. You may want to relate this skill with the familiar fact family term.
  - **Another way to do this**

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 7**
Teaching Point: Today I want to teach you to subtract quickly and accurately by making a 10.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.RA.A.1

Detailed Description/Instructions:
  - **One way to do this** using lesson 1-7, teach students that some subtraction facts can be simplified by making use of the numbers’ relationships to 10. You will want to model this with a 10 frame.
  - **Another way to do this** use number bonds to break apart the smaller number in order to make a ten.

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 8**
Teaching Point: Today I want to teach you to add and subtract quickly and accurately using a strategy of your choice.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.RA.A.1

Detailed Description/Instructions:
  - **One way to do this** using lesson 1-8, allow students to practice the various strategies taught to them. Emphasize to students that some strategies are more efficient than others.
  - **Another way to do this** using a number talk routine using purposeful examples that lend themselves well to each strategy. Have a class discussion over the most efficient strategy for each problem.

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 9**
Teaching Point: Today I want to teach you to solve word problems using addition and subtraction strategies.
Suggested Length of Time: 1 day
Standards Addressed

BOE Approved June 20, 2019
Priority: 2.RA.A.1

Detailed Description/Instructions:
- **One way to do this** using lesson 1-9, use a comparison bar diagram to help students understand the word problem, and then encourage them to choose an equation to solve the problem. Students will need to continue to use those addition and subtraction strategies.
- **Another way to do this** to help students visualize the problems by acting them out as a class, or using manipulatives. This could also be used as a small group reteaching strategy.

Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Scenario

### 3- ACT Math: Losing Marbles
Anytime after 1-9

In the 3-Act Math for Topic 1, students draw on their conceptual understanding of addition and subtraction. They make use of representations and tools, such as **verbal counting, counting objects, and drawing**.

Engaging Experience 10

**Teaching Point:** Today I want to teach you to solve word problem with words, pictures, or numbers to explain your thinking.

**Suggested Length of Time:** 1 day

**Standards Addressed**

| Priority: 2.RA.A.1 |

**Detailed Description/Instructions:**
- **One way to do this** using lesson 1-10, use words, pictures, and numbers to explain students’ thinking when solving word problems.

Bloom’s Levels: Understand
Webb’s DOK: 1

Topic 2: Work with Equal Groups

Students work with even and odd numbers, equal groups, and arrays to build a foundation for understanding multiplication.

**Essential Questions:**
- How can you show even and odd numbers?
- How do arrays relate to repeated addition?

**Enduring Understandings:**
- Numbers can be classified as even or odd by showing numbers as two equal parts.
- A group of objects (or a number) can also be classified as even or odd by analyzing skip counting patterns. An even number can be written as a sum of equal addends.

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- An array shows equal groups, so you can write equations using repeated addition to find the total number of the objects in an array.
- Make arrays with equal rows or equal columns to solve addition problems.

**Priority Standards for unit:**
- 2.RA.B.2 Determine if a set of objects has an odd or even number of members. Count by 2s to 100 starting with any even number. Express even numbers as pairings/groups of 2, and write an expression to represent the number using addends of 2. Express even numbers as being composed of equal groups and write an expression to represent the number with 2 equal addends.
- 2.RA.B.3 Find the total number of objects arranged in a rectangular array with up to 5 rows and 5 columns, and write an equation to represent the total as a sum of equal addends.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb’s DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.RA.B.3</td>
<td>total number of objects arranged in arrays</td>
<td>find</td>
<td>understand</td>
<td>1</td>
</tr>
<tr>
<td>2.RA.B.2</td>
<td>Total number of objects is even or odd</td>
<td>determine</td>
<td>understand</td>
<td>2</td>
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</table>

**Topic Vocabulary:**

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row</td>
<td>Even</td>
</tr>
<tr>
<td>Column</td>
<td>Odd</td>
</tr>
<tr>
<td></td>
<td>Array</td>
</tr>
</tbody>
</table>

**Engaging Experience 1**

**Teaching Point:** Today I want to teach you how to tell if a number is even or odd by using connecting cubes.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

**Priority:** 2.RA.B.2

**Detailed Description/Instructions:**
- **One way to do this** Using lesson 2-1, show students that numbers can be represented as equal (even) or unequal (odd) groups by using connecting cubes.
- **Another way to do this** Relate doubles facts to even numbers, and near doubles facts to odd numbers

**Bloom’s Levels:** Understand

**Webb’s DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I want to teach you to determine if a number is even or odd by using pictures.

**Suggested Length of Time:** 1 day

**Standards Addressed**

BOE Approved June 20, 2019
Priority: 2.RA.B.2

Detailed Description/Instructions:

☐ One way to do this Using lesson 2-2, you’re moving students from concrete to semi-concrete / visual by using pictures to relate the idea that odds have an extra piece or part.

Bloom’s Levels: Understand

Webb’s DOK: 2

Engaging Experience 3
Teaching Point: Today I want to teach you to find the total number of objects in an array by using addition.

Suggested Length of Time: 1 day

Standards Addressed

Priority: 2.RA.B.3

Detailed Description/Instructions:

☐ One way to do this Using lesson 2-3, show students how use arrays to make two different equations to find the total number of objects. Emphasize the difference between rows and columns.

Bloom’s Levels: Understand

Webb’s DOK: 1

Engaging Experience 4
Teaching Point: Today I want to teach you to solve repeated addition problems by using arrays.

Suggested Length of Time: 1 day

Standards Addressed

Priority: 2.RA.B.3

Detailed Description/Instructions:

☐ One way to do this Using lesson 2-4, show students that you can make arrays to help you solve repeated addition word problems.

Bloom’s Levels: Understand

Webb’s DOK: 1

Engaging Experience 5
Teaching Point: Today I want to teach you to model problems using equations, drawings, and arrays.

Suggested Length of Time: 1 day

Standards Addressed

Priority: 2.RA.B.3

Detailed Description/Instructions:

☐ One way to do this Using lesson 2-5, teach students that good math thinkers use math and strategies they know to show and solve problems. Students are applying drawing of arrays to help them figure and solve an addition problem.

Bloom’s Levels: Understand

Webb’s DOK: 1
Subject: Math
Grade: 2
Name of Unit: Operations and Algebra
Length of Unit: 45 days (9 weeks)

Overview of Unit: students used strategies based on place value and properties of operations to add and subtract within 100.

In Topic 3, students are adding within 100 using the following strategies: using an open number line, patterns within a hundreds chart, breaking apart numbers, and using compensation.

In Topic 4, students are continuing to add but will be using place value blocks, place value mats in order to help conceptualize regrouping. Students will also be using the strategy of partial sums, along with any mental math strategies from topic 3. Finally students will be expected to add 3 more addends to get a sum; understanding that they can be added in any order.

In Topic 5, students are subtracting within 100 using the following strategies: using an open number line, patterns within a hundreds chart, breaking apart numbers, and using compensation. Students are expected to use more than one effective strategy to fluently subtract within a hundred. Students will also be using bar diagrams to solve one and two-step word problems, and critique the work of others.

In Topic 6, students are continuing to subtract but will be using models with place value blocks, and place value mats in order to help conceptualize regrouping. Students will also be using the strategy of partial differences, along with any mental math strategies from topic 5. Finally students will be expected to continue using more than one effective subtraction strategy to build fluency. Students will again be using bar diagrams to solve one and two-step word problems, and critique the work of others.

Getting Ready for the Unit:

Materials:

- Hundreds Chart- display for whole group, and individual copies for students (teaching tool 17)
- Open Number Line (teaching tool 14)
- Break Apart Strategies Sheet (Teaching tool 21)
- Bar Diagram (Teaching Tool 23, 15, and 16)
- Counters
- Place Value Blocks- enough for all students
- Partial Sums Chart (Teaching Tool 25)
- Place Value Mat (Teaching Tool 26)

Resource Provided Professional Development:

- Look over Topic Planner for each topic
- Review Professional Development Video
- Review Math Background which provides math strategies that students are expected to utilize.
### Formative Assessment Options
*(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)*

- Math Interview/ Conference
- Quick Checks (Check marks within lesson)
- Topic Pretest
- Convince Me
- Lesson Assessment Practice

### Summative Assessment Options
*(Administered at the end of unit or topic to assess mastery of learning objectives.)*

- Online version
- Topic Assessment Practice
- Topic Performance Task
- Cumulative/ Benchmark Assessment (print or online)

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### Daily Routines

Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

Daily routines to continue from unit 1:
- Daily Schedule
- Number of Days in School

#### Estimation Jar

**Frequency:** Weekly  
**Objective:** To provide opportunities for students to develop their sense of estimation.

**Description:** Students estimate the number of items in a jar. Over time the size of the jars and/or objects changes and students adjust their estimate.

**Routine:** Show students the jar with a small number (about 10 or so) of objects and ask them how many they think are inside. Have students discuss with a partner. Tell students that an estimate is like a guess, but we try to be thoughtful about it.

Pour the objects out and count them together. Discuss how close their estimates were. Emphasize that estimating is something they can get better at, and if they were way off, that is okay. Now fill the jar with the objects and tell students that they will estimate how many objects there are now, using what they learned about how many there were before.

Tell students that they will have a week to make estimates of how many counters there are in the jar. Remind them that they aren’t trying to find the exact amount.

Provide an area where students can examine the jar over the course of the week. Provide slips of paper on which they write their estimates.

Once students have had time to estimate, count the objects with the class.

Repeat this activity on a weekly basis with different sizes of jars and objects.

---

**Materials**

- **Jars of various sizes.** Start with a small jar.

- **Objects of various sizes.** Start with something familiar, such as centimeter cubes or bear counters.

- **Estimate box and slips of paper.** Students will put their estimate for that week’s objects in the box.
| Title: **Number of the Day**  | **Example:** Today’s number is 15.
| Frequency: Daily or Weekly | Students might say:
| **Objective:** To help students grow in the ways they think about numbers and operations. | ● 10 + 5
| **Directions:** Present students with a number. They generate a variety of representations of the number, including drawings, equations, and examples. This can be done mentally or with paper and pencil. Work does not have to be limited to equations, but can include: | ● 17 – 2
| ● Composition/decomposition | ● 3 nickels
| ● Relationships to other numbers | ● My brother is 15 years old.
| ● Real-world examples | ● One rod and 5 cubes
| ● Using models | **Questions to ask:**
| Variations for this routine can be found [here](#). | ● Is it odd or even?
| | ● Can you put it into groups?
| | ● Can you skip count to it?
| | ● What number is 10 more? 10 less? 5 more? 5 less? etc.

| Title: **Which is Greater?**  | **Examples:**
| **Objective:** To reinforce ideas of place value, especially the relative magnitude of each place. To develop relational thinking. | 14 ___ 24
| Present two numbers or expressions orally or in writing and ask students to decide which is greater and explain their thinking. | 24 ___ 31
| | 99 ___ 102
| | 20 + 3 ___ 25
| | 76 + 14 ___ 76 + 15
| | 76 – 14 ___ 76 – 15

| Title: **Skip Counting**  | **Emphasize Skip counting from any number by 10**
| The routine is described in detail in unit 1 and [Skip Counting Routine Teacher page.](#) | Skip count from any number by tens is very important for building understanding of and fluency with two-digit addition. For example, start with 2. Skip count by tens: 12, 22, 32, etc.
| **Objective:** To practice counting in groups. This builds number sense by elucidating patterns such as odd/even; it brings out patterns in addition and, eventually, moves students toward multiplication. |
Emphasis for units 5 & 6:
Skip counting back from any number by 10
Skip counting from any number by tens is very important for building understanding of and fluency with two-digit addition and subtraction.

For example, start with 82. Skip count by tens: 72, 62, etc.

Math Review:
- Math Anytime
  - Daily Review
  - Today’s Challenge
  - Fluency
    - enVision 2020
- Topic Opener: Review What You Know
- Fluency Practice/Review Activity
- Vocabulary Review

Number and Operation Routines (enVision 2020)

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<td>Number Scavenger Hunt</td>
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<td>Compare and Draw it Up!</td>
<td>Two Spinners</td>
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<tr>
<td>Contig</td>
<td>Which One is False?</td>
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<tr>
<td>Four and GONE!</td>
<td></td>
</tr>
<tr>
<td>In and Out</td>
<td></td>
</tr>
</tbody>
</table>

Number Routines:

Number Talk: Images-Dot Cards
See Unit 1

Number Talk: Number Sentences Addition Making Tens (page 126-128)
The focus of this strategy is to be able to utilize fluency with ten to expedite adding. Being able to take numbers apart with ease, or fluency, is the key to using this strategy.

These number talks consist of three to five problems. The sequence of problems within a given number talk allows students to apply strategies from previous problems to subsequent problems.

Category 1: Includes two numbers that make a quick ten

Category 2: Includes problems with two pairs of numbers that make a quick ten

Category 3: Requires students to decompose at least one number to make a quick ten

Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

**Number Talk: Number Sentences Subtraction- Adding Up (page 146-147)**

This strategy is similar to the Breaking Each Number into Its Place Value strategy except the focus is on keeping one addend whole and adding the second number in easy-to-use chunks. This strategy is slightly more efficient than the Breaking Each Number into Its Place Value strategy, since you are not breaking every number apart.

These number talks consist of three to five problems. The sequence of problems within a given number talk allows students to apply strategies from previous problems to subsequent problems.

Category 1: Computation problems in which the wholes are multiples of ten
Once students begin to understand place value, this is one of the first strategies they utilize. Each addend is broken into expanded form and like place value amounts are combined. When combining quantities, children typically work left to right because it maintains the magnitude of the numbers.

Category 1: Smaller two-digit numbers that do not require regrouping

Category 2: Build gradually from adding multiples of ten to a number to adding in chunks
Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

### Additional Personalized Practice and Application Suggestions:

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<th>Intervention</th>
<th>On-level</th>
<th>Advanced</th>
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</thead>
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<td>● Reteach to Build Understanding</td>
<td>● Build Mathematical Literacy</td>
<td>● Enrichment</td>
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<td>● Intervention Activity</td>
<td>● Additional Practice</td>
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<td>● Additional Practice</td>
<td>● Interactive Practice</td>
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<td>● Interactive Practice Buddy</td>
<td>● Problem Solving Reading Activity</td>
<td>● Problem Solving Reading Activity</td>
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<td>● Another Look</td>
<td>● Pearson Games</td>
<td>● Pearson Games</td>
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<td></td>
<td>● Digital Math Tool Activity</td>
<td>● Today’s Challenge</td>
</tr>
</tbody>
</table>

### Learning Station Bank

Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

#### Learning Station Descriptions

**Odd or Even?**

**Objective:** Two players work together, playing against the deck. The object of the game is to remove all the cards, going through the deck only one time.

**Directions:**
- Shuffle the cards; take the top two cards and place them face up.
- If the sum of the two face-up cards is an even number, take the cards and turn over two more cards. If the sum is odd, put out a third card.
- If the sum of the top two cards is now even, remove only the top two cards from play. If the sum is odd, add another card.
- Continue turning over cards, looking at the top two cards to find even sums until you have used up all the cards in the deck.
- You win if you have more cards than are left in the deck.

**Resources**
- 1 deck of cards with face cards removed or 0–10 Number Cards BLM
- Optional: Odd or Even Instructions BLM

**Examples**

<table>
<thead>
<tr>
<th>Even? No. 7 + 2 = 9 and 9 is odd.</th>
<th>7 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Even? Yes. 2 + 2 = 4 and 4 is even. Take the twos.</td>
<td>7 2 2</td>
</tr>
<tr>
<td>Put out a new card and continue.</td>
<td>7 5</td>
</tr>
</tbody>
</table>
**Number Line Hops Game**

**Objective:** Find different ways to hop on a number line by chunking the added in different ways.

See Lesson Series 2 Day 2 for a description of this lesson.

**Directions:**
- Choose a START card.
- Write the number on the card at the left end of the number line.
- Choose a HOP card to see how far to jump.
- Show your hops on the number line.
- Mark the ending point on your number line.

Record in the form of an equation.

**Guiding Questions:**
- Could you chunk this a different way?
- Could you group the tens and add them at once?
- What number could you add to get to the next ten?

**Example:**

```
Start 26 Hop 38 (26 + 38)
```

```
26 + 38 =
26 + 30 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 =
56 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 64
```

```
26 + 38 = 26 + 4 + 30 + 4 =
= 30 + 30 + 4 = 64
```

**Double Digit Cover-Up**

**Objective:** To make strategic decisions about tens and ones to try to get as close to 100 as possible.

This game is similar to Race to 100, but students decide whether to move by ones or tens at each turn.

- Take turns rolling one die. Players may use the same roll of the die, or each player may roll individually.
- Take as many cubes or rods as the number on the die and use them to cover squares on the hundred chart.
- Record an equation after each turn.
- The die is rolled exactly 7 times. Players take either cubes or rods on each roll.
- After exactly seven rolls, the player who is closest to filling up the chart, without going over 100, wins.

**Race to Zero** (Taught in LS1 Day 4):

**Objective:** Subtraction with place value understanding.

- Start with 100 base-10 blocks on the place value mat.
- One die is the tens and one die is the ones.
- Roll the dice and name the number. Subtract that number from the base-10 blocks.
- Record the equation.

**Race to Zero Instructions**
- 2 dice, each a different color.
- Decide together which die will be the tens and which will be the ones.
- Base-10 blocks (2 hundreds, 20 tens, 20 ones)
- 2 Place Value Mats

**Unknowns with Dominoes**

**Objective:** To create and practice solving equations with unknowns in different places.

- Each player picks two dominoes and 1 Unknown Card
- They decide on which way to orient the domino
- They create one or more equations with the “ingredients” and solve them.

**EXAMPLE:**

```
Card: Change Unknown
```

```
Dominoes and possible values: Equations with 26 and 68:
```

```
26 + ? = 68
```

**Double Nine Dominoes or Double Nine Dominoes BLM, cut up 1 per pair**

**Unknown Cards BLM S C, cut up 1 per pair**

**Unknowns with Dominoes Recording Sheet S C**

**Number Lines and Hundred Charts**
Students should pick one value.

26 or 62
68 or 86

68 – ? = 26

Sum it up!
Play on the Sum it Up! Board or on scratch paper.

- One player rolls a die or spins the spinner to generate a number.
- All players record the number in one of the squares on their chart.
- Another player rolls a die or spins the spinner.
- All players record this number in another empty squares.
- Take turns until all the squares have been filled in.
- Players find the sums of all the rows, columns, and the diagonal, and record them in the respective circles.
- Any sum that only appears once in a circle is crossed out.
- The total of the sums that are not crossed out is the player’s score for that round.

Students use strategies based on place value and properties of operation to add within 100.

Essential Questions:
- What are strategies for adding numbers to 100?

Enduring Understandings:
- Patterns on a hundred chart can be used to add numbers and to develop mental math strategies and number sense.
- Two digit numbers can be broken apart using tens and ones and added in different ways.
  You can represent how you break apart and add numbers with hops or jumps on an open number line.

Priority Standards for unit:
- 2.NBT.B.8  Add or subtract within 1000, and justify the solution.
Engaging Experience 1
Teaching Point: Today I want to teach you to add using place value strategies and a hundred chart.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.NBT.B.8
Detailed Description/Instructions:
  □ One way to do this using lesson 3-1 teach students to add on a hundreds chart by adding tens first and then the ones or start adding the ones and then tens.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 2
Teaching Point: Today I want to teach you to add tens and ones using an open number line.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.NBT.B.8
Detailed Description/Instructions:
  □ One way to do this using lesson 3-2, teach students that two-digit numbers can be broken apart using tens and ones and added in different ways. You can represent how you break apart and add numbers with hops or jumps on an open number line.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 3
Teaching Point: Today I want to teach you to add by breaking apart numbers into tens and ones.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.NBT.B.8
Detailed Description/Instructions:
  □ One way to do this using lesson 3-3, teach students two-digit numbers can be broken apart into tens and ones and added in different ways.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 4
Teaching Point: Today I want to teach you to add by breaking apart numbers and combining them into easier numbers to add, this is called compensation.

BOE Approved June 20, 2019
Suggested Length of Time: 1 day  
Standards Addressed  
  Priority: 2.NBT.B.8  
Detailed Description/Instructions:  
  □ One way to do this using lesson 3-4, teach students when adding two-digit numbers, you can add an amount to one addend and subtract the same amount from another addend to make addition easier.  
  □ ***make sure to introduce the vocabulary word compensation to students, this is an important vocabulary word that will come up over and over again throughout the year.  
Bloom’s Levels: Understand  
Webb’s DOK: 1  

Engaging Experience 5  
Teaching Point: Today I want to teach you to add two-digit numbers using a strategy that you choose.  
Suggested Length of Time: 1 day  
Standards Addressed  
  Priority: 2.NBT.B.8  
Detailed Description/Instructions:  
  □ One way to do this use lesson 3-5, teach students there are different ways to add two-digit numbers. Certain strategies may be better to use for a problem than others.  
  □ Strategies to highlight: breaking apart numbers into tens and ones and compensation  
Bloom’s Levels: Understand  
Webb’s DOK: 1  

Engaging Scenario  
3- ACT Math Piled Up  
Anytime after 3-5  
In the 3 Act-Math for Topic 3, students draw on their conceptual understanding of counting and addition. They make use of representations and tools such as place-value blocks, make ten strategy, and a hundred chart.  

Engaging Experience 6  
Teaching Point: Today I want to teach you to solve word problems by using drawings and equations.  
Suggested Length of Time: 1 day  
Standards Addressed  
  Priority: 2.NBT.B.8  
Detailed Description/Instructions:  
  □ One way to do this use lesson 3-6, teach students some problems can be solved in one step. Other problems can be solved in two steps- first, by solving a sub problem or by answering a hidden question and then by using that answer to solve the original
problem.

Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 7

Teaching Point: Today I want to teach you to explain your thinking when solving word problems by using words, pictures, numbers, and symbols.

Suggested Length of Time: 1 day

Standards Addressed

Priority: 2.NBT.B.8

Detailed Description/Instructions:

☐ One way to do this use lesson 3-7, teach students that good math thinkers know how to choose the most efficient strategy to solve problems and use math to explain why they are right. They can talk about the math others do, too.

☐ Another way to do this using a number talk routine, give word problems that lend themselves to a specific strategy, and have a class discussion over it. Encourage students to explain and show their thinking.

Bloom’s Levels: Understand
Webb’s DOK: 1

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**Topic 4: Fluently Add Within 100**

Students use strategies based on place value and properties of operation to add within 100

---

**Essential Questions:**

- What are strategies for adding numbers to 100?

**Enduring Understandings:**

- Strategies for adding two 2-digit numbers can be extended to adding more than two 2-digit numbers. Numbers can be added in any order.
- There are several addition strategies that can be used to add more than two numbers. Numbers can be added in any order.

**Priority Standards for unit:**

- 2.NBT.B.6 Demonstrate fluency with addition and subtraction within 100.

**Supporting Standards for unit:**

- 2.NBT.B.7 Add up to four two-digit numbers.

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<table>
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BOE Approved June 20, 2019
2.NBT.B.6 fluency with addition and subtraction within 100

| Demonstrate | Understand | 1 |

**Topic Vocabulary:**

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<tr>
<td>Mental Math</td>
<td>Compatible Numbers</td>
</tr>
</tbody>
</table>

**Engaging Experience 1**

**Teaching Point:** Today I want to teach you to add two digit numbers by using models to show regrouping.

**Suggested Length of Time:** 1 day

**Standards Addressed**

- **Priority:** 2.NBT.B.8

**Detailed Description/Instructions:**

- **One way to do this** using lesson 4-1, teach students strategies for adding two-digit numbers involve breaking numbers apart using place value and joining tens and ones in either order. Students need to be able to recognize when regrouping needs to take place.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

**Engaging Experience 2**

**Teaching Point:** Today I want to teach you to add two-digit numbers using models.

**Suggested Length of Time:** 1 day

**Standards Addressed**

- **Priority:** 2.NBT.B.8

**Detailed Description/Instructions:**

- **One way to do this** is using lesson 4-2, teach students that we are continuing our learning from yesterday, however students are quickly drawing models instead of using place value blocks.

- ***Teach students that tens are represented as a line and ones are represented as a dot. Also teach students to draw ones in a ten frame like-shape to keep the ones organized. It will help them to subitize as well.***

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

**Engaging Experience 3**

**Teaching Point:** Today I want to teach you to add using place value and partial sums.

**Suggested Length of Time:** 1 day

**Standards Addressed**

- **Priority:** 2.NBT.B.8

**Detailed Description/Instructions:**

BOE Approved June 20, 2019
□ One way to do this is using lesson 4-3, teach students one way to add two-digit numbers is to break the numbers into tens and ones, add the tens and add the ones in either order, and then add these partial sums to find the sum.

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 4**

**Teaching Point:** Today I want to teach you to add using mental math, place value, and partial sums.

**Suggested Length of Time:** 1 day

**Standards Addressed**
- Priority: 2.NBT.B.8

**Detailed Description/Instructions:**
□ One way to do this is using lesson 4-4, teach students one way to add two-digit numbers is to break the numbers into tens and ones, add the tens and add the ones in either order, and then add these partial sums to find the sum.

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 5**

**Teaching Point:** Today I want to teach you to add using mental math and place value.

**Suggested Length of Time:** 1 day

**Standards Addressed**
- Priority: 2.NBT.B.8

**Detailed Description/Instructions:**
□ One way to do this is using lesson 4-5, teach students one way to add two-digit numbers is to break the numbers into tens and ones, and then find an efficient way to add the easier numbers mentally.

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 6**

**Teaching Point:** Today I want to teach you to add 3 or 4 two-digit numbers using a strategy that works for you.

**Suggested Length of Time:** 1 day

**Standards Addressed**
- Priority: 2.NBT.B.8

**Detailed Description/Instructions:**
□ One way to do this is using lesson 4-6, teach students multiple ways to add more than two 2-digit numbers. These strategies include: drawing a model, partial sums, and the commutative property.

Bloom’s Levels: Understand
Webb’s DOK: 1

**Engaging Experience 7**

**Teaching Point:** Today I want to teach you to add 3 or 4 two-digit numbers in different ways.

**Suggested Length of Time:** 1 day

**Standards Addressed**

BOE Approved June 20, 2019
Priority: 2.NBT.B.8

Detailed Description/Instructions:
- **One way to do this** is using lesson 4-7, teach students multiple ways to add more than two 2-digit numbers. These strategies include: drawing a model, partial sums, the commutative property, and compatible numbers.

Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 8
Teaching Point: Today I want to teach you to solve word problems using drawing, models, and equations.
Suggested Length of Time: 1 day

Standards Addressed
- Priority: 2.NBT.B.8

Detailed Description/Instructions:
- **One way to do this** is using lesson 4-8, teach students to identify the hidden question in a word problem and then solve. Next, take the answer and apply to another given problem. Students need to provide a model and equations to show their thinking.

Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 9
Teaching Point: Today I want to teach you to solve word problems by making models.
Suggested Length of Time: 1 day

Standards Addressed
- Priority: 2.NBT.B.8

Detailed Description/Instructions:
- **One way to do this** is using lesson 4-9, teach students that good math thinkers use models and equations to solve word problems.

Bloom’s Levels: Understand
Webb’s DOK: 1

---

Topic 5: Subtract Within 100 Using Strategies
Students use strategies based on place value and properties of operation to subtract within 100

Essential Questions:
- What are strategies for subtracting numbers to 100?

Enduring Understandings:
- Patterns on a hundred chart can be used to subtract numbers and to develop mental math strategies and number sense.
- Add up to subtract using an open number line.
- Break apart 1-digit numbers to make it easier to subtract mentally.

Priority Standards for unit:
- 2.NBT.B.8 Add or subtract within 1000, and justify the solution.

BOE Approved June 20, 2019
Supporting Standards for unit:
- N/A

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
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</thead>
<tbody>
<tr>
<td>2.NBT.B.8</td>
<td>Addition and subtraction within 100</td>
<td>Demonstrate</td>
<td>Understand</td>
<td>1</td>
</tr>
<tr>
<td>2.NBT.B.8</td>
<td>Addition and subtraction within 100</td>
<td>Justify</td>
<td>Evaluate</td>
<td>2</td>
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Topic Vocabulary:

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>No new vocabulary.</td>
<td></td>
</tr>
</tbody>
</table>

**Engaging Experience 1**

**Teaching Point:** Today I will teach you to mentally subtract by using a hundreds chart.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

| Priority: 2.NBT.B.8 |

**Detailed Description/Instructions:**

- One way to do this using lesson 5-1, show students that you can use patterns on a hundreds chart to subtract. Encourage students to use mental math strategies to help them.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

**Engaging Experience 2**

**Teaching Point:** Today I will teach you to subtract two 2-digit numbers by using an open number line.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

| Priority: 2.NBT.B.8 |

**Detailed Description/Instructions:**

- One way to do this using lesson 5-2, show students to count back on a number line by tens and ones to subtract two 2 digit numbers.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

**Engaging Experience 3**

**Teaching Point:** Today I will teach you to subtract two 2 digit numbers using an open number line by counting up.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

BOE Approved June 20, 2019
**Detailed Description/Instructions:**
- **One way to do this** using lesson 5-3, show students that you can count up by tens and ones on an open number line to subtract two 2 digit numbers.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

---

**Teaching Point:** Today I will teach you subtract by breaking apart the number you are subtracting to get the difference.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 2.NBT.B.8

**Detailed Description/Instructions:**
- **One way to do this** using lesson 5-4, show students how to break apart the number you are subtracting. Show them the numbers you should break the number into to subtract more easily.

**Bloom’s Levels:** apply

**Webb’s DOK:** 2

---

**Teaching Point:** Today I will teach you subtract using compensation.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 2.NBT.B.8

**Detailed Description/Instructions:**
- **One way to do this** using lesson 5-5, show students that you can add the same amount to both numbers in the problem, or subtract the same amount, to make subtraction easier.

**Bloom’s Levels:** apply

**Webb’s DOK:** 2

---

**Engaging Scenario**

**3- ACT Math: Laundry Day**

Anytime after 5-5

In the 3-Act Math for Topic 5, students draw on their conceptual understanding of addition and subtraction. They make use of representations and tools such as counting objects, diagrams, and addition and subtraction strategies.

---

**Engaging Experience 6**

**Teaching Point:** Today I will teach you to subtract 2 digit numbers using the strategy that works the best.

**Suggested Length of Time:** 1 day

**Standards Addressed**

BOE Approved June 20, 2019
Priority: 2.NBT.B.8

Detailed Description/Instructions:

☐ One way to do this using lesson 5-6, teach students that there are different ways to subtract 2-digit numbers. Emphasize that certain strategies that are more efficient.

Bloom’s Levels: 3
Webb’s DOK: Differentiate

Engaging Experience 7
Teaching Point: Today I will teach you to solve word problems using addition or subtraction.
Suggested Length of Time: 1 day
Standards Addressed

Priority: 2.NBT.B.8

Detailed Description/Instructions:

☐ One way to do this using lesson 5-7, teach students to use a bar diagrams, equations, and the relationship between addition and subtraction to help them solve word problems. They will encounter one-step and two-step word problems, as well as, addition and subtraction problems.

Bloom’s Levels: apply
Webb’s DOK: 2

Engaging Experience 8
Teaching Point: Today I will teach you that good math thinkers discuss other’s thinking by using what they know about addition and subtraction.
Suggested Length of Time: 1 day
Standards Addressed

Priority: 2.NBT.B.8

Detailed Description/Instructions:

☐ One way to do this using lesson 5-8, students are looking at a problem, and deciding whether or not they agree or disagree with an answer by checking that math work. They must also explain their thinking and back up their opinion with evidence.

Bloom’s Levels: 3
Webb’s DOK: explain

---

Topic 6: Fluently Subtract Within 100
Students use strategies based on place value and properties of operation to subtract within 100

Essential Questions:
- What are strategies for subtracting numbers to 100?

Enduring Understandings:
- When you use place-value materials to subtract a one-digit whole number from a two-digit whole number, sometimes you need to decompose 1 ten as 10 ones.
- When subtracting two-digit numbers, you can subtract the tens and then subtract the ones by making a ten.

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Two-digit numbers can be broken apart to make it easier to subtract them mentally.

**Priority Standards for unit:**

- 2.NBT.B.6 Demonstrate fluency with addition and subtraction within 100.

**Supporting Standards for unit:**

- N/A

---

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.NBT.B.6</td>
<td>Fluency with addition and subtraction within 100.</td>
<td>demonstrate</td>
<td>understand</td>
<td>1</td>
</tr>
</tbody>
</table>

---

**Engaging Experience 1**

**Teaching Point:** Today I want to teach you to subtract one digit numbers from two-digit numbers using place value models.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- **Priority:** 2.NBT.B.6

**Detailed Description/Instructions:**

- **One way to do this:** Using lesson 6-1, teach students to use place value materials to subtract one digit whole numbers from two-digit whole numbers. Emphasize that sometimes you need to decompose one ten for ten ones.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

---

**Engaging Experience 2**

**Teaching Point:** Today I want to teach you to subtract two-digit numbers using place value models.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- **Priority:** 2.NBT.B.6

**Detailed Description/Instructions:**

- **One way to do this** Using lesson 6-2, teach students to use place value materials to subtract one digit whole numbers from two-digit whole numbers. Emphasize that sometimes you need to decompose one ten for ten ones. Also, emphasize that you might not always need to regroup.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 1

---

BOE Approved June 20, 2019
Engaging Experience 3
Teaching Point: Today I want to teach you to subtract two-digit numbers using place value in partial differences.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.NBT.B.6
Detailed Description/Instructions:
  □ One way to do this Using lesson 6-3, teach students to break the number apart to subtract the tens and then subtract the ones.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 4
Teaching Point: Today I want to teach you to subtract two-digit numbers by breaking apart the two-digit number to make it easier.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.NBT.B.6
Detailed Description/Instructions:
  □ One way to do this Using lesson 6-4, teach students to break apart the minuend in order to make it easier to subtract.
Bloom’s Levels: Understand
Webb’s DOK: 1

Engaging Experience 5
Teaching Point: Today I want to teach you to subtract two-digit numbers by using the strategy that works best for you.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.NBT.B.6
Detailed Description/Instructions:
  □ One way to do this Using lesson 6-5, teach students to either use/ draw place value blocks or to break apart the minuend to solve mentally or on paper.
Bloom’s Levels: Understand
Webb’s DOK: 1, 3

Engaging Experience 6
Teaching Point: Today I want to teach you to solve word problems using the bar diagram (part-part-whole).
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.NBT.B.6
Detailed Description/Instructions:
  □ One way to do this Using lesson 6-6, teach students to identify the hidden question in a word problem and then solve. Next, take the answer and apply to another given problem.

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Engaging Experience 7
Teaching Point: Today I want to teach you to solve word problems using bar diagrams and equations.
Suggested Length of Time: 1 Day
Standards Addressed
   Priority: 2.NBT.B.6
Detailed Description/Instructions:
   □ One way to do this Using lesson 6-7, teach students to identify the relationship between quantities in a word problem and apply reasoning to solve it.
Bloom’s Levels: Understand
Webb’s DOK: 1
Unit 3: Operations and Algebra Part 2

Subject: Math
Grade: 2
Name of Unit: Operations and Algebra
Length of Unit: 12 Days (appr. 2 weeks)

Overview of Unit:
In Topic 7, students develop strategies to solve one- and two-step problems involving addition and subtraction. They use drawings and equations to represent problems.

Getting Ready for the Unit:
Materials:
- Red and blue colored pencils
- Red and blue cubes for each student
- Bar Diagram (Teaching Tool 23)
- Connecting Cubes
- Markers
- Bar Diagram (Teaching Tool 15, 16 and 23)

Resource Provided Professional Development:
- Look over Topic Planner for each topic
- Review Professional Development Video
- Review Math Background which provides math strategies that students are expected to utilize.

Formative Assessment Options
(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)
- Math Interview/ Conference
- Quick Checks (Check marks within lesson)
- Topic Pretest
- Convince Me
- Lesson Assessment Practice

Summative Assessment Options
(Administered at the end of unit or topic to assess mastery of learning objectives.)
- Online version
- Topic Assessment Practice
- Topic Performance Task
- Cumulative/ Benchmark Assessment (print or online)

Daily Routines
Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

Continue all routines from Unit 2.

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Math Review:
- Math Anytime
  - Daily Review
  - Today’s Challenge
  - Fluency
    - enVision 2020
- Topic Opener: Review What You Know
- Fluency Practice/Review Activity
- Vocabulary Review

Number and Operation Routines (enVision 2020)

<table>
<thead>
<tr>
<th>Topic 7</th>
<th>Voting Data</th>
</tr>
</thead>
</table>

Number Routines:

**Number Talk: Images-Dot Cards**

See Unit 1

**Number Talk: Number Sentences Addition Breaking Each Number into Its Place Value (page 135)**

Once students begin to understand place value, this is one of the first strategies they utilize. Each addend is broken into expanded form and like place value amounts are combined. When combining quantities, children typically work left to right because it maintains the magnitude of the numbers.

\[
\begin{array}{c|c}
24 + 38 & \text{Each addend is broken into its place value.} \\
(20 + 4) + (30 + 8) & \text{Tens are combined.} \\
20 + 30 = 50 & \text{Ones are combined.} \\
4 + 8 = 12 & \text{Totals are added from the previous sums.} \\
50 + 12 = 62 & \\
\end{array}
\]

Category 2: Encourages students to combine the ten from the ones column with the tens from the tens column. The two-digits numbers remain smaller in magnitude.

Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

**Number Talk: Number Sentences Addition- Compensation (pages 137-138)**

The goal of compensations is to manipulate the numbers into easier, friendly numbers to add. When compensation, students will remove a specific amount from one addend and give that exact amount to the other.
addend to make friendlier numbers. Taking from one addend and giving the same quantity to the other addend to maintain the total sum is a big mathematical idea in addition.

<table>
<thead>
<tr>
<th>A.  8 + 6</th>
<th>Example A demonstrates a first grader's Compensation strategy for making a double.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 + 1</td>
<td>-1 + 1</td>
</tr>
<tr>
<td>7 + 7 = 14</td>
<td>7 + 7 = 14</td>
</tr>
<tr>
<td>B.  18 + 23</td>
<td>In Example B, the student changes 18 to the friendly number of 20. Notice how 2 was subtracted from the 23 and then added to the 18.</td>
</tr>
<tr>
<td>+ 2 - 2</td>
<td>+ 2 - 2</td>
</tr>
<tr>
<td>20 + 21 = 41</td>
<td>20 + 21 = 41</td>
</tr>
<tr>
<td>C.  36 + 9</td>
<td>Example C demonstrates that Compensation can be used to make an easy 10. Choosing which number to adjust is an important student decision that is linked to the student's thinking about efficiency.</td>
</tr>
<tr>
<td>-1 + 1</td>
<td>-1 + 1</td>
</tr>
<tr>
<td>35 + 10 = 45</td>
<td>35 + 10 = 45</td>
</tr>
</tbody>
</table>

Category 1: Focus on using compensation as a strategy for basic facts and combinations to 25 by removing 1 from one addend and adding it to the other addend. For example, 5+9 can be changed to 4+10 by removing 1 from the 5 and adding it to the 9.

Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

Additional Personalized Practice and Application Suggestions:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>On-level</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rethread to Build Understanding</td>
<td>• Build Mathematical Literacy</td>
<td>• Enrichment</td>
</tr>
<tr>
<td>• Intervention Activity</td>
<td>• Additional Practice</td>
<td>• Pick a Project</td>
</tr>
<tr>
<td>• Additional Practice</td>
<td>• Interactive Practice Buddy</td>
<td>• enVision STEM Activity</td>
</tr>
<tr>
<td>• Interactive Practice Buddy</td>
<td>• Problem Solving Reading Activity</td>
<td>• Problem Solving Reading Activity</td>
</tr>
<tr>
<td>• Another Look</td>
<td>• Pearson Games</td>
<td>• Pearson Games</td>
</tr>
<tr>
<td></td>
<td>• Digital Math Tool Activity</td>
<td>• Today’s Challenge</td>
</tr>
</tbody>
</table>

**Learning Station Bank**

Learning stations are an activity-based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

<table>
<thead>
<tr>
<th>Learning Station Descriptions</th>
<th>Resources</th>
</tr>
</thead>
</table>

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## Money Learning Stations:

### Coin Rubbings
**Objective:** To familiarize students with coin names and values.
- Make coin rubbings / match the cards in the Money Coin Grab.

### Coin Grab
**Objective:** To determine the value of a group of coins
- Students grab a handful of coins, draw them, then determine their total value.
  - They record this on an open number line.

**Variations:**
- You can determine the complexity of the task by putting out only certain denominations of coins, or let students control the level of difficulty for themselves.

### Sum it up!
Play on the Sum it Up! Board or on scratch paper.
- One player rolls a die or spins the spinner to generate a number.
- All players record the number in one of the squares on their chart.
- Another player rolls a die or spins the spinner.
- All players record this number in another empty squares.
- Take turns until all the squares have been filled in.
- Players find the sums of all the rows, columns, and the diagonal, and record them in the respective circles.
- Any sum that only appears once in a circle is crossed out.
- The total of the sums that are not crossed out is the player’s score for that round.

### Odd or Even?
**Objective:** Two players work together, playing against the deck. The object of the game is to remove all the cards, going through the deck only one time.

**Directions:**
- Shuffle the cards; take the top two cards and place them face up.
- If the sum of the two face-up cards is an even number, take the cards and turn over two more cards. If the sum is odd, put out a third card.
- If the sum of the top two cards is now even, remove only the top two cards from play. If the sum is odd, add another card.
- Continue turning over cards, looking at the top two cards to find even sums until you have used up all the cards in the deck.
- You win if you have more cards than are left in the deck.

### Double Digit Cover-Up
**Objective:** To make strategic decisions about tens and ones to try to get as close to 100 as possible.

This game is similar to Race to 100, but students decide whether to move by ones or tens at each turn.
- Take turns rolling one die. Players may use the same roll of the die, or each player may roll individually.
- Take as many cubes or rods as the number on the die and use them to cover squares on the hundred chart.
- Record an equation after each turn.
The die is rolled exactly 7 times. Players take either cubes or rods on each roll.

After exactly seven rolls, the player who is closest to filling up the chart, without going over 100, wins.

### Unknowns with Dominoes

**Objective:** To create and practice solving equations with unknowns in different places.

- Each player picks two dominoes and 1 Unknown Card
- They decide on which way to orient the domino
- They create one or more equations with the “ingredients” and solve them.

**EXAMPLE:**

<table>
<thead>
<tr>
<th>Card: Change Unknown</th>
<th>Dominoes and possible values:</th>
<th>Equations with 26 and 68:</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 or 62</td>
<td>68 or 86</td>
<td>26 + ? = 68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68 – ? = 26</td>
</tr>
</tbody>
</table>

Students should pick one value.

### Topic 7: More Solving Problems Involving Addition and Subtraction

Students develop strategies to solve one- and two-step problems involving addition and subtraction. They use drawings and equations to represent problems.

**Essential Questions:**

- How can you solve word problems that use adding and subtracting?

**Enduring Understandings:**

- A bar diagram can be used to show the relationship between quantities in a real-world problem, and an equation can be written to represent that relationship.
- Sometimes a problem has an unstated, or hidden, question that you need to answer before you can find the final answer.
- An equation can have different numerical expressions on each side of the equal sign, but each has the same value.

**Priority Standards for unit:**

- 2.NBT.C.11 Write and solve problems involving addition and subtraction within 100.

**Supporting Standards for unit:**

- 2.NBT.B.9 Use the relationship between addition and subtraction to solve problems.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb’s DOK</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

BOE Approved June 20, 2019
### 2.NBT.C.11

<table>
<thead>
<tr>
<th>Application</th>
<th>2.NBT.C.11 problems involving addition and subtraction within 100</th>
<th>write</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>2.NBT.C.11 problems involving addition and subtraction within 100</td>
<td>solve</td>
</tr>
</tbody>
</table>

**Topic Vocabulary:**

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<thead>
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<th>Academic Cross-Curricular Words</th>
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</tr>
</thead>
<tbody>
<tr>
<td>No new vocabulary words</td>
<td></td>
</tr>
</tbody>
</table>

---

**Engaging Experience 1**

**Teaching Point:** Today I want to teach you to model problems by using equations with unknowns in any part of the problem.

**Suggested Length of Time:** 1 day

**Standards Addressed**

Priority: 2.NBT.C.11

**Detailed Description/Instructions:**

- **One way to do this** using lesson 7-1, teach students that a bar diagram can be used to show the relationship between quantities in a real-world problem, and an equation can be written to represent that relationship.

**Bloom’s Levels:** Application

**Webb’s DOK:** 1

---

**Engaging Experience 2**

**Teaching Point:** Today I want to teach you to use drawings and equations to make sense of the words in problems.

**Suggested Length of Time:** 2.NBT.C.11

**Standards Addressed**

Priority: 1 day

**Detailed Description/Instructions:**

- **One way to do this** using lesson 7-2, teach students that a bar diagram can be used to show the relationship between quantities in a real-world problem, and an equation can be written to represent that relationship. Strategies for adding and subtracting whole numbers can be used to find unknowns.

**Bloom’s Levels:** Application

**Webb’s DOK:** 1

---

**Engaging Experience 3**

**Teaching Point:** Today I want to teach you to use drawings and equations to make sense of the words in problems.

**Suggested Length of Time:** 1 day

**Standards Addressed** 2.NBT.C.11

Priority: 1 day

**Detailed Description/Instructions:**

BOE Approved June 20, 2019
One way to do this using lesson 7-3, teach students that a bar diagram can be used to show the relationship between quantities in a real-world problem, and an equation can be written to represent that relationship. Strategies for adding and subtracting whole numbers can be used to find unknowns.

**Bloom’s Levels:** Application

**Webb’s DOK:** 1

**Engaging Experience 4**

**Teaching Point:** Today I want to teach you to model and solve two-step problems using equations.

**Suggested Length of Time:** 1 day

**Standards Addressed**

Priority: 2.NBT.C.11

**Detailed Description/Instructions:**

One way to do this using lesson 7-4, teach students that sometimes a problem has an unstated, or hidden, question that you need to answer before you can find the final answer.

**Bloom’s Levels:** Application

**Webb’s DOK:** 1

**Engaging Experience 5**

**Teaching Point:** Today I want to teach you to use different ways to solve two-step problems.

**Suggested Length of Time:** 1 day

**Standards Addressed**

Priority: 2.NBT.C.11

**Detailed Description/Instructions:**

One way to do this using lesson 7-5, teach students that sometimes the answer to one problem is needed to find the answer to another problem.

**Bloom’s Levels:** Application

**Webb’s DOK:** 1

**Engaging Scenario**

3- ACT Math:The Water Jug

Anytime after 7-5

In the 3-Act Math for Topic 7, students draw on their conceptual understanding of addition and subtraction. They make use of of representations and tools such as writing addition and subtraction problems, diagrams, and counting.

**Engaging Experience 6**

**Teaching Point:** Today I want to teach you to find unknown numbers in equations that relate four numbers.

**Suggested Length of Time:** 1 day

**Standards Addressed**

Priority: 2.NBT.C.11

**Detailed Description/Instructions:**

BOE Approved June 20, 2019
☐ One way to do this using lesson 7-6, teach students that an equation can have different numerical expressions on each side of the equation sign, but each has the same value.

Bloom’s Levels: Application
Webb’s DOK: 1

Engaging Experience 7
Teaching Point: Today I want to teach you to find unknown numbers in equations that relate four or more whole numbers.
Suggested Length of Time: 1 day
Standards Addressed
   Priority: 2.NBT.C.11
Detailed Description/Instructions:
   ☐ One way to do this using lesson 7-7, teach students that an equation can have different numerical expressions on each side of the equation sign, but each has the same value.

Bloom’s Levels: Application
Webb’s DOK: 1

Engaging Experience 8
Teaching Point: Today I want to teach you to use reasoning to write and solve number stories.
Suggested Length of Time: 1 day
Standards Addressed
   Priority: 2.NBT.C.11
Detailed Description/Instructions:
   ☐ One way to do this using lesson 7-8, teach students that reasoning can be used to identify relationships between quantities in real-world problems. Equations can be written to represent relationships.

Bloom’s Levels: Application
Webb’s DOK: 1
Unit 4: Measurement and Data Part 1

Subject: Math  
Grade: 2  
Name of Unit: Operations and Algebra  
Length of Unit: 11 Days (appr. 2 weeks)

Overview of Unit:  
In Topic 8, students tell and write time to the nearest 5 minutes. They also develop strategies to solve problems involving dollar bills and coins.

Getting Ready for the Unit:  
**Materials:**
- Coins - enough for each student (Teaching Tool 29)
- Bills - $1, $5, $10, $20 (Teaching Tool 30 and 31)
- Demonstration Clock
- Analog Clock (Teaching Tool 32)
- Blank Analog and Digital Clock (Teaching Tool 33)

**Resource Provided Professional Development:**
- Look over Topic Planner for each topic
- Review Professional Development Video
- Review Math Background which provides math strategies that students are expected to utilize.

<table>
<thead>
<tr>
<th>Formative Assessment Options</th>
<th>Summative Assessment Options</th>
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</thead>
<tbody>
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<td><em>(Administered at the end of unit or topic to assess mastery of learning objectives.)</em></td>
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- Quick Checks (Check marks within lesson)  
- Topic Pretest  
- Convince Me  
- Lesson Assessment Practice | - Online version  
- Topic Assessment Practice  
- Topic Performance Task  
- Cumulative/ Benchmark Assessment (print or online) |

**Daily Routines**

Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

Daily routines to continue from earlier units:
- Number of Days at School  
- Number of the Day  
- Estimation Jar

BOE Approved June 20, 2019
Emphasize the telling of time and time spent doing an activity.

**Daily Schedule**

**Frequency:** Daily  
**Objective:** To provide opportunities for students to develop their sense of time.

**Description:** In 2nd grade, students learn to tell time to the nearest 5 minutes. The Daily Schedule will help students see how the events of the day align with these times. The Daily Schedule should be proportional, so that students begin to notice that the length of time spent on an activity can be seen on the schedule. Use the Half Hour Schedule BLM and Daily Schedule Activity Cards BLM or a pocket chart or a commercially available product.

**Routine:** Review the sequence of activities of the day and the time each one starts. Note that in 1st grade, students read time to the half hour.

Reading time to the nearest 5 minutes is new in 2nd grade and will be formally introduced later in the year. For now, simply read the times aloud to students.

**Math Review:**
- Math Anytime  
  - Daily Review  
  - Today’s Challenge  
  - Fluency  
    - enVision 2020  
- Topic Opener: Review What You Know  
- Fluency Practice/Review Activity  
- Vocabulary Review

**Number Routines:**

**Number Talk:** Review number talks from previous units that you feel your students need to continue to work on.

**Number Talk: Images of Coins**
Description: Show students a set of coin (either by picture or coins under the document camera). Ask students to tell how much they see and how they determined that amount.

Goal: Counting groups of coins.

### Number Talk: Images of Clocks

#### Clock Talks

**Objective:** Students apply their knowledge of analog clocks to tell time to the nearest hour and half hour.

**Description:** These Math Talks are designed to encourage students to reason about time and apply their understanding of how the hours are sequenced and positioned on a clock. These clock talks proceed in order of increasing difficulty. Gauge your students’ interest and skill in order to decide how fast to move through them. Images are available in the 2.4 Math Talks BLM. Optionally, use an instructional clock or create your own clock talks from the Interactive Clock Face or No Numbers Interactive Clock Face.

**Hour and half hour (can be done with or without numbers)**

*What time is it? How do you know?*

**Hour hand only (can be done with or without numbers)**

*About what time is it? How do you know?*
**Minute hand only (can be done with or without numbers)**

*How many minutes after the hour? How do you know? How many minutes before the hour? How do you know?*

**Minute and hour hand (can be done with or without numbers)**

*What time is it? How do you know?*

---

### Additional Personalized Practice and Application Suggestions:

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<th>On-level</th>
<th>Advanced</th>
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<td>● Interactive Practice</td>
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<td>● Interactive Practice Buddy</td>
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<td></td>
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<td>● Pearson Games</td>
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</tbody>
</table>

BOE Approved June 20, 2019
Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

Money Learning Station

Activity 1: (From Unit 2.0) - Coin Rubbings
Objective: To familiarize students with coins, their names, and values
- Students put coins under paper and rub them with crayons.
- Students match the rubbings to the coins and write in their names and value.
- Student match the cards in the Money Card Match.

Activity 2: New to this unit - Coin Grab
Objective: To determine the value of a group of coins
- Students grab a handful of coins, draw them, then determine their total value. They record this on an open number line.

Variations:
- You can determine the complexity of the task by putting out only certain denominations of coins, or let students control the level of difficulty for themselves.

Money Value Poster S C or teacher-made poster or commercially made poster
- Play money or real coins
- Crayons
- Math notebooks or blank paper
- Money Card Match BLM S C
- Hundred Chart BLM
- Open Number Lines BLM

Topic 8: Work with Time and Money
Students tell and write time to the nearest five minutes. They also develop strategies to solve problems involving dollar bills and coins.

Essential Questions:
- How can you solve problems about counting money or telling time to the nearest 5 minutes?

Enduring Understandings:
- Each kind of coin has a specific value unrelated to its physical size.
- Money is measurable, and the value of coins can be quantified using cent amount.
- Time can be told and written to the nearest 5 minutes. Times can be expressed using different units that are related to each other.
- Time can be described before and after the hour in different ways.

Priority Standards for unit:
- 2.GM.D.13 Find combinations of coins that equal a given amount.

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- 2.GM.D.10 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

**Supporting Standards for unit:**
- 2.GM.D.11 Describe a time shown on a digital clock as representing hours and minutes, and relate a time shown on a digital clock to the same time on an analog clock.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.GM.D.13</td>
<td>Combinations of coins that equal a given amount</td>
<td>find</td>
<td>Apply</td>
<td>1</td>
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<tr>
<td>2.GM.D.10</td>
<td>Time from analog and digital clocks to the nearest five minutes using a.m. and p.m.</td>
<td>tell</td>
<td>tell</td>
<td>1</td>
</tr>
<tr>
<td>2.GM.D.10</td>
<td>Time from analog and digital clocks to the nearest five minutes using a.m. and p.m.</td>
<td>write</td>
<td>identify</td>
<td>1</td>
</tr>
</tbody>
</table>

**Unit Vocabulary:**

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tally Mark</td>
<td>Dime</td>
</tr>
<tr>
<td></td>
<td>Nickel</td>
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<tr>
<td></td>
<td>Penny</td>
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<tr>
<td></td>
<td>Quarter</td>
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<td></td>
<td>Half-Dollar</td>
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<td></td>
<td>Cents</td>
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<td></td>
<td>Greatest Value</td>
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<td>Least Value</td>
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<tr>
<td></td>
<td>Dollar</td>
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<tr>
<td></td>
<td>Dollar Sign</td>
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<tr>
<td></td>
<td>Dollar Bills</td>
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<tr>
<td></td>
<td>Quarter Pat</td>
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<tr>
<td></td>
<td>Half Past</td>
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<td></td>
<td>Quarter To</td>
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<tr>
<td></td>
<td>A.m.</td>
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<td></td>
<td>p.m.</td>
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</tbody>
</table>

**Engaging Experience 1**

**Teaching Point:** Today I’m going to teach you to recognize the coins and their values.

**Suggested Length of Time:** 1 day

**Standards Addressed**
- **Priority:** 12.GM.D.13

BOE Approved June 20, 2019
Detailed Description/Instructions:

- **One way to do this** use the topic opener to teach students to identify coins and their values.
- **Another way to do this** use the vocabulary cards in student workbooks to teach students to identify coins and their values.
- **Another way to do this** use online games such as these two games from ABCYa to teach students to identify coins and their values.
  - [https://www.abcya.com/games/counting_money](https://www.abcya.com/games/counting_money)
  - [https://www.abcya.com/games/money_bingo](https://www.abcya.com/games/money_bingo)

**Bloom’s Levels:** Identify
**Webb’s DOK:** 1

**Engaging Experience 2**
**Teaching Point:** Today I’m going to teach you to find the total value of a group of coins by counting on.

**Suggested Length of Time:** 1 Day
**Standards Addressed**
  - **Priority:** 12.GM.D.13

**Detailed Description/Instructions:**

- **One way to do this** Using lesson 8-1, teach students that the size of coins doesn’t determine the value of a coin (a dime is smaller than a nickel, but has a greater value). Also teach that when counting coins start with the coin of the greatest value and then work to the coin of the least value.

**Bloom’s Levels:** Organize, Categorize, Calculate
**Webb’s DOK:** 1, 2

**Engaging Experience 3**
**Teaching Point:** Today I’m going to teach you to solve word problems involving coins using an open number line.

**Suggested Length of Time:** 1 Day
**Standards Addressed**
  - **Priority:** 12.GM.D.13

**Detailed Description/Instructions:**

- **One way to do this** Using lesson 8-2, teach students to solve word problems involving money. Emphasize that students need to make sure their answer makes sense.

**Bloom’s Levels:** Organize, Categorize, Calculate
**Webb’s DOK:** 1, 2

**Engaging Experience 4**
**Teaching Point:** Today I’m going to teach you to find the value of a group of bills by counting on.

**Suggested Length of Time:** 1 Day
**Standards Addressed**
  - **Priority:** 12.GM.D.13

**Detailed Description/Instructions:**

BOE Approved June 20, 2019
One way to do this using lesson 8-3, teach students that when counting bills start with the bill of the greatest value and then work to the bill of the least value. Emphasize the places in which students can skip count.

Bloom’s Levels: Organize, Categorize, Calculate
Webb’s DOK: 1, 2

Engaging Experience 5
Teaching Point: Today I’m going to teach you to solve word problems involving bills and coins by using addition and subtraction strategies.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 12.GM.D.13
Detailed Description/Instructions:
  One way to do this Using lesson 8-4, teach students to use addition and subtraction strategies to solve problems involving money. Emphasize that students will be switching between word and numeric values of coins.
Bloom’s Levels: Organize, Categorize, Calculate
Webb’s DOK: 1, 2

Engaging Experience 6
Teaching Point: Today I’m going to teach you to find different ways to make a total value of coins using an organized list.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 12.GM.D.13
Detailed Description/Instructions:
  One way to do this Using lesson 8-5, teach students that one way to make an organized list is to create a table with tally marks to record. Students will need to solve word problems as well.
Bloom’s Levels: Organize, Categorize, Calculate
Webb’s DOK: 1, 2

Engaging Experience 7
Teaching Point: Today I’m going to teach you to tell and write time using analog and digital clocks.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.GM.D.10
Detailed Description/Instructions:
  One way to do this using lesson 8-6, teach students that time can be told and written to the nearest five minutes. Time can be expressed using different units (hour and minute) that they’re related to each other. Make sure to model the purpose of the 0 in a tens place of a digital clock (9:05).
Bloom’s Levels: Tell
Webb’s DOK: 1

BOE Approved June 20, 2019
Engaging Experience 8
Teaching Point: Today I’m going to teach you to say the time in more than one way.
Suggested Length of Time: 1 Day
Standards Addressed
    Priority: 2.GM.D.10
Detailed Description/Instructions:
    - One way to do this using lesson 8-7, teach students that time can be described before and after the hour.

Bloom’s Levels: Tell
Webb’s DOK: 1

Engaging Experience 8
Teaching Point: Today I’m going to teach you to tell time using a.m. or p.m. by using reasoning.
Suggested Length of Time: 1 Day
Standards Addressed
    Priority: 2.GM.D.10
Detailed Description/Instructions:
    - One way to do this using lesson 8-8, teach students to use the part of day to identify whether the event is a.m. or p.m.
    - Another way to do this use an anchor like the one below to help student visualize the time of day.

Bloom’s Levels: Tell
Webb’s DOK: 1
Unit 5: Number and Computation Part 2

Subject: Math
Grade: 2
Name of Unit: Operations and Algebra
Length of Unit: 34 Days (appr. 7 weeks)

Overview of Unit:
In topic 9, students expand their understanding of place value by learning to read, write, and compare numbers to 1,000.
In topics 10 and 11, use strategies based on place value and properties of operations to add and subtract within 1,000. They also explain why addition and subtraction strategies work. Strategies introduced in unit 2 are reiterated in this topic with larger numbers.

Getting Ready for the Unit:
Materials:
- Place Value Blocks (Teaching tool 19 and 20)
- Place Value Mat B (Teaching Tool 34)
- Hundreds, Tens, and Ones Charts (Teaching Tool 35)
- Blank Hundred Chart (Teaching Tool 18)
- Open Number line (Teaching Tool 14)
- Dollar Bills (Teaching Tool 30 and 31)
- Partial Sums Chart (Teaching Tool 37)

Resource Provided Professional Development:
- Look over Topic Planner for each topic
- Review Professional Development Video
- Review Math Background which provides math strategies that students are expected to utilize.

Formative Assessment Options
(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)
- Math Interview/ Conference
- Quick Checks (Check marks within lesson)
- Topic Pretest
- Convince Me
- Lesson Assessment Practice

Summative Assessment Options
(Administered at the end of unit or topic to assess mastery of learning objectives.)
- Online version
- Topic Assessment Practice
- Topic Performance Task
- Cumulative/ Benchmark Assessment (print or online)
**Daily Routines**

Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

**Daily routines to continue from earlier units:**
- Daily Schedule
- Number of Days in School

### Skip Counting Routine

**Objective:** To practice counting in groups. This builds number sense by elucidating patterns such as odd/even; it brings out patterns in addition and subtraction.

Skip counting has been an important routine since the beginning of the year. Your class may have already ventured past 100 during this routine. If not, you will do so now.

In this unit, students formally go beyond 100. This routine is used as a warm-up for a number of lessons in this unit.

See the *Skip Counting Routine* Teacher page for the skip counting emphasized in this unit.

**Materials:** base-10 blocks, *Completed Thousand Chart BLM*, a class number line (see Number Talks.)

### Which is Greater?

**Objective:** To reinforce ideas of place value, especially the relative magnitude of each place. To develop relational thinking.

Present two numbers or expressions orally or in writing and ask students to decide which is greater and explain their thinking. Give students increasing larger comparisons.

| 140  ___  240 |
| 204  ___  240 |
| 199  ___  200 |
| 200 + 3  ___  202 |
| 175 + 10 ___  170 + 15 |
| 200 – 14 ___  200 – 24 |

### Number of the Day

This routine was introduced in Unit 2 and has been part of the Math Routines since then. Until now, students focused on 2-digit numbers. In this unit, you will extend the routine to numbers greater than 100.

**Frequency:** Daily or Weekly

**Objective:** To help students grow in the ways they think about numbers and operations.

**Materials:** Base-10 blocks, *Completed Thousand Chart BLM*, a class number line

**Directions:**
Present students with a number. They generate a variety of representations of the number, including drawings, equations, and examples. This can be done mentally or with paper and pencil. Work can include:
- Composition/decomposition
- Relationships to other numbers

**Questions to ask:**
- Is it odd or even?
- Can you put it into groups?
- Can you skip count to it?
- What number is 10 more? 10 less? 5 more? 5 less?

**Students might say:**
- 100 + 20 + 5
- 130 – 5
- 5 quarters
- There are 125 students in 4th grade
- One flat, 2 rods, and 5 cubes
• Real-world examples
• Using models

Variations for this routine can be found here. Start with friendly numbers (multiples of 10, then 5 and/or 2) greater than 100. Gradually make the numbers more challenging.

Math Review:
• Math Anytime
  ○ Daily Review
  ○ Today’s Challenge
  ○ Fluency
    ■ enVision 2020
• Topic Opener: Review What You Know
• Fluency Practice/Review Activity
• Vocabulary Review

Number and Operation Routines (enVision 2020)

<table>
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<th>Topic 9</th>
<th>Topic 10</th>
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<tr>
<td>● Build a Chart</td>
<td>● How Many Ways</td>
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<tr>
<td>● Dance the Number by Hundreds, Tens, and Ones</td>
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<tr>
<td>● Digit Place</td>
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<tr>
<td>● How Many Ones?</td>
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</tr>
<tr>
<td>● More or Less than 500</td>
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<tr>
<td>● Mystery Number</td>
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<tr>
<td>● Number of the Day</td>
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<tr>
<td>● Order Up!</td>
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<tr>
<td>● Shout Counting</td>
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</tbody>
</table>

Number Routines:

**Number Talk: Images-100’s Chart**

Description: Show students a 100’s board. Ask “what do you notice?”

Goal: The goal of this exercise is to provide some inquiry for students to begin to notice patterns in a hundreds chart on their own. We want them to begin to notice even and odd numbers. We also just want them to become familiar with other patterns on hundreds charts.
The goal of compensations is to manipulate the numbers into easier, friendly numbers to add. When compensation, students will remove a specific amount from one addend and give that exact amount to the other addend to make friendlier numbers. Taking from one addend and giving the same quantity to the other addend to maintain the total sum is a big mathematical idea in addition.

Category 2: Focus on adding and subtracting 1 using larger numbers

In Example A, the student has chosen to think about 32 as a combination of three tens and two ones. An open number line is used to show how each part of 32 was removed.

Example B demonstrates how the subtrahend can be decomposed into its place value components and removed accordingly.

Example C shows how the student has broken the 65 into six tens and five ones before removing 32. The remaining numbers total 33.
Category 1: Use numbers that encourage removing the subtrahend in parts that are the same as the digits in the minuend.

Reference your copy of *Number Talks: Whole Number Computation* by Sherry Parrish

### Number Talk: Number Sentences Addition-Doubles and Near Doubles (page 124)

This strategy capitalizes on this strength by adjusting one or both numbers to make a double or near-double combination.

Category 3: Consist of doubles with numbers between 20 and 50 and with 100.

### Additional Personalized Practice and Application Suggestions:

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<td>• Another Look</td>
<td>• Pearson Games</td>
<td>• Pearson Games</td>
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<tr>
<td></td>
<td>• Digital Math Tool Activity</td>
<td>• Today’s Challenge</td>
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</table>

### Learning Station Bank

Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

**Triple Digit Cover-Up (this is an extension of Double Digit Cover-Up from Unit 2)**

**Objective:** To make strategic decisions about hundreds, tens and ones to try to get as close to 1000 as possible.

- Take turns rolling the die. Players may use the same roll of the die, or each player may roll individually.
● Take as many flats, cubes or rods as the number on the die and use them to cover squares on multiple hundred chart.
● Record an equation after each turn.
● The die is rolled exactly 7 times. Players take either cubes or rods on each roll.
● After exactly seven rolls, the player who is closest to 1000 without going over wins.

Materials:
Base Ten Blocks - 20 each of flats, rods, and cubes.
Triple Digit Cover-Up Recording Sheet BLM

Addition Clash with Three Digits
Students play Addition Clash as taught in Unit 2.0 but with 3 digits:
● Each player turns over four cards and makes 2 two-digit numbers with them.
● They calculate the sum (mentally or with paper and pencil)
● The player with the higher (or lower) sum wins and takes the cards.
● In case of a tie, each tied player turns over four more cards and the contest is repeated.

Materials:
Number cards (0-9), pencil and paper, Base 10 Blocks

Example: Try to make the smallest sum:
268 + 157 = 200 + 100 + 60 + 50 + 8 + 7
= 300 + 110 + 15
= 400 + 10 + 15 = 425

Free exploration with manipulatives
Offer students Pattern Blocks and other geometric manipulatives to explore in preparation for Unit 7

Topic 9: Numbers to 1000
Students expand their understanding of place value by learning to read, write, and compare numbers to 1000.

Essential Questions:
● What do numbers tell us?
● What are the different ways we can represent numbers?
● What is base ten place value?
● How do number patterns and relationships help us make sense of the value of a number?

Enduring Understandings:
● Numbers tell us the quantity of something in relation to other numbers.
● Numbers can be represented with word form, number form, symbols, pictures, expanded form, and tallies.
● The number system is based on groups of ten. Whenever there are 10 in one place value, you move to the next greater place value.
● Understanding number patterns helps us to mentally skip count by different increments.

Priority Standards for unit:
● 2.NBT.A.4 Read and write numbers to 100 using number names, base-ten numerals and expanded form
● 2.NBT.A.5 Compare two three-digit numbers using the symbols >,<, or =

Supporting Standards for unit:
● 2.NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.
● 2.NBT.A.2 Understand that 100 can be thought of as 10 tens- called a “hundred”.

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2.NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
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<tr>
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<td>Numbers to 1000</td>
<td>Read and write</td>
<td>Remember understand</td>
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<td>Two three digit numbers using symbols</td>
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### Topic Vocabulary:

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<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
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<td>Compare</td>
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<td>Digits</td>
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<tr>
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<td>Hundreds</td>
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<td>Before</td>
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<tr>
<td>After</td>
<td>Open Number Line</td>
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<td></td>
<td>Partial Sum</td>
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<td>Less than</td>
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<td></td>
<td>Equal to</td>
</tr>
<tr>
<td></td>
<td>Digits</td>
</tr>
<tr>
<td></td>
<td>Value</td>
</tr>
</tbody>
</table>

### Engaging Experience 1

**Teaching Point:** Today I am going to teach you how to count by hundreds to 1,000 using place blocks.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:**
- 2.NBT.A.4 Read and write numbers to 100 using number names, base-ten numerals and expanded form

**Supporting:**
- 2.NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.
- 2.NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.
Detailed Description/Instructions:

☐ One way to do this use lesson 9-1 to teach the number system based on groups of ten.

Bloom’s Levels: 1, 2
Webb’s DOK: remember, understand

Engaging Experience 2
Teaching Point: Today I am going to teach you to use place value blocks and drawings to model and write 3-digit numbers.
Suggested Length of Time: 1 day
Standards Addressed:

Priority:
1. NBT.A.4 Read and write numbers to 100 using number names, base-ten numerals and expanded form
2. NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.

Detailed Description/Instructions:

☐ One way to do this use lesson 9-2 to teach the number system based on groups of tens.
Bloom’s Levels: 1, 2
Webb’s DOK: Remember, Understand

Engaging Experience 3
Teaching Point: Today I am going to teach you that the value of a digit is determined by its place in a number.
Suggested Length of Time: 1 day
Standards Addressed:

Priority: 2.NBT.A.4
Supporting:
1. NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.
2. NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.

Detailed Description/Instructions:

☐ One way to do this use lesson 9-3 to teach that the value of a digit is determined by its place in a number. Use a place value mat as an intervention tool as needed.
Bloom’s Levels: 1, 2
Webb’s DOK: Remember, Understand

Engaging Experience 4
Teaching Point: Today we are going to use a variety of mathematical tools to teach you that numbers can be represented in three different forms: standard, expanded, and number form.
Suggested Length of Time: 1 Day
Standards Addressed

Priority: 2.NBT.A.4

Detailed Description/Instructions:

☐ One way to do this: use lesson 9-4 to teach that numbers can be written in 3 ways. You can provide a number word bank, place value blocks, and place value mats to

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assist students in writing the three different forms.

- **Teacher Tip:** make sure to emphasize that all of the work leading up to this lesson should enable students to make the connection between expanded form and standard form.

- **Another way to do this:** have students roll a dice three times. Have them write the number rolled on the dice each time on a whiteboard or piece of paper (example-352). Next, have them write the number in expanded form and word form. They can continue to do this activity.

**Bloom’s Levels:** 1, 2

**Webb’s DOK:** Remember, Understand

**Engaging Experience 5**

**Teaching Point:** Today I am going to teach that you can manipulate the ones, tens, and hundreds place value blocks to represent the same number in different ways.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 2.NBT.A.4

**Supporting:**

2.NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.

2.NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.

**Detailed Description/Instructions:**

- **One way to do this** use lesson 9-4 to teach students to read and write 3-digit numbers in expanded form, standard form, and word form using place value blocks.

- **Another way to do this** Allow students to use Place Value Mat B (Teaching Tool 34) place value blocks, a 10 sided dice, and 2 6 sided dice. Students can roll dice and take as many hundreds blocks rolled on 10 side die into the hundreds column. They roll both 6 sided die and chose one die to represent the groups of ten, and one the groups of 1. From there the students can use the models to record the standard, expanded, and written form of the number.

**Bloom’s Levels:** 1, 2

**Webb’s DOK:** Remember, Understand

**Engaging Experience 6**

**Teaching Point:** Today I am going to teach you to count by 1’s and 10’s by using a hundreds chart.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 2.NBT.A.4

**Supporting:**

2.NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.

2.NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.

**Detailed Description/Instructions:**

- **One way to do this** use lesson 9-6 to teach students that place value patterns can help you mentally count by ones and tens from a given number.

**Bloom’s Levels:** 1, 2

**Webb’s DOK:** Remember, Understand

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Engaging Experience 7
Teaching Point: Today I am going to teach you to skip count by 5’s 10’s and 100’s using a number line.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.NBT.A.4
  Supporting:
  2.NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.
  2.NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.
Detailed Description/Instructions:
  □ One way to do this Use lesson 9-7 to show the kids that a numberline can help you count on from a given number. You may want to utilize a digital number line to teach this lesson.
Bloom’s Levels: 1, 2
Webb’s DOK: Remember, Understand

Engaging Experience 8
Teaching Point: Today I am going to teach you to use symbols to compare the value of numbers as being equal to, greater than, or less than.
Suggested Length of Time: 1 day
Standards Addressed
  Priority: 2.NBT.A.4
  Supporting:
  2.NBT.A.3 Count within 1000 by 1s, 10s, and 100s starting with any number.
  2.NBT.A.1 Understand three-digit numbers are composed of hundreds, tens, and ones.
Detailed Description/Instructions:
  □ One way to do this use lesson 9-8 to show students that relationships between two numbers can be represented using the symbols >, <, and =.
Bloom’s Levels: 1, 2
Webb’s DOK: Remember, Understand

Engaging Scenario

3- ACT Math: Makes Cents
Anytime after 9-8
In the 3-Act Math for Topic 9, student draw on their conceptual understanding of skip counting and money. They make use of representations and tools such as grouping, diagrams, and verbal counting.

Engaging Experience 9
Teaching Point: Today I am going to teach you to use symbols and a number line to compare the value of numbers as being equal to, greater than, or less than.
Suggested Length of Time:
Standards Addressed

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Priority: 2.NBT.A.5

Detailed Description/Instructions:
☐ One way to do this is to use 9-9 to show quantities of numbers on a number line. A number line can help you to find all the numbers that are greater than or less than a given number.

Bloom’s Levels: 1, 2
Webb’s DOK: Understand, Remember

Engaging Experience 10
Teaching Point: Today I am going to teach you to look for a pattern rule when looking at a set of numbers.

Suggested Length of Time:

Standards Addressed
Priority: 2.NBT.A.4

Detailed Description/Instructions:
☐ One way to do this Use lesson 9-10 to show students how to order numbers to figure out the number pattern and how to extend it.

Bloom’s Levels: 1, 2
Webb’s DOK: Remember, Understand

Topic 10: Add Within 1,000 Using Models and Strategies
Students use strategies based on place value and properties of operation to add within 1,000. They also explain why addition strategies work.

Essential Questions:
● What are strategies for adding numbers to 1,000?

Enduring Understandings:
● Place value patterns and basic facts can be used to help mentally add 10 and 100 to any given three digit number.
● Three digit numbers can be broken apart using hundreds, tens, an ones and added in different ways.
● When adding 3 digit numbers, hundreds are added to hundreds, tens to tens, and ones to ones.

Priority Standards for unit:
● 2.NBT.B.10: Add or subtract mentally 10 or 100 to or from a given number within 1000
● 2.NBT.B.8: Add and subtract within 1000, and justify solutions

Supporting Standards for unit:
● N/A

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb’s DOK</th>
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<tbody>
<tr>
<td>2.NBT.B.8</td>
<td>Within 1,000</td>
<td>add</td>
<td>understand</td>
<td>1</td>
</tr>
</tbody>
</table>

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### 2.NBT.B.8
- Within 1,000
- subtract
- understand

### 2.NBT.B.8
- The solution
- justify
- evaluate

### 2.NBT.B.10
- Mentally 10 or 100 within 1,000
- add
- Identify patterns

### 2.NBT.B.10
- Mentally 10 or 100 within 1,000
- subtract
- Identify patterns

#### Topic Vocabulary:

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<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
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<tbody>
<tr>
<td>Break apart</td>
<td>Addend</td>
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<tr>
<td></td>
<td>Digits</td>
</tr>
<tr>
<td></td>
<td>Hundreds</td>
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<tr>
<td></td>
<td>Mental Math</td>
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<td></td>
<td>Partial Sum</td>
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<tr>
<td></td>
<td>Sum</td>
</tr>
</tbody>
</table>

#### Engaging Experience 1

**Teaching Point:** Today I want to teach you to add 10 or 100 to a number using place value.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- **Priority:** 2.NBT.B.10

**Detailed Description/Instructions:**

- **One way to do this** using lesson 10-1 teach students to use patterns and basic facts to mentally add 10 and 100 to any given three-digit number.

**Bloom’s Levels:** Identify patterns

**Webb’s DOK:** 2

#### Engaging Experience 2

**Teaching Point:** Today I want to teach you to add three-digit numbers using an open number line.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- **Priority:** 2.NBT.B.10, 2.NBT.B.8

**Detailed Description/Instructions:**

- **One way to do this** using lesson 10-2, teach students that three-digit numbers can be broken apart across an open number line. Emphasize that the open number line helps students keep track of the numbers that they are adding.

**Bloom’s Levels:** Understand, Evaluate, Identify patterns

**Webb’s DOK:** 1, 2, 3

#### Engaging Experience 3

**Teaching Point:** Today I want to teach you to add three-digit numbers using models.

**Suggested Length of Time:** 2 Days

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Standards Addressed
  Priority: 2.NBT.B.10, 2.NBT.B.8

Detailed Description/Instructions:
  □ One way to do this using lesson 10-3, teach students to use place value models to add three digit numbers. Emphasize that sometimes you must compose ten ones as one ten or ten tens as one hundred.
  □ Another way to do this using lesson 10-4, teach students to draw the models and then record the partial sums.

Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3

Engaging Experience 4
Teaching Point: Today I want to teach you to add three-digit numbers using place value and partial sums.
Suggested Length of Time: 1 Days
Standards Addressed
  Priority: 2.NBT.B.10, 2.NBT.B.8
Detailed Description/Instructions:
  □ One way to do this using lesson 10-5, teach students that partial sums can be recorded and added to get the final sum without models.
Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3

Engaging Experience 5
Teaching Point: Today I want to teach you to add three digit numbers using the strategy that works best for you.
Suggested Length of Time: 1 Days
Standards Addressed
  Priority: 2.NBT.B.10, 2.NBT.B.8
Detailed Description/Instructions:
  □ One way to do this using lesson 10-6, teach students to use either open number line, place value blocks, or partial sums as strategies to solve three-digit addition problems. They then must justify their answer by explaining why their strategy worked.
Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3

Engaging Experience 6
Teaching Point: Today I want to teach you to solve word problems by looking for patterns.
Suggested Length of Time: 1 Days
Standards Addressed
  Priority: 2.NBT.B.10, 2.NBT.B.8
Detailed Description/Instructions:
  □ One way to do this using lesson 10-7, teach students that good math thinkers look for things that repeat in a problem. They use what they learn from one problem to help them solve other problems.
Bloom’s Levels: Understand, Evaluate, Identify patterns

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Webb’s DOK: 1, 2, 3

Topic 11: Subtract Within 1,000 Using Models and Strategies
Students use strategies based on place value and properties of operation to subtract within 1,000. They also explain why subtraction strategies work.

Essential Questions:
- What are strategies for subtracting numbers to 1,000?

Enduring Understandings:
- Place value patterns and basic facts can be used to help you mentally subtract 10 and 100 from any given three digit number
- Three digit numbers can be broken apart using hundreds, tens, and ones.
- When subtracting three digit numbers, hundreds are subtracted from hundreds, tens from tens, and ones from ones.

Priority Standards for unit:
- 2.NBT.B.10: Add or subtract mentally 10 or 100 to or from a given number within 1000
- 2.NBT.B.8: Add and subtract within 1000, and justify solutions

Supporting Standards for unit:
- N/A

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Unit Vocabulary:

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<td>Difference</td>
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<td>Partial Differences</td>
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<td>Regroup</td>
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</table>

Engaging Experience 1

BOE Approved June 20, 2019
Teaching Point: Today I want to teach you to subtract 10 or 100 from a number using place value.

Suggested Length of Time: 1 Day

Standards Addressed
Priority: 2.NBT.B.10

Detailed Description/Instructions:
- One way to do this using lesson 11-1 teach students to use patterns and basic facts to mentally subtract 10 and 100 from any given three-digit number.

Bloom’s Levels: Identify patterns
Webb’s DOK: 2

Engaging Experience 2
Teaching Point: Today I want to teach you to subtract three-digit numbers using an open number line.

Suggested Length of Time: 1 Day

Standards Addressed
Priority: 2.NBT.B.10, 2.NBT.B.8

Detailed Description/Instructions:
- One way to do this using lesson 11-2, teach students that three-digit numbers can be broken apart across an open number line. Emphasize that the open number line helps students keep track of the numbers that they are subtracting.

Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3

Engaging Experience 3
Teaching Point: Today I want to teach you to subtract three-digit numbers using models.

Suggested Length of Time: 2 Days

Standards Addressed
Priority: 2.NBT.B.10, 2.NBT.B.8

Detailed Description/Instructions:
- One way to do this using lesson 11-3, teach students to use place value models to subtract three digit numbers. Emphasize that sometimes you must decompose one ten as ten ones or one hundred as ten tens.
- Another way to do this using lesson 11-4, teach students to draw the models and then record partial differences.

Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3

Engaging Experience 4
Teaching Point: Today I want to teach you to subtract three digit numbers using the strategy that works best for you.

Suggested Length of Time: 1 Day

Standards Addressed
Priority: 2.NBT.B.10, 2.NBT.B.8

Detailed Description/Instructions:
- One way to do this using lesson 11-5, teach students to use either open number line,
place value blocks, or partial differences as strategies to solve three-digit subtraction problems. They then must justify their answer by explaining why their strategy worked.

Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3

3- ACT Math: Chemistry Set
Anytime after 11-5
In the 3-Act Math for Topic 11, students draw on their conceptual understanding of adding and subtracting using place value. They make use of representations and tools such as beakers, cylinders, and number lines.

Engaging Experience 5
Teaching Point: Today I want to teach you to persevere when solving problems that take more than one step.
Suggested Length of Time: 1 Day
Standards Addressed
Priority: 2.NBT.B.10, 2.NBT.B.8
Detailed Description/Instructions:
☐ One way to do this using lesson 11-6, teach students that good math thinkers look for the hidden question and make sense of it. They also need to make a plan to solve. Teach students to also check to make sure their answer makes sense.

Bloom’s Levels: Understand, Evaluate, Identify patterns
Webb’s DOK: 1, 2, 3
Unit 6: Measurement and Data Part 2

Subject: Math
Grade: 2
Name of Unit: Operations and Algebra
Length of Unit: 12 Days (appr. 2 weeks)

Overview of Unit:
In Topic 12, students use appropriate tools to estimate and measure length in both customary and metric units.

Getting Ready for the Unit:
Materials:
- Inch Rulers (Teaching tool 38)
- 1 inch squares (Teaching tool 39)
- Measuring Tapes
- Yard Sticks
- Centimeter Rulers (Teaching tool 40)
- Ones cubes (Teaching tool 19)
- Meter Sticks (Teaching tool 40)
- String/Yarn
- Buttons or Counters (Teaching tool 6)

Resource Provided Professional Development:
- Look over Topic Planner for each topic
- Review Professional Development Video
- Review Math Background which provides math strategies that students are expected to utilize.

Daily Routines
Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

There are no new routines for this unit.
Choose some of the following previous routines to continue based on what you feel your students need more work and time with.
Routines to choose from:
- Daily Schedule
- Number of Days in School
- Estimation Jar
- Number of the Day
- Skip Counting
- Which is Greater?
## Formative Assessment Options
*Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.*

- Math Interview/ Conference
- Quick Checks (Check marks within lesson)
- Topic Pretest
- Convince Me
- Lesson Assessment Practice

## Summative Assessment Options
*Administered at the end of unit or topic to assess mastery of learning objectives.*

- Online version
- Topic Assessment Practice
- Topic Performance Task
- Cumulative/ Benchmark Assessment (print or online)

### Math Review:

- Math Anytime
  - Daily Review
  - Today’s Challenge
  - Fluency
    - enVision 2020
- Topic Opener: Review What You Know
- Fluency Practice/Review Activity
- Vocabulary Review

### Number Routines:

#### Images: Buttons

**Description:** Show students the following images. Have a math talk about which student lined the buttons up correctly to measure them.

**Goal:** The goal of this math talk is for students to identify the correct way to measure. It’s important that they realize that you can’t overlap the items. It’s also important to have them right next to each other and in a straight line.

![Images of buttons lined up in different ways]

#### Images: Which Doesn’t Belong? Why?

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Description- Students will examine the images below to determine which doesn’t belong and why?

Goal- The goal is for them to identify the image that shows an incorrect way to measure and object.

![Images of measurement tools](image)

Additional Personalized Practice and Application Suggestions:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>On-level</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Reteach to Build Understanding</td>
<td>● Build Mathematical Literacy</td>
<td>● Enrichment</td>
</tr>
<tr>
<td>● Intervention Activity</td>
<td>● Additional Practice</td>
<td>● Pick a Project</td>
</tr>
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<td>● Additional Practice</td>
<td>● Interactive Practice Buddy</td>
<td>● enVision STEM Activity</td>
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<tr>
<td>● Interactive Practice Buddy</td>
<td>● Problem Solving Reading Activity</td>
<td>● Problem Solving Reading Activity</td>
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<tr>
<td>● Another Look</td>
<td>● Pearson Games</td>
<td>● Pearson Games</td>
</tr>
<tr>
<td></td>
<td>● Digital Math Tool Activity</td>
<td>● Today’s Challenge</td>
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</tbody>
</table>

Learning Station Bank

Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

Measurement Station

**Measuring Straws**

Objective: Students measure straws using inches and centimeters. They draw the straws and record their lengths.

Extension: Students compare the lengths of 2 straws and record the difference.

Using Benchmarks

Objects they can measure using cm and inches

- Straws cut into various **whole inch** lengths
- Objects to sort into these categories
  - About an inch
  - About a foot
  - About a centimeter
  - About a meter

Measuring Zigzags BLM

- Tools, including rulers with inches and centimeters, a meterstick, inch tiles, and centimeter cubes
**Objective:** Students sort objects into 4 categories: about an inch, about a foot, about a centimeter, and about a meter.

**Measuring Zigzags**
**Objective:** Students measure zigzagging lines by measuring segments and adding them.

**Draw a line**
**Objective:** Students draw lines of a given length.

---

**Gummy Worm Stretch** (Taught in LS2 Day 4)
**Objective:** Measuring and calculating difference in lengths.

- Pick a gummy worm.
- Measure its length in inches or centimeters.
- Stretch it as far as you can, then measure the length again using the SAME units (inches or centimeters).
- Write a comparison problem using these sentences:

  The gummy worm was _________ (inches or centimeters) long.
  After I stretched it, the gummy worm was _________ (inches or centimeters) long.
  The stretched gummy worm was _________ (inches or centimeters) longer than the original gummy worm.

---

**Topic 12: Measuring Length**

Students use appropriate tools to estimate and measure length in both customary and metric units.

**Essential Questions:**
- What are ways to measure length?

**Enduring Understandings:**
- The length of a known object can be used to estimate the length of another object to the nearest inch, foot or yard.
- Length and height are measurable in inches, feet, and yards as well as centimeters.
- When measuring length, the longer the chosen unit, the fewer units needed; the shorter the unit, the more units needed.

**Priority Standards for unit:**
- 2.GM.B.6 Estimate lengths using units of inches, feet, yard, centimeters and meters.
- 2.GM.B.4 Measure the length of an object by selecting and using appropriate tools.

**Supporting Standards for unit:**
- 2.GM.B.5 Analyze the results of measuring the same object with different units.
- 2.GM.B.7 Measure to determine how much longer one object is than another.

BOE Approved June 20, 2019
### Standard Unwrapped Concepts (Students need to know)

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.GM.B.6</td>
<td>lengths using units of inches, feet, yards, centimeters and meters.</td>
<td>estimate</td>
<td>understand</td>
<td>2</td>
</tr>
<tr>
<td>2.GM.B.4</td>
<td>The length of an object</td>
<td>measure</td>
<td>apply</td>
<td>1</td>
</tr>
<tr>
<td>2.GM.B.4</td>
<td>Appropriate tools</td>
<td>select</td>
<td>apply</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Topic Vocabulary:

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate</td>
<td>Centimeter</td>
</tr>
<tr>
<td>Height</td>
<td>Foot</td>
</tr>
<tr>
<td>Length</td>
<td>Inch</td>
</tr>
<tr>
<td></td>
<td>Meter</td>
</tr>
<tr>
<td></td>
<td>Nearest centimeter and inch</td>
</tr>
<tr>
<td></td>
<td>Yard</td>
</tr>
</tbody>
</table>

#### Engaging Experience 1

**Teaching Point:** Today I’m going to teach you to estimate the length of an object by relating it to the length of an object you already know.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- **Priority:** 2.GM.B.6

**Detailed Description/Instructions:**

- **One way to do this** By using lesson 12-1, teach students to use nonstandard measurement to estimate the length of real objects in the classroom to the nearest foot, yard, or inch.

**Bloom’s Levels:** 1, 2

**Webb’s DOK:** apply, understand

#### Engaging Experience 2

**Teaching Point:** Today I’m going to teach you how to measure the length and height of an object to the nearest inch using a ruler.

**Suggested Length of Time:** 1 day

**Standards Addressed**

- **Priority:** 2.GM.B.4, 2.GM.B.6

**Detailed Description/Instructions:**

- **One way to do this** by using lesson 12-2, teach students to first estimate the length or height of an object. Then, teach them to use a ruler to verify their estimate.
Engaging Experience 3
Teaching Point: Today I’m going to teach you how to estimate and measure the length or height of an object in inches, feet, or yards using appropriate tools.
Suggested Length of Time: 1 day
Standards Addressed
   Priority: 2.GM.B.4, 2.GM.B.6
Detailed Description/Instructions:
   - One way to do this by using lesson 12-3, teach students to identify which measuring unit would be most appropriate to measure each object.
   - ***students are continuing to estimate first and then measure with a tool.

Bloom’s Levels: 1, 2
Webb’s DOK: Estimate

Engaging Experience 4
Teaching Point: Today I’m going to teach you how the units of measurement are different sizes by measuring objects.
Suggested Length of Time: 1 day
Standards Addressed
   Priority: 2.GM.B.4, 2.GM.B.6
Detailed Description/Instructions:
   - One way to do this by using lesson 12-4, teach students the idea that units of measurement are different sizes, therefore the shorter the unit, the more units you need to measure an object.
   - ***students are continuing to estimate first and then measure with a tool.

Bloom’s Levels: 1, 2
Webb’s DOK: Estimate

Engaging Experience 5
Teaching Point: Today I’m going to teach you to estimate length to nearest centimeter by using a ruler.
Suggested Length of Time: 1 day
Standards Addressed
   Priority: 2.GM.B.4, 2.GM.B.6
Detailed Description/Instructions:
   - One way to do this by using lesson 12-5, teach students to first estimate the length or height of an object. Then, teach them to use a ruler to verify their estimate.
   - ***students are continuing to estimate first and then measure with a tool.

Bloom’s Levels: 1, 2
Webb’s DOK: Estimate

Engaging Experience 6
Teaching Point: Today I’m going to teach you to estimate length to nearest centimeter or meter by using an appropriate tool.
Suggested Length of Time: 1 day
BOE Approved June 20, 2019
Standards Addressed
Priority: 2.GM.B.4, 2.GM.B.6

Detailed Description/Instructions:

☐ One way to do this by using lesson 12-6, teach students to first estimate the length or height of an object. Then, teach them to use an appropriate tool (measuring tape, centimeter ruler, or meter stick) to verify their estimate.

***students are continuing to estimate first and then measure with a tool.

Bloom’s Levels: 1, 2
Webb’s DOK: Estimate

Engaging Experience 7
Teaching Point: Today I’m going to teach you how the units of measurement are different sizes by measuring objects.
Suggested Length of Time: 1 day
Standards Addressed
Priority: 2.GM.B.4, 2.GM.B.6

Detailed Description/Instructions:

☐ One way to do this by using lesson 12-7, teach students the idea that units of measurement are different sizes, therefore the shorter the unit, the more units you need to measure an object.

***students are continuing to estimate first and then measure with a tool.

Bloom’s Levels: 1, 2
Webb’s DOK: Estimate

Engaging Experience 8
Teaching Point: Today I’m going to teach you how to compare lengths by first measuring and then subtracting.
Suggested Length of Time: 1 day
Standards Addressed
Priority: 2.GM.B.4, 2.GM.B.6

Detailed Description/Instructions:

☐ One way to do this by using lesson 12-8, teach students that the lengths of two objects can be compared by subtracting to find the difference.

Bloom’s Levels: 1, 2
Webb’s DOK: Estimate, measure

Engaging Experience 9
Teaching Point: Today I’m going to teach you how to use an appropriate tool to be precise when measuring.
Suggested Length of Time: 1 day
Standards Addressed
Priority: 2.GM.B.4, 2.GM.B.6

Detailed Description/Instructions:

☐ One way to do this by using lesson 12-9, teach students to measure precisely by using more than one tool, starting at 0, and not leaving gaps.

Bloom’s Levels: 1, 2
Webb’s DOK: measure

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Unit 7: Geometry

Subject: Math
Grade: 2
Name of Unit: Operations and Algebra
Length of Unit: 12 Day (appr. 2 weeks)

Overview of Unit:
In Topic 13, Students analyze and draw two-dimensional shapes and cubes based on their attributes. They also partition shapes into equal shares to build a conceptual foundation for fractions.

Getting Ready for the Unit:

Materials:
- Plane shapes (Teaching tool 46)
- Tracing Paper
- Optional: Toothpicks
- Rulers (Teaching tool 38 and 40)
- Centimeter Grid Paper (Teaching tool 51)
- Crayons
- Straws
- Connecting Cubes
- ¾ inch squares (Teaching tool 38)
- ¾ inch grid paper (Teaching tool 49)
- Halves, fourths, and thirds (Teaching tool 52)
- Graph Paper OR blank hundreds chart (Teaching tool 18)
- Equal Shapes and Different Shapes (Teaching tool 53)
- Markers and Crayons

Resource Provided Professional Development:
- Look over Topic Planner for each topic
- Review Professional Development Video
- Review Math Background which provides math strategies that students are expected to utilize.

Formative Assessment Options
(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)
- Math Interview/ Conference
- Quick Checks (Check marks within lesson)
- Topic Pretest
- Convince Me
- Lesson Assessment Practice

Summative Assessment Options
(Administered at the end of unit or topic to assess mastery of learning objectives.)
- Online version
- Topic Assessment Practice
- Topic Performance Task
- Cumulative/ Benchmark Assessment (print or online)

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Math Review:
- Math Anytime
  - Daily Review
  - Today’s Challenge
  - Fluency
    - enVision 2020
- Topic Opener: Review What You Know
- Fluency Practice/Review Activity
- Vocabulary Review

### Daily Routines
Below are the Daily Routines suggested for this unit. Once established, some routines may be continued all year, while others can introduce new concepts that build on previous routines. While engaged in Daily Routines, be sure to pay particular attention to equitable participation, allowing all students to participate.

There are no new routines for this unit.
Choose some of the following previous routines to continue based on what you feel your students need more work and time with.

Routines to choose from:
- Daily Schedule
- Number of Days in School
- Estimation Jar
- Number of the Day
- Skip Counting
- Which is Greater?

### Number Routines:

#### Images: Which One Doesn’t Belong?

**Description:** Students look at four images (of numbers, coins, or shapes) and compare their attributes. These Math Talks have many different solutions. Students can argue for any of the four not belonging, but their reasoning must be justified. For more “Which One Doesn’t Belong” Math Talks, visit: [http://wodb.ca/shapes.html](http://wodb.ca/shapes.html)

**Goal:** Students observe different visual images and observe and compare attributes

**Display the image and ask Which one doesn’t belong? Why?**

Some images from wodb.ca. Used with permission of Mary Bourassa and Isabelle Bourassa.

#### Images: What Do You Notice? What do you wonder?

**Description:** Students look at four images and answer questions like what do you notice? What do you wonder?

**Goal:** The goal of this activity is for students to begin to notice fractional shares of shapes. This will help give them a basis for fractions.
Display the images and ask What do you notice? What do you wonder?

Images: Partitioning Rectangles

Description: Students are going to answer questions and look at images to begin to get a basis for partitioning shapes. They will need to pay attention to equal shares.
Goal: The goal of this activity is for students to begin to notice begin to get a foundation for partitioning shapes. They will also be able to see examples of equal shares.

Grandma made a pan of brownies for Jake’s birthday. There will be six people sharing the brownies. How can Jake cut the pan up evenly into 6 equal pieces so everyone gets an equal share?

<table>
<thead>
<tr>
<th>How many squares do you see? How do you know?</th>
<th>How are these rectangles the same? How are they different?</th>
<th>How many squares are green? How many are blue? How many squares altogether?</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image of a pan of brownies cut into 6 equal pieces" /></td>
<td><img src="image2" alt="Image of rectangles showing how they are the same and different" /></td>
<td><img src="image3" alt="Image of green and blue squares" /></td>
</tr>
</tbody>
</table>

Number Talk: Equal Shares

Description: Students will be working through these problems in order to begin to divide shapes into fractional parts. This also exposes them to real life problems that they might face that they can use math to solve.
Goal: The goal of this activity is for students to first, identify the problem and how to solve it. Second they will be using math and fractional shares to solve the problem.

Melissa and her friend want to share a pizza. How can they cut it up so they both get the same amount?

Melissa, Mia, Mary, and Mark want to share a pizza. How can they cut it up so they all get the same amount?

Pablo, Peter, and Perry want to share a pizza. How can they cut it up so they all get the same amount?

Additional Personalized Practice and Application Suggestions:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>On-level</th>
<th>Advanced</th>
</tr>
</thead>
</table>
| ● Reteach to Build Understanding
  ● Intervention Activity
  ● Additional Practice
  ● Interactive Practice Buddy
  ● Another Look | ● Build Mathematical Literacy
  ● Additional Practice
  ● Interactive Practice Buddy
  ● Problem Solving Reading Activity
  ● Pearson Games
  ● Digital Math Tool Activity | ● Enrichment
  ● Pick a Project
  ● enVision STEM Activity
  ● Problem Solving Reading Activity
  ● Pearson Games
  ● Today’s Challenge |

Learning Station Bank

Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can...
introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

Making Shapes
Have the pages and materials listed at right available to students. Students build, draw, and label shapes they are working with, including triangles, quadrilaterals, pentagons, hexagons, and cubes. Post the Geometry Vocabulary page as an anchor chart.

- Cube Net BLM
- Grid Paper
- Isometric Dot Paper
- Toothpicks and tiny marshmallows
- Geoboards and geobands
- Geoboard Recording Paper
- Drawing Shapes BLM

Predict and Cover
Have students predict how many of each pattern block will cover the Large Shape Card. Then have them cover the shape and count, they can record their work in a table in their math notebooks. Have them predict and count for different pattern blocks on the same shape, for example if 4 hexagons fit on one of the shapes, can they predict how many rhombi would fit?

Large Shape Cards BLM
Tech Option: The virtual Pattern Block environment in the MathLearningCenter has a similar activity. Click on the silhouette of the sailboat in the lower left-hand corner to bring up a number of shapes that students can cover.

Guess My Rule (see LS 1 Day 3 for description)
Choose a rule such as Has three sides. Do NOT tell your partner the rule. Place the “FOLLOW MY RULE” and “DON’T FOLLOW MY RULE” index cards on the floor. Choose a few shapes that follow that rule and a few that don’t and place them under the cards. Have your partner pick from the remaining cards, and if they think it follows your rule or not. Have them place their shape under the appropriate card, until they can guess your rule.

- 2 index cards, Shape Cards BLM (from LS 1 Day 1)

Topic 13: Shapes and Their Attributes
Students analyze and draw two-dimensional shapes and cubes based on their attributes. They also partition shapes into equal shares to build a conceptual foundation for fractions.

Essential Questions:
- How can shapes be described, compared, and broken into parts?

Enduring Understandings:
- Two-dimensional shapes can be classified and sorted based on their attributes. You can use these attributes to draw a specific two-dimensional shape.
- Polygons can be described by number of sides and angles.
- You can describe a cube by talking about its faces, edges, and vertices.
- A whole can have equal shares called halves, thirds, and fourths.
- You can show halves, thirds, and fourths of the same whole in different ways that don’t have to have the same shape.

Priority Standards for unit:
- 2.GM.A.3 Partition rectangles and circles into two, three, or four equal shares and describe the shares and the whole. Demonstrate that equal shares of identical wholes need not have the same shapes.
- 2.GM.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or sides. Identify triangles, quadrilaterals, pentagons, hexagons, circles, and cubes. Identify the faces of three-dimensional objects.

Supporting Standards for unit:
BOE Approved June 20, 2019
- 2.GM.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of squares.

<table>
<thead>
<tr>
<th>Priority Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb’s DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.GM.A.1</td>
<td>shapes having specified attributes, such as a given number of angles or sides</td>
<td>recognize</td>
<td>remember</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>shapes having specified attributes, such as a given number of angles or sides</td>
<td>draw</td>
<td>apply</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>triangles, quadrilaterals, pentagons, hexagons, circles and cubes</td>
<td>identify</td>
<td>remember</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>the faces of three-dimensional objects</td>
<td>identify</td>
<td>understand</td>
<td>1</td>
</tr>
<tr>
<td>2.GMA.3</td>
<td>circles and rectangles into two, three, or four equal shares of identical wholes need not have the same shape</td>
<td>partition</td>
<td>understand</td>
<td>1</td>
</tr>
</tbody>
</table>

Unit Vocabulary:

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
</table>

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Angle  Right Angle  Vertices (vertex)
Edge  Pentagon  Quadrilateral
Face  Hexagon  Polygon
Equal Shares  Cube  Halves

### Engaging Experience 1

**Teaching Point:** Today I’m going to teach you to recognize the names of two-dimensional shapes by counting their sides and vertices.

**Suggested Length of Time:** 1 day

**Standards Addressed**
- **Priority:** 2.GM.A.1

**Detailed Description/Instructions:**
- **One way to do this** by using lesson 13-1 teach students that shapes can be classified by the number of sides and vertices that a shape has.

**Bloom’s Levels:** recognize, identify

**Webb’s DOK:** 1

### Engaging Experience 2

**Teaching Point:** Today I’m going to teach how to name polygons by count the number of angles.

**Suggested Length of Time:** 1 Day

**Standards Addressed**
- **Priority:** 2.GM.A.1

**Detailed Description/Instructions:**
- **One way to do this** using lesson 13-2, teach students that polygons can be described by their number of sides, angles, and vertices. Polygons have the same number of angles as sides and vertices. Make sure to emphasize that right angles are ninety degrees (square corner).

**Bloom’s Levels:** recognize, identify

**Webb’s DOK:** 1

### Engaging Experience 3

**Teaching Point:** Today I’m going to teach how to draw a polygon based on some of its attributes.

**Suggested Length of Time:** 1 Day

**Standards Addressed**
- **Priority:** 2.GM.A.1

**Detailed Description/Instructions:**
- **One way to do this** using lesson 13-3, teach students to use all that they know about the attributes of polygons to draw a polygon. This lesson is rigorous, but it deepens students understanding of a two-dimensional shape.

**Bloom’s Levels:** relate, construct

BOE Approved June 20, 2019
Engaging Experience 4
Teaching Point: Today I’m going to teach you to identify the faces, edges, and vertices of a three-dimensional shape.
Suggested Length of Time: 1 Day
Standards Addressed
   Priority:  2.GM.A.1
Detailed Description/Instructions:
   □ One way to do this using lesson 13-4, teach students to identify the faces, edges, and vertices of only a cube.
   □ Another way to do this do an inquiry lesson using 3-D shapes by having students touch 3D shakes and record noticings. You can create a table as a class of the different attributes of a shape.
Bloom’s Levels: relate, construct
Webb’s DOK: 2, 3

Engaging Experience 5
Teaching Point: Today I’m going to teach you to break a rectangle into equal size shares by using a math tool.
Suggested Length of Time: 1 Day
Standards Addressed
   Priority:  2.GMA.3
Detailed Description/Instructions:
   □ One way to do this using lesson 13-5, teach students to partition rectangles into equal sized shares by using math manipulatives to create columns and rows. Make sure to emphasize the importance of equal size shares. Emphasize how the rows and columns relate to repeated addition and arrays.
   □ Another way to do this: Teach students that rectangles can be divided into different equal sized shares that can be arranged into rows and columns by folding the same size rectangle (piece of paper) different ways. Start by handing each student 4 pieces of white 8.5 by 11 inch paper. With the first piece, have students fold the paper lengthwise (horizontally) one time and then top to bottom (vertically) two times in a row. Have students unfold paper and record the number of columns and rows. For example, for this fold students would record 2 rows of four, or 4 columns of 2 to equal a total of 8 equal shares. Encourage the students to write the number sentence that matches their model. For the second fold, have the students fold the paper vertically first (top to bottom) two times in a row. Next have them fold it horizontally twice in a row. Ask students to notice how the shares might be smaller than the first fold, but are still equal. In other words there are more rows and columns. For this model it would be 4 rows of four, or 4 columns of 4, to equal 16 equal shares. Have students do two more teacher led folds, or have students experiment to come up with more or less equal shares than your first two folds. Remember to have them write the number sentence to match. If they are folding correctly, all shares should be equal sizes.
Bloom’s Levels: relate, construct
Webb’s DOK: 2, 3
**Engaging Experience 6**

**Teaching Point:** Today I’m going to teach you to break a shape into equal size shares and naming that part by counting the number of equal shares.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- Priority: 2.GMA.3

**Detailed Description/Instructions:**

- **One way to do this** using lesson 13-6, teach students that a whole can have equal sized shares. These equal shares have names (halves, thirds, fourths). You can show these shares in more than one way.

**Bloom’s Levels:** relate, construct

**Webb’s DOK:** 2, 3

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**Engaging Scenario**

**3- ACT Math: Straw Shaped**

Anytime after 13-6

In the 3-Act Math for Topic 13, students draw on their conceptual understanding of 2-D shapes and measurement. They make use of representations and tools such as **graph paper, shape figures, and physical manipulation of objects.**

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**Engaging Experience 7**

**Teaching Point:** Today I’m going to teach you that you can model with math to solve a problem that involves using attributes of two-dimensional shapes and measurements.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

- Priority: 2.GM.A.1, 2.GMA.3

**Detailed Description/Instructions:**

- **One way to do this** using the unit 13 3-Act Math Task. Show students video in Act 1 and have them list or orally share everything they notice. It doesn’t have to be math related at first. For example, they might report that the girl was using different colored pipe cleaners and straws. Pose the question in Part 2 of Act 1. Remind students that they will be making an educated guess based on what they saw in the video. Next work with student through Act 2 to generate a list of information they feel that would need to answer the question and then show them the more detailed video. You may need to pause the video at a certain point so they can write the names of the 2-D shapes and figure out how to use the cm paper to arrive at how much straw is need to construct each shape. Remind students to look carefully at the sides of each shape and how they might use those sides to figure out how many cm are needed to make that shape. Make sure to give students mathematical information provided in teacher manual so that they can use both the models and math to get their answer. Make sure to discuss when the model was more practical and when it was necessary to use the math.

**Bloom’s Levels:** relate, construct

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BOE Approved June 20, 2019
Webb’s DOK: 2, 3

**Engaging Experience 8**
**Teaching Point:** Today I’m going to teach you to equal shares are not always the same shape by dividing the same shape in different ways.
**Suggested Length of Time:** 1 Day
**Standards Addressed**
   Priority: 2.GMA.3
**Detailed Description/Instructions:**
   - One way to do this using lesson 13-7, teach students that the whole can be partitioned into equal shares in different ways and equal shares within a whole can be different shapes.
**Bloom’s Levels:** relate, construct
**Webb’s DOK:** 2, 3

**Engaging Experience 9**
**Teaching Point:** Today I’m going to teach you to solve word problems by using what you know about equal shares.
**Suggested Length of Time:** 1 Day
**Standards Addressed**
   Priority: 2.GMA.3
**Detailed Description/Instructions:**
   - One way to do this using lesson 13-8, teach students to use their learning from engaging experience 8 to create different designs using equal shares.
**Bloom’s Levels:** relate, construct
**Webb’s DOK:** 2, 3
Subject: Math  
Grade: 2  
Name of Unit: Operations and Algebra  
Length of Unit: 18 Days (appr. 2 & ½ weeks)

Overview of Unit:
In Topic 14, students apply their understanding of addition and subtraction to solve problems involving length measurements. Part of this unit involves solving for an unknown; they are conceptualizing what they know about shapes.  
In Topic 15, students represent data in line plots, bar graphs, and picture graphs. They also analyze data in graphs to solve problems.

Getting Ready for the Unit:
Materials:
- Centimeter Ruler (Teaching Tool 40)  
- Number Lines (Teaching Tool 13)  
- Counters  
- Inch Rulers and Yardsticks (Teaching Tool 38)  
- Measuring Tapes  
- Ones Cubes (Teaching Tool 19)  
- String  
- Blank Table and Bar Graph (Teaching Tool 43)  
- Index Cards

Resource Provided Professional Development:
- Look over Topic Planner for each topic  
- Review Professional Development Video  
- Review Math Background which provides math strategies that students are expected to utilize.

Formative Assessment Options  
(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)
- Math Interview/ Conference  
- Quick Checks (Check marks within lesson)  
- Topic Pretest  
- Convince Me  
- Lesson Assessment Practice

Summative Assessment Options  
(Administered at the end of unit or topic to assess mastery of learning objectives.)
- Online version  
- Topic Assessment Practice  
- Topic Performance Task  
- Cumulative/ Benchmark Assessment (print or online)

Daily Routines
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There are no new routines for this unit. Choose some of the following previous routines to continue based on what you feel your students need more work and time with.

Routines to choose from:
- Daily Schedule
- Number of Days in School
- Estimation Jar
- Number of the Day
- Skip Counting
- Which is Greater?

Math Review:
- Math Anytime
  - Daily Review
  - Today’s Challenge
  - Fluency
    - enVision 2020
- Topic Opener: Review What You Know
- Fluency Practice/Review Activity
- Vocabulary Review

Number Routines:
Continue addition and subtraction number talks from previous units that you feel your class might still benefit from.

**Engage with Previous Content - Which one doesn’t belong? Why?**

*Description:* Show students these images and then ask them, which one doesn’t belong? Why? Sometimes there aren’t right or wrong answers. Students just need to be able to justify their answers using math.

*Goal:* The goal is for students to review previous content and be able to explain their reasoning using math. This promotes quality mathematical discourse.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 + 7</td>
<td>8 + 8</td>
<td>15 + 15 = 30</td>
<td>4 + 1 = 5</td>
<td><img src="image1" alt="Hearts" /> <img src="image2" alt="Images" /></td>
</tr>
<tr>
<td>5 + 8</td>
<td>4 + 9</td>
<td>13 + 14 = 27</td>
<td>23 + 24 = 47</td>
<td><img src="image3" alt="Triangles" /> <img src="image4" alt="Hearts" /></td>
</tr>
</tbody>
</table>

From wodb.ca. Used with permission of Erick Lee.

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Engage with Current Content - What do you notice? What do you wonder?

**Description:** Show students these images and then ask them, what do you notice? What do you wonder? There are not right or wrong answers, students are just exploring these images. They are also being exposed to good examples of data collection and graphing.

**Goal:** The goal of this number routine is to just expose children to examples of data collection and graphs.

<table>
<thead>
<tr>
<th>Pet</th>
<th>Tally Marks</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Dog</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Fish</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Favorite Pets**

**Additional Personalized Practice and Application Suggestions:**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>On-level</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reteach to Build Understanding</td>
<td>Build Mathematical Literacy</td>
<td>Enrichment</td>
</tr>
<tr>
<td>Intervention Activity</td>
<td>Additional Practice</td>
<td>Pick a Project</td>
</tr>
<tr>
<td>Additional Practice</td>
<td>Interactive Practice Buddy</td>
<td>enVision STEM Activity</td>
</tr>
</tbody>
</table>

BOE Approved June 20, 2019
Learning Station Bank

Learning stations are an activity based structure that provides students with opportunities for student-led engagement with or extensions of previously taught concepts. Below are some learning stations suggested for this unit. Once established, some stations may be continued all year, while others can introduce new concepts that build on previous activities. You may choose which learning stations to use and for how long according to the needs of your students.

Learning Station Descriptions

<table>
<thead>
<tr>
<th>Measuring Straws</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective: Students measure straws using inches and centimeters. They draw the straws and record their lengths.</td>
<td>Objects they can measure using cm and inches</td>
</tr>
<tr>
<td>Extension: Students compare the lengths of 2 straws and record the difference.</td>
<td>● Straws cut into whole inch lengths</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Using Benchmarks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective: Students sort objects into 4 categories: about an inch, about a foot, about a centimeter, and about a meter.</td>
<td>● Objects to sort into these categories</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring Zigzags</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective: Students measure zigzagging lines by measuring segments and adding them.</td>
<td>Measuring Zigzags BLM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Draw a line</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective: Students draw lines of a given length.</td>
<td>Rulers with inches and centimeters, a meterstick, inch tiles, and centimeter cubes</td>
</tr>
<tr>
<td>● Draw a line that is 14 cm long.</td>
<td>Beans</td>
</tr>
<tr>
<td>● Draw a line that is 8 inches long.</td>
<td>Jars</td>
</tr>
<tr>
<td>● Draw a line that is 25 cm long.</td>
<td>Paper towels</td>
</tr>
<tr>
<td></td>
<td>Measuring tools</td>
</tr>
<tr>
<td></td>
<td>Grid paper</td>
</tr>
</tbody>
</table>

Students grow bean plants. They collect growth data by measuring and recording length measurements. Centimeters are an appropriate unit for these measurements: They provide a good level of precision, and are easy for students to handle.

- Put a paper towel in a glass jar. Place a seed between the paper towel and the jar.
- Pour around 1 centimeter of water into the bottom of the jar. Place the jar on a window ledge where it will receive light, but preferably not direct sunlight.
- When the bean seeds start to grow, have students measure their bean plant every couple of days or so.
- Students record each measurement with the date in their notebooks. Teach students to measure from the bottom of the seed to the top of the longest shoot to the nearest centimeter.
- Record the student data on a line plot every few days. Prepare a blank line plot for each ‘measurement day’, and have each student pair record the height of their plant on the line plot.
- The line plot helps students understand how the ‘X’s marked on the graph each represent a specific bean plant.
- Each time the line plot is finished, discuss the patterns evident in the line plot, and compare with earlier line plots.

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>Adapted from and used with permission of illustrativemathematics.org</td>
</tr>
</tbody>
</table>
Students apply their understanding of addition and subtraction to solve problems involving length measurement.

**Essential Questions:**
- How can you add and subtract lengths?

**Enduring Understandings:**
- Measurements in the same unit can be added or subtracted in the same way as adding and subtracting whole numbers.
- Pictures and equations can be used to solve word problems involving measurement.
- Good math thinkers pick the correct tool to solve math problems.

**Priority Standards for unit:**
- 2.GM.C.8 Use addition and subtraction within 100 to solve problems involving lengths that are given in the same units.

**Supporting Standards for unit:**
- 2.GM.B.7 Measure to determine how much longer one object is than another.
- 2.GM.C.9 Represent whole numbers as lengths on a number line, and represent whole-number sums and differences within 100 on a number line.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.GM.C.8</td>
<td>Within 100 to solve problems involving length that are given in the same units.</td>
<td>add</td>
<td>calculate</td>
<td>1</td>
</tr>
<tr>
<td>2.GM.C.8</td>
<td>Within 100 to solve problems involving length that are given in the same units.</td>
<td>subtract</td>
<td>calculate</td>
<td>1</td>
</tr>
</tbody>
</table>

**Topic Vocabulary:**

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>No new vocabulary</td>
<td></td>
</tr>
</tbody>
</table>

**Engaging Experience 1**

**Teaching Point:** Today I’m going to teach you to solve problems involving measurement by adding and subtracting.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

Priority: 2.GM.C.8

**Detailed Description/Instructions:**
- **One way to do this** using lesson 14-1, teach students to measure the distance around objects by adding the length of all of the sides together and to compare measurements by subtracting.

**Bloom’s Levels:** calculate, compare

**Webb’s DOK:** 1, 2

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Engaging Experience 2
Teaching Point: Today I’m going to teach you that you can solve problems involving measurement by writing an equation and/ or drawing a picture.
Suggested Length of Time: 2 Days
Standards Addressed
  Priority: 2.GM.C.8
Detailed Description/Instructions:
  □ One way to do this using lesson 14-2, teach students to use pictures and equations to solve word problems involving measurement. The result is the unknown.
  □ Another way to do this using lesson 14-3, teach students to use pictures and equations to solve word problems involving measurement. The change is the unknown.
Bloom’s Levels: Infer, Interpret, Show
Webb’s DOK: 2

Engaging Experience 3
Teaching Point: Today I’m going to teach you to solve problems involving measurement by using a number line.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.GM.C.8
Detailed Description/Instructions:
  □ One way to do this using lesson 14-4, teach students a sum can be represented as the total length of two line segments on a number line. A subtraction problem can be represented as the difference of two line segments on a number line.
Bloom’s Levels: calculate, compare
Webb’s DOK: 1, 2

Engaging Experience 4
Teaching Point: Today I’m going to teach you to solve a problem involving measurement by picking the tool that works best for you.
Suggested Length of Time: 1 Day
Standards Addressed
  Priority: 2.GM.C.8
Detailed Description/Instructions:
  □ One way to do this using lesson 14-5, teach students to use a variety of tools to solve word problems. Tool may include: counters, cubes, measuring tools, number line, paper and pencil, place value blocks, string, or technology.
Bloom’s Levels: calculate, compare
Webb’s DOK: 1, 2

Topic 15: Graphs and Data
Students represent data in line plots, bar graphs, and picture graphs. They also analyze data in the graphs to solve problems.
Essential Questions:
- How can line plots, bar graphs, and picture graphs be used to show data and answer questions?

Enduring Understandings:
- The lengths of objects can be organized in different ways.
- Line plots, bar graphs, and picture graphs can display data.
- Picture and bar graphs can be used to compare data and draw conclusions.

Priority Standards for unit:
- 2.DS.A.1 Create a line plot to represent a set of numeric data, given a horizontal scale marked in whole numbers
- 2.DS.A.5 Draw conclusions from line plots, picture graphs, and bar graphs

Supporting Standards for unit:
- 2.DS.A.2. Generate measurement data to the nearest whole unit, and display the data in a line plot.
- 2.DS.A.3 Draw a picture graph or a bar graph to represent a data set with up to four categories.
- 2.DS.A.3 Draw a picture graph or a bar graph to represent a data set with up to four categories.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Unwrapped Concepts (Students need to know)</th>
<th>Unwrapped Skills (Students need to be able to do)</th>
<th>Bloom’s Taxonomy Levels</th>
<th>Webb's DOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.DS.A.1</td>
<td>a line plot to represent a set of numeric data, given a horizontal scale marked in whole numbers</td>
<td>create</td>
<td>create</td>
<td>2</td>
</tr>
<tr>
<td>2.DS.A.5</td>
<td>conclusions from line plots, picture graphs and bar graphs</td>
<td>draw</td>
<td>analyze</td>
<td>1</td>
</tr>
</tbody>
</table>

Unit Vocabulary:

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Symbol</td>
<td>Line Plot</td>
</tr>
<tr>
<td></td>
<td>Bar Graph</td>
</tr>
<tr>
<td></td>
<td>Picture Graph</td>
</tr>
</tbody>
</table>

Engaging Experience 1

Teaching Point: Today I’m going to teach you to organize data by making a line plot.

Suggested Length of Time: 1 Day

Standards Addressed

Priority: 2.DS.A.1, 2.DS.A.5

Detailed Description/Instructions:
- **One way to do this** using lesson 15-1, teach students that the lengths of objects can

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be organized in different ways. One way is a line plot.

**Bloom’s Levels:** create, analyze  
**Webb’s DOK:** 1, 2

**Engaging Experience 2**  
**Teaching Point:** Today I’m going to teach you to draw conclusions about data by creating and looking at a line plot.  
**Suggested Length of Time:** 1 Day  
**Standards Addressed**  
Priority: 2.DS.A.1, 2.DS.A.5  
**Detailed Description/Instructions:**  
- **One way to do this** by using lesson 15-2, teach students that different types of data can be displayed on a line plot. Line plots are useful for organizing large sets of data.  
**Bloom’s Levels:** create, analyze  
**Webb’s DOK:** 1, 2

**Engaging Experience 3**  
**Teaching Point:** Today I’m going to teach you to analyze data by using a bar graph.  
**Suggested Length of Time:** 2 Days  
**Standards Addressed**  
Priority: 2.DS.A.1, 2.DS.A.5  
**Detailed Description/Instructions:**  
- **One way to do this** by using lesson 15-3, teach students that bar graphs can be used to organize and display data. The length or height of bars make it easy to compare the data. Emphasize the labels on the bar graph. *Students create a bar graph.*  
- **Another way to do this** using lesson 15-5, teach students to draw conclusions from vertical and horizontal bar graphs.  
**Bloom’s Levels:** create, analyze  
**Webb’s DOK:** 1, 2

**Engaging Experience 4**  
**Teaching Point:** Today I’m going to teach you to compare data by using a picture graph.  
**Suggested Length of Time:** 1 Day  
**Standards Addressed**  
Priority: 2.DS.A.1, 2.DS.A.5  
**Detailed Description/Instructions:**  
- **One way to do this** by using lesson 15-4, teach students that picture graphs use a single symbol to show data. This makes it easy to compare two or more categories. Students will use a tally chart to create the picture graph.  
**Bloom’s Levels:** create, analyze  
**Webb’s DOK:** 1, 2

**Engaging Experience 5**  
**Teaching Point:** Today I’m going to teach you to generate questions and answer by looking at different graphs.  
**Suggested Length of Time:** 1 Day  
**Standards Addressed**
Engaging Scenario

3- ACT Math: Caps Sized
Do anytime after 15-5
In the 3-Act Math for Topic 15, students draw on their conceptual understanding of graphs and data. They make use of representations and tools such as **tables, graphs, and measuring tape**.

Engaging Experience 6

**Teaching Point:** Today I’m going to teach you to model with math to solve a problem that involves making graphs to study data.

**Suggested Length of Time:** 1 Day

**Standards Addressed**

Priority: 2.DS.A.1, 2.DS.A.5

**Detailed Description/Instructions:**

- **One way to do this** by using lesson 15-6, teach students to write and solve their own problems by looking at different graphs.

**Bloom’s Levels:** create, analyze

**Webb’s DOK:** 1, 2