



# Park Hill School District

Building Successful Futures • Each Student • Every Day

## 3rd Grade Math Curriculum

### Scope and Sequence:

Quarter	Unit	Instructional Topics
1	Unit 0	Introduction to Math Procedures
1-2	Operations and Algebra Part 1	Topic 1: Understand Multiplication and Division of Whole Numbers Topic 2: Multiplication Facts: Use Patterns Topic 3: Apply Properties: Multiplication Facts for 3, 4, 6, 7, 8 Topic 4: Use Multiplication to Divide: Division Facts Topic 5: Fluently Multiply and Divide within 100
2	Measurement and Data Part 1	Topic 6: Connect Area to Multiplication and Division Topic 7: Represent and Interpret Data
3	Numbers and Computation Part 1	Topic 8: Use Strategies and Properties to Add and Subtract Topic 9: Fluently Add and Subtract Within 1,000 Topic 10: Multiply by Multiples of 10
3	Operations and Algebra Part 2	Topic 11: Use Operations with Whole Numbers to Solve Problems
4	Numbers and Computation Part 2	Topic 12: Understand Fractions as Numbers Topic 13: Fraction Equivalence and Comparison
4	Measurement and Data Part 2	Topic 14: Solve Time, Capacity, and Mass Problems
4	Geometry	Topic 15: Attributes of Two-Dimensional Shapes
4	Measurement and Data Part 3	Topic 16: Solve Perimeter Problems

## Curriculum Revisions 2020-2021:

- Unit Zero extended to five days

# Unit 0: Introduction

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**Subject:** Math

**Grade:** 3rd Grade

**Name of Unit:** Introduction to Norms and Procedures

**Length of Unit:** 5 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.

### Getting Ready for the Unit:

- Access and download documents and blackline masters uploaded in Schoology for Unit 0 Day 1, 2, 3, 4 & 5 Lessons
- Prepare a norms anchor chart to use throughout the unit.
- Collect necessary manipulatives (e.g. pattern blocks, place value blocks, rulers, digit cards or playing cards)
- Prepare documents for student math notebooks.

### Essential Questions:

- What are my personal math strengths?
- What classroom procedures and routines will promote successful math learning this year?

### Enduring Understandings:

- Answers are important, but they are not the math.
- Talk about each other's thinking.
- Errors are gifts that promote discussion.

### 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 that answers are important, but they are not the math by using manipulatives and math tools.

**Suggested Length of Time:** 1 day

**Detailed Description/Instructions:**

**One way to do this** is to use the San Francisco USD Unit 3.0 Day 1 Lesson (document link found in Schoology) to have students practice using a variety of tools and manipulatives while learning that answers are important, but they are not the math.

**Another way to do this** is use Jo Bolar's Week on Inspiration Math Tasks. The video, [The Importance of Struggle](#) could be especially helpful in addressing the teaching point.

### **Engaging Experience 2**

**Teaching Point:** Today I am going to teach you that errors are gifts that promote discussion by using math notebooks.

**Suggested Length of Time:** 1 day

**Detailed Description/Instructions:**

**One way to do this** is to use the San Francisco USD Unit 3.0 Day 2 Lesson (document link found in Schoology) to set up math notebook expectations and practice using math notebooks to solve posed problems. Look for examples of the established notebook norms that you would like to highlight in the whole group reflection.

**Another way to do this** is use Jo Bolar's Week on Inspiration Math Tasks. The activity, [The Good Groupwork activity](#) could be especially helpful in addressing the teaching point.

### **Engaging Experience 3**

**Teaching Point:** Today I am going to teach you that mathematicians can explain their thinking and evaluate the thinking of others by asking questions and making connections.

**Suggested Length of Time:** 1 day

**Detailed Description/Instructions:**

**One way to do this** is to use the San Francisco USD Unit 3.0 Day 3 Lesson (document link found in Schoology) to introduce classroom expectations for games as learning opportunities and introduce the language for respectful classroom discourse.

**Another way to do this** is use Jo Bolar's Week on Inspiration Math Tasks. The activity, [Dot Card and Number Talks](#) could be especially helpful in addressing the teaching point.

### **Engaging Experience 4**

**Teaching Point:** Today I am going to teach you that mathematicians use multiple strategies and representations when solving problems.

**Suggested Length of Time:** 1 day

**Detailed Description/Instructions:**

Although the focus of the lesson is not problem solving, substitute 6 Step Framework for Problem Solving that they will be using all year for 3 Read Protocol.

**One way to do this** is to use the San Francisco USD Unit 4.0 Day 4 Lesson (document link found in Schoology) to introduce classroom expectations for games as learning opportunities and introduce the language for respectful classroom discourse.

**Another way to do this** is use [Jo Boaler's Week on Inspiration Math Tasks](#).

## **Engaging Experience 5**

**Teaching Point:** Today I am going to teach you that mathematicians ask questions until ideas make sense.

**Suggested Length of Time:** 1 day

**Detailed Description/Instructions:**

**One way to do this** is to use the San Francisco USD Unit 5.0 Day 35 Lesson (document link found in Schoology) to introduce classroom expectations for games as learning opportunities and introduce the language for respectful classroom discourse.

**Another way to do this** is use [Jo Boaler's Week on Inspiration Math Tasks](#).

# Unit 1: Operations and Algebra Part 1

**Subject:** Math

**Grade:** 3

**Name of Unit:** Operations and Algebra Part 1

**Length of Unit:** 51 days

## Overview of Unit:

**In Topic 1,** students will develop an understanding of multiplication and division.

**In Topic 2,** students will use patterns and properties to begin to build fluency with multiplication facts involving 0, 1, 2, 5, 9 and 10.

**In Topic 3,** students will use known facts and properties of multiplication to learn the multiplication facts with factors of 3, 4, 6, 7, and 8.

**In Topic 4,** students will be using their understanding of multiplication to create multiplication and division fact families.

**In Topic 5,** students will be using strategies to achieve fluency with multiplication and division facts within 100.

## Getting Ready for the Unit:

- Watch Listen and Look For videos (teacher background knowledge)
- Watch, [\*Making Sense Series the Progression of Multiplication and Division\*](#) from Graham Fletcher’s website.
- Read, Jo Boaler’s *Fluency Without Fear: Research Evidence on the Best Ways to Learn Math Facts*
- Determine what high leverage strategies you will teach your students to build fluency and automaticity with multiplication math facts. You may choose to emphasize the area and distributive property during this unit of study.
- Access and review the Greg Tang multiplication facts resources in Schoology.
- Access and review the Jo Bolar multiplication facts resources in Schoology.
- Determine what games you will teach your students to build math facts fluency. Reference Schoology for some game options.

## Manipulatives and Teaching Tools:

- Two-color counters (or Teaching Tool 9)
- Snap cubes
- Place value blocks (or Teaching Tool 3)
- Index cards
- Coloring supplies
- String
- Paper cups
- Number lines (Teaching Tool 11)
- Centimeter grid paper (Teaching Tool 13)

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
● Math Interview/ Conference	● Online version

<ul style="list-style-type: none"> <li>● Quick Checks (Check marks within lesson)</li> <li>● Topic Pretest</li> <li>● Convince Me</li> <li>● Look Back</li> <li>● Lesson Assessment Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Topic Assessment Practice</li> <li>● Topic Performance Task</li> <li>● Cumulative/ Benchmark Assessment (print or online)</li> </ul>
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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 (K starts in Topic 8)
- Vocabulary Review

**Number Routines:**

**Number Talk: Breaking Each Number Into Its Place Value**

Description:  
One of the core foundations of our number system is the ability to recognize and use groups of ten. Looking for “quick tens” in computation is one of the first things you want to establish as a cornerstone strategy in computation.

**Category 1: Smaller two digit numbers. Combine the ten from the ones column with the tens from the tens column**  
The following number talks consist of smaller two-digit numbers. The first column on the left consists of problems that do not require regrouping. The two columns on the right include problems that encourage students to combine the ten from the ones column with the tens from the tens column.

28+11	15+27	25+35
14+35	23+18	32+28
22+15	17+25	36+27
18+31	16+27	26+24

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

**Number Talk: Adding Up in Chunks**

Description:  
One of the core foundations of our number system is the ability to recognize and use groups of ten. Looking for “quick tens” in computation is one of the first things you want to establish as a cornerstone strategy in computation.

**Category 1: Builds gradually from adding multiples of tens to a number to adding in chunks**  
The following number talks build gradually from adding multiples of ten to a number to adding in chunks.

16+10	35+10	46+20
16+20	35+20	46+30
16+40	35+40	46+50
16+42	35+ 42	46+53

**Category 2: Adding multiples of ten while keeping 1 number whole and breaking apart the ones into friendly combinations.**  
The following numbers talks consist of adding multiples of ten while keeping one number whole and then breaking apart the ones into friendly combinations.

18+10	29+10	57+10
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18+13	29+15	57+14
18+20	29+20	57+30
18+23	29+24	57+36

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

### Number Talk: Doubles/Near Doubles

Description:

To foster Doubles/Near-Doubles strategy, initially select numbers that are one away from doubles. If one addend is the targeted double and the other addend is just one away from the double, students will begin to notice this relationship.

#### Category 1: Doubles Up to 20

The following number talks consist of doubles up to twenty.

5+5	8+8	16 + 16
5+6	8+7	17+17
5+7	8+9	17+18
5+8	8+6	16+17

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

### Number Talk: Making Ten

Description:

One of the core foundations of our number system is the ability to recognize and use groups of ten. Looking for “quick tens” in computation is one of the first things you want to establish as a cornerstone strategy in computation.

#### Category 1: Addends that make a quick ten

The following number talks consist of doubles up to twenty.

7+3	5+5	9+5+1
7+5+3	5+6+5	8+9+1
3+6+7	5+9+5	1+4+9

#### Category 2: Pairs of numbers that make a quick ten

The following number talks consist of two pairs of numbers that make a quick ten.

4+6+8+2	3+8+2+7	5+3+5+4+7
9+3+1+7	4+4+6+6	9+5+8+2+1
5+6+5+4	9+1+1+9	4+5+6+3+7

#### Category 3: Pairs of numbers that make a quick ten

The following number talks encourage students to make a quick ten by decomposing at least one of the numbers.

9+1	8+2	7+3
9+1+4	8+2+3	7+3+3
9+5	8+5	7+5
9+8	8+4	7+6

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

### Number Talk: Landmark or Friendly Numbers

Description:

When students understand that you compensate in addition (remove a specific quantity from one addend and add that same quantity to another addend) without altering the sum, they can begin to construct powerful mental computation strategies from this concept. Telling them that this will always work is not sufficient; they need to have opportunities to test and prove this idea.

**Category 1: Away from a landmark or a friendly number**

The following number talks are carefully designed to use numbers that are one away from a landmark or friendly number.

19+2	39+16	46+59
19+5	28+39	33+69
19+8	59+13	58+39
19+12	23+49	76+24

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

**Additional Personalized Practice and Application Suggestions:**

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>● Reteach to Build Understanding</li> <li>● Intervention Activity</li> <li>● Additional Practice</li> <li>● Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Build Mathematical Literacy</li> <li>● Additional Practice</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> <li>● Practice Buddy: Additional Practice</li> <li>● Quick Check (online)</li> </ul>	<ul style="list-style-type: none"> <li>● Enrichment</li> <li>● Pick a Project</li> <li>● enVision STEM Activity</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> </ul>

## Topic 1: Understand Multiplication and Division of Whole Numbers

Students are introduced to multiplication and division. They use patterns to solve multiplication facts.

**Essential Questions:**

- How can thinking about equal groups help you understand the connection between multiplication and division?

**Enduring Understandings:**

- Some real-world problems that involve joining or separating equal groups or making comparisons can be solved using multiplication.
- Arrays are special cases of equal-group situations involving finding the total number based on the number of rows and the number in each row.
- Sharing involves separating equal groups and is one way to think about division.
- Some real-world problems that involve joining or separating equal groups or making comparisons can be solved using multiplication and division. Repeated subtraction involves separating equal groups and is one way to think about division.

**Priority Standards:**

- **3.RA.C.7** Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of one-digit numbers.
- **3.RA.C.8** Demonstrate fluency with products within 100.



**Supporting Standards:**

- **3.RA.B.6** Apply properties of operations as strategies to multiply and divide.
- **3.RA.A.1** Interpret products of whole numbers.
- **3.RA.A.2** Interpret quotients of whole numbers.
- **3.RA.A.3** Describe in words or drawings a problem that illustrates a multiplication or division situation.

<b>Standard</b>	<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
<b>3.RA.C.7</b>	Numbers and results within 100	Multiply	Understand	1
<b>3.RA.C.7</b>	Numbers and results within 100	Divide	Understand	1
<b>3.RA.C.7</b>	Strategies such as the relationship between multiplication and division or properties of operations	Use	Apply	2
<b>3.RA.C.7</b>	All products of one-digit numbers	Know	Remember	1
<b>3.RA.C.8</b>	Fluency with products within 100	Demonstrate	Demonstrate	2

**Topic Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
Unknown Rows Columns Factors Product Arrays	Equal groups Multiplication Equations Number line Commutative Property of Multiplication Division

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to use repeated addition to show the relationship between multiplication and addition.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** 3.RA.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 1-1 to teach students that one way to think about multiplication is to use repeated addition to join equal groups.

**Bloom's Levels:** Analyze

## Webb's DOK: 2

### Engaging Experience 2

**Teaching Point:** Today I am going to teach you to use arrays and properties to understand multiplication.

**Suggested Length of Time:** 2 days

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** 3.RA.A.1, 3.RA.A.3

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 1-3 to teach students how to use arrays to multiply and illustrate the Commutative Property of Multiplication.
- **Another way to do this is** through inquiry. Students build arrays using snap cubes and write aligning multiplication equations that represent the array. On day two organize and explore the relationships that they notice leading to the discovery of the commutative property.
- **Another way to do this is** to guide inquiry using

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### Engaging Experience 3

**Teaching Point:** Today I am going to teach you to use sharing to separate equal groups to think about division.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** 3.RA.A.2

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 1-4 to teach students division can be used to find how many are in each group using real-life examples of division as sharing.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### Engaging Experience 4

**Teaching Point:** Today I am going to teach you that good math thinkers choose tools appropriately when solving problems.

**Suggested Length of Time:** 2 days

#### **Standards Addressed**

**Priority:** 3.RA.C.7

**Supporting:** none

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 1-6 to teach students how various math tools such as counters, number lines, and grid paper can be used to solve problems and sometimes more than one tool may be necessary.
- **Another way to do this** is to use the Greg Tang Problem Generator on his website

and the Tang problem solving steps taught during Unit Zero.

**Bloom's Levels: Evaluate**

**Webb's DOK: 4**

## Engaging Scenario

3- ACT Math: What's the Point? (pg. 4)

In the 3-Act Math for Topic 1, students draw on their conceptual understanding of multiplication, division, and rounding. They make use of representations and tools such as:

- writing numerical expressions
- drawing diagrams, and
- interpreting their results.

## Topic 2: Multiplication Facts: Use Patterns

Students are introduced to multiplication and division. They use patterns to solve multiplication facts.

**Essential Questions:** How can I use what I know about equal groups to help multiply numbers?

**Enduring Understandings:**

- Doubling or skip counting can be used to generate 2s facts.
- Patterns can be used to find products of 5s, 9s, and 10s facts.
- There are properties that can help when multiplying by 1 and 0.

**Priority Standards:**

- **3.RA.C.7** Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers.
- **3.RA.C.8** Demonstrate fluency with products within 100.

**Supporting Standards:**

- **3.RA.A.1** Interprets products of whole numbers.
- **3.RA.A.2** Interprets quotients of whole numbers.
- **3.RA.A.3** Describe in words or drawings a problem that illustrates a multiplication or division situation.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.RA.C.7	Numbers and results within 100	Multiply	Understand	1
3.RA.C.7	Numbers and results within 100	Divide	Understand	1
3.RA.C.7	Strategies such as the relationship between multiplication and division or properties of operations	Use	Apply	2

<b>3.RA.C.7</b>	All products of one-digit numbers	Know	Remember	1
<b>3.RA.C.8</b>	Fluency with products within 100	Demonstrate	Demonstrate	2

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
Multiples	Identity (One) Property of Multiplication Zero Property of Multiplication

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you there are patterns in the products for multiplication with factors of 2 and 5.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** to follow lesson 2-1 to teach students patterns for factors two and five.

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I am going to teach you there are patterns for multiplying with a factor of nine.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 2-2 to teach students patterns in the ones and tens place of the multiples of 9s.

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

**Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you how to multiply by 0 and 1.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 2-3 to teach students patterns in the products of zero and one using multiplication properties.

**Bloom's Levels:** Apply

**Webb's DOK: 2**

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to multiply by ten.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.RA.C.7, 3.RA.C.8**

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 2-4 to teach students to use patterns to multiply with a factor of ten.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

### **Engaging Experience 5**

**Teaching Point:** Today I'm going to teach you to use relationships and patterns to solve multiplication facts fluently.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.RA.C.7, 3.RA.C.8**

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 2-5 to teach students patterns when finding products for factors of 0, 1, 2, 5, 9, and 10.

**Bloom's Levels: Remember**

**Webb's DOK: 1**

### **Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you that good math thinkers choose and apply math facts they know to solve problems from everyday life.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.RA.C.7**

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 2-6 to teach students how to solve multiple step word problems using bar diagrams.
- **Another way to do this** is to use the Greg Tang Problem Generator on his website and the Tang problem solving steps taught during Unit Zero.
- **Another way to do this** is select a 3Act Task from Graham Fletcher's website.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

## Topic 3: Apply Properties: Multiplication Facts for 3, 4, 6, 7, 8

Students apply properties of multiplication and use the relationship between multiplication and division to solve problems.

**Essential Questions:** How can you use known multiplication facts to solve unknown facts?

**Enduring Understandings:**

- The Distributive Property can be used to break apart the product into the sum of two smaller multiplication facts they already know.
- The Associative Property of Multiplication can be used to group factors in any way when multiplying three factors.
- Real-world situations can be modeled by equal-group multiplication problems.

**Priority Standards:**

- **3.RA.C.7** Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers.
- **3.RA.C.8** Demonstrate fluency with products within 100.

**Supporting Standards: none**

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.RA.C.7	Numbers and results within 100	Multiply	Understand	1
3.RA.C.7	Numbers and results within 100	Divide	Understand	1
3.RA.C.7	Strategies such as the relationship between multiplication and division or properties of operations	Use	Apply	2
3.RA.C.7	All products of one-digit numbers	Know	Remember	1
3.RA.C.8	Fluency with products within 100	Demonstrate	Demonstrate	2

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
	Distributive Property Associative (Grouping) Property of Multiplication

### **Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you how to use the Distributive Property to solve multiplication problems within 100.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** none

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 3-1 to teach students the Distributive Property using arrays.
- Another way to do this is

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

### **Engaging Experience 2**

**Teaching Point:** Today I am going to teach you to use the Distributive Property to break apart unknown facts with 3 or 4 as a factor.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** none

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 3-2 to teach students how to use 1s and 2s facts to multiply by 3 and 1s, 2s, and 3s facts to multiply by 4.
- **Another way to do this** is through inquiry. Students build arrays using snap cubes and write aligning multiplication equations that represent the array. On day two organize and explore the relationships that they notice leading to the discovery of the distributive property.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 3**

**Teaching Point:** Today I am going to teach you to use the Distributive Property to break apart unknown facts with 6 or 7 as a factor

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** none

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 3-3 to teach students how to use arrays to break apart problems when 6 or 7 is a factor.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

#### **Engaging Experience 4**

**Teaching Point:** Today I am going to teach you to use the Distributive Property to break apart unknown facts with 8 as a factor.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.RA.C.7, 3.RA.C.8**

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 3-4 to teach students to break apart unknown facts into known facts.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

#### **Engaging Experience 5**

**Teaching Point:** Today I am going to teach you to use strategies such as bar diagrams and arrays of known facts to solve multiplication problems.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.RA.C.7, 3.RA.C.8**

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 3-5 to teach students to use bar diagrams and arrays to solve multiplication problems.
- **Another way to do this** is to use the Greg Tang Problem Generator on his website and the Tang problem solving steps taught during Unit Zero.
- **Another way to do this** is to select a 3Act Task from Graham Fletcher's website.
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**Bloom's Levels: Apply**

**Webb's DOK: 2**

#### **Engaging Experience 6**

**Teaching Point:** Today I am going to teach you to use the Associative Property of Multiplication to group factors with multiplying 3 factors.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.RA.C.7, 3.RA.C.8**

**Supporting:** none

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 3-6 to teach students factors can be grouped in different ways, but get the same product.

**Bloom's Levels: Analyze**

**Webb's DOK: 2**

#### **Engaging Experience 7**

**Teaching Point:** Today I am going to teach you that good math thinkers look for things that repeat and make generalizations they can apply to other problems.

**Suggested Length of Time:** 1 day



## Standards Addressed

Priority: 3.RA.C.7, 3.RA.C.8

Supporting: none

## Detailed Description/Instructions:

- **One way to do this** is to follow lesson 3-7 to teach students how to use properties to look for patterns in facts that can be applied to similar problems.
- **Another way to do this** is to lead an inquiry using Jo Boaler's Number Visuals to look for patterns

Bloom's Levels: Apply

Webb's DOK: 2

## Engaging Scenario

3- ACT Math: Thirsty Students (pg. 76)

In the 3-Act Math for Topic 3, students draw on their conceptual understanding of multiplication as factors. They make use of representations and tools such as:

- multiplication arrays,
- drawing diagrams, and
- interpreting their results.

## Topic 4: Use Multiplication to Divide: Division Facts

Students apply properties of multiplication and use the relationship between multiplication and division to solve problems.

### Essential Questions:

- How can you use known multiplication facts to find unknown division facts?
- How are multiplication and division related?

### Enduring Understandings:

- A division problem can be solved by thinking of a related multiplication problem because multiplication and division have an inverse relationship.

### Priority Standards:

- **3.RA.C.7** Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers
- **3.RA.C.8** Demonstrate fluency with products within 100.

Supporting Standards: None

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
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3.RA.C.7	Numbers and results within 100	Multiply	Understand	1
3.RA.C.7	Numbers and results within 100	Divide	Understand	1
3.RA.C.7	Strategies such as the relationship between multiplication and division or properties of operations	Use	Apply	2
3.RA.C.7	All products of two one-digit numbers	Know	Remember	1
3.RA.C.8	Fluency with products within 100.	Demonstrate	Demonstrate	2

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
Even Odd	Fact family Dividend Divisor Quotient

**Engaging Experience 1**

**Teaching Point:** Today I am going to teach you to use repeated subtraction to show the relationship between division and subtraction

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** 3.RA.A.2

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 1-5 to teach students how to repeatedly subtract equal-size groups from a total number of objects and then count to find the number of groups.

**Bloom’s Levels:** Analyze

**Webb’s DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I am going to teach you to use sharing to separate equal groups to think about division.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Supporting:** 3.RA.A.2

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 1-4 to teach students division can be used to find how many are in each group using real-life examples of division as sharing.

**Bloom’s Levels:** Apply

**Webb’s DOK:** 2

### **Engaging Experience 3**

**Teaching Point:** Today I am going to teach you how to solve division problems by thinking of a related multiplication fact you know.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-1 to teach students how to use multiplication facts to divide.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 4**

**Teaching Point:** Today I am going to teach you how to solve division problems where either the dividend or divisor is 2, 3, 4, or 5 by using your fact families with 2, 3, 4, or 5 as a factor.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-2 to teach students how to use fact families with 2, 3, 4, and 5 as factors.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 5**

**Teaching Point:** Today I am going to teach you how to solve division problems where either the dividend or divisor is 6 or 7 by using your fact families with 6 or 7 as a factor.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-3 to teach students how to use fact families with 6 or 7 as factors.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 6**

**Teaching Point:** Today I am going to teach you how to solve division problems where either the dividend or divisor is 8 or 9 by using your fact families with 8 or 9 as a factor.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

**Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-4 to teach students how to use fact families with 8 or 9 as factors.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 7**

**Teaching Point:** Today I am going to teach you how to evaluate the reasonableness of your products and quotients by identifying patterns and other characteristics of multiplying or dividing with even and odd numbers.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-5 to teach students how to identify patterns and other characteristics of multiplying or dividing with even and odd numbers..

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 8**

**Teaching Point:** Today I am going to teach you how to solve division problems where either the dividend or divisor is 0 or 1 by using division rules and properties.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-6 to teach students division rules and properties for dividing with 0 and 1.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 9**

**Teaching Point:** Today we are going to continue practicing using our multiplication facts to solve division problems and build fact families with the two operations.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-7 to provide students with continued practice with using fact families to solve division problems.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

### **Engaging Experience 10**

**Teaching Point:** Today I am going to teach you how to find the unknown value in an equation by using a multiplication or division fact.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-8 to teach students how to solve equations with unknown quantities that may or may not be a product or quotient.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 11**

**Teaching Point:** Today I am going to teach you to solve multiple-step word problems by making sense of the problem and persevering through it.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.RA.C.7, 3.RA.C.8

#### **Detailed Description/Instructions:**

- **One way to do this** is to follow lesson 4-9 to teach students to solve multi-step word problems by finding and answering the hidden question as a way to make sense of and persevere through a problem.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

## Topic 5: Fluently Multiply and Divide within 100

Students explore strategies for solving multiplication and division facts within 100.

**Essential Questions:** What are the strategies to solve multiplication and division facts?

#### **Enduring Understandings:**

- There are patterns in the factors and products of multiplication tables.
- Any division problem can be thought of as a missing-factor multiplication problem. Strategies and reasoning can be used to recall multiplication and division basic facts.
- Strategies such as using properties of operation, drawings, and skip counting can be used to multiply.
- Some real world problems can be represented and solved using different multiplication and division strategies.
- Some real-world problems that involve equal groups can be solved using multiplication and division.
- Good math thinkers look for relationships in math to help solve problems.

#### **Priority Standards:**

- 3.RA.C.7 Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers
- 3.RA.C.8 Demonstrate fluency with products within 100.

#### **Supporting Standards:**

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
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3.RA.C.7	Numbers and results within 100	Multiply	Understand	1
3.RA.C.7	Numbers and results within 100	Divide	Understand	1
3.RA.C.7	Strategies such as the relationship between multiplication and division or properties of operations	Use	Apply	2
3.RA.C.7	All products of two one-digit numbers	Know	Remember	1
3.RA.C.8	Fluency with products within 100.	Demonstrate	Demonstrate	2

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
Reasoning Skip Counting Equal Groups Compare	Distributive Property

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to find patterns in factors and products by using a multiplication table and the Distributive Property.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 5-1 to teach students that there are patterns in the factors and the products for multiplication facts.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to use a multiplication table to solve division problems.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 5-2 to teach students how to use a multiplication table to solve any division problem by thinking of it as a missing-factor multiplication problem. Also, show students how strategies and reasoning can be used to recall multiplication and division basic facts.

**Bloom's Levels: Apply**  
**Webb's DOK: 1**

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to multiply by using strategies such as skip counting and properties.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 5-3 to teach students that strategies such as using properties of operations, drawings, and skip counting can be used to multiply.

**Bloom's Levels: Apply**

**Webb's DOK: 1**

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to solve multiplication and division problems by using different strategies and representations.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 5-4 to teach students that some real world problems can be represented and solved using different multiplication and division strategies.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 5**

**Teaching Point:** Today I'm going to teach you to write and solve real-world problems that involve equal groups by using multiplication and division.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 5-5 to teach students that some real-world problems that involve equal groups can be solved using multiplication and division.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

### **Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you to compare expressions without computing by using the structures of patterns in multiplication and division.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.C.7

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 5-6 to teach students that good math thinkers look for relationships in math to help solve problems.

**Bloom's Levels: Analyze**

**Webb's DOK: 3**

## Engaging Scenario

3- ACT Math: The Cheese Sticks (pg. 168)

In the 3-Act Math for Topic 5, students draw on their conceptual understanding of multiplication as factors. They make use of representations and tools such as:

- multiplication arrays,
- division facts, and
- drawing diagrams



## Unit 2: Measurement and Data Part 1

**Subject:** Math

**Grade:** 3

**Name of Unit:** Measurement and Data Part 1

**Length of Unit:** 21 days

**Overview of Unit:**

**In Topic 6** Students will develop understanding of the concept of area. Beginning with concrete models and then moving to pictorial and abstract models, students come to understand how area is related to multiplication and addition.

**In Topic 7** Students will be reading and making scaled picture graphs and scaled bar graphs that represent data sets that have several categories. Students will also solve problems involving the data represented in the graphs.

**Getting Ready for the Unit:**

Watch Listen and Look For videos (teacher background knowledge)

Manipulatives and Teaching Tools:

- Two color tiles (or Teaching Tool 8)
- Area of shapes (Teaching Tool 12)
- 1-inch grid paper (Teaching Tool 14)
- Centimeter grid paper (Teaching Tool 13)
- Rulers (Teaching Tool 18 and 19)
- Pieces of colored yarn - about 1 foot long
- Number lines (Teaching Tool 7)

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
<ul style="list-style-type: none"> <li>● Math Interview/ Conference</li> <li>● Quick Checks (Check marks within lesson)</li> <li>● Topic Pretest</li> <li>● Convince Me</li> <li>● Look Back</li> <li>● Lesson Assessment Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Online version</li> <li>● Topic Assessment Practice</li> <li>● Topic Performance Task</li> <li>● Cumulative/ Benchmark Assessment (print or online)</li> </ul>

**Math Review:**

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

- Fluency Practice/Review Activity (K starts in Topic 8)
- Vocabulary Review

**Number Routines:**

- Multiplication Number Talks
  - Images (emphasis on repeated addition or skip counting)

Number Talk: Making Landmark or Friendly Numbers: Category 1 pg 269		
The following number talks consist of 1 x 2-digit problems and have a connection to U.S. coins		
2 x 25 4 x 25 6 x 25	7 x 5 7 x 10 7 x 9	2 x 25 4 x 20 2 x 50 4 x 50
Reference your copy of <i>Number Talks: Whole Number Computation</i> by Sherry Parrish		

**Additional Personalized Practice and Application Suggestions:**

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>● Reteach to Build Understanding</li> <li>● Intervention Activity</li> <li>● Additional Practice</li> <li>● Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Build Mathematical Literacy</li> <li>● Additional Practice</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> <li>● Practice Buddy: Additional Practice</li> <li>● Quick Check (online)</li> </ul>	<ul style="list-style-type: none"> <li>● Enrichment</li> <li>● Pick a Project</li> <li>● enVision STEM Activity</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> </ul>

**Topic 6: Connect Area to Multiplication and Addition**

Students develop an understanding of the concepts of area and a unit square. They learn different ways to measure the area of a rectangle. They relate area to multiplication and addition.

**Essential Questions:** How does area connect to multiplication and addition?

**Enduring Understandings:**

- The amount of space inside a shape is its area, and area can be found or estimated using unit squares.
- Area can be measured using nonstandard units, including unit squares of different sizes.
- Standard measurement units are used for consistency in finding and communicating measurements.
- The amount of space inside a region is its area, and area can be found by counting unit squares or by multiplying the side lengths.
- The areas of rectangles can be used to model the Distributive Property.
- The area of some irregular shapes can be found by dividing the original shape into rectangles, finding the area of each rectangle, and adding all of the areas.
- Good math thinkers look for relationships in math to help solve problems.

**Priority Standards:**

- 3.GM.C.12 Multiply whole-number side lengths to solve problems involving the area of rectangles.

**Supporting Standards:**

- 3.GM.C.9 Calculate area by using unit squares to cover a plane figure with no gaps or overlaps
- 3.GM.C.10 Label area measurements with squared units.
- 3.GM.C.11 Demonstrate that tiling a rectangle to find the area and multiplying the side lengths result in the same value.
- 3.GM.C.13 Find rectangular arrangements that can be formed for a given area.
- 3.GM.C.14 Decompose a rectangle into smaller rectangles to find the area of the original rectangle.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.GM.C.12	Whole-number side lengths	Multiply	Understand	1
3.GM.C.12	Problems involving the area of rectangles	Solve	Apply	2

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
area estimate	unit square square unit

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to find the area of a shape by using unit squares.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.C.12

**Supporting:**

- 3.GM.C.9 Calculate area by using unit squares to cover a plane figure with no gaps or overlaps.
- 3.GM.C.10 Label area measurements with squared units.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-1 to teach students that the amount of space inside a shape is its area, and area can be found or estimated using unit squares.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to find the area of a shape by using standard

units.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.C.12

**Supporting:**

- **3.GM.C.9** Calculate area by using unit squares to cover a plane figure with no gaps or overlaps.
- **3.GM.C.10** Label area measurements with squared units.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-2 to teach students that area can be measured using nonstandard units, including unit squares of different sizes.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to find the area of a figure by using unit squares.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.C.12

**Supporting:** 3.GM.C.9 Calculate area by using unit squares to cover a plane figure with no gaps or overlaps.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-3 to teach students that standard measurement units are used for consistency in finding and communicating measurements.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to find the area of squares and rectangles by using unit squares and multiplication.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.C.12

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-4 to teach students that the amount of space inside a region is its area, and area can be found by counting unit squares or by multiplying the side lengths.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

### **Engaging Experience 5**

**Teaching Point:** Today I'm going to teach you to model the Distributive Property by using areas of rectangles.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.C.12

**Supporting: 3.GM.C.14** Decompose a rectangle into smaller rectangles to find the area of the original rectangle.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-5 to teach students that the areas of rectangles can be used to model the Distributive Property of Multiplication.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

**Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you to find the areas of irregular shapes by using areas of rectangles.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.GM.C.12**

**Supporting: 3.GM.C.13** Find rectangular arrangements that can be formed for a given area.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-6 to teach students that the area of some irregular shapes can be found by dividing the original shape into rectangles, finding the area of each rectangle, and adding all of the areas.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

**Engaging Experience 7**

**Teaching Point:** Today I'm going to teach you to solve problems by breaking apart or changing the problem into simpler problems.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.GM.C.12**

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 6-7 to teach students that good math thinkers look for relationships in math to help solve problems.

**Bloom's Levels: Evaluate**

**Webb's DOK: 3**

## Topic 7: Represent and Interpret Data

Students represent data on picture graphs and bar graphs. They analyze and interpret data on graphs to solve problems.

**Essential Questions:** How can data be represented, analyzed and interpreted?

**Enduring Understandings:**

- Each picture on a picture graph represents the same set quantity throughout a graph.
- The height of a bar represents a number that can be found using the scale on the graph. Data can also be represented horizontally, in which case the width of a bar is used.

- More than one scale could be used to represent a data set.
- A line plot is a way to organize data.

**Priority Standard:**

- **3.DS.A.2** Solve one- and two-step problems using information presented in bar and/or picture graphs.
- **3.DS.A.4** Use data shown in a line plot to answer questions.

**Supporting Standards:**

- **3.DS.A.1** Create frequency tables, scaled picture graphs and bar graphs to represent a data set with several categories.
- **3.DS.A.3** Create a line plot to represent data.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.DS.A.2	One- and two-step problems.	Solve	Analyze	2
3.DS.A.2	Information presented in bar and/or picture graphs.	Use	Apply	1
3.DS.A.4	Data shown in a line plot to answer questions.	Use	Apply	1

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
Survey Key	Data Scaled picture graph Scale Scaled bar graph Frequency table Line plot Nearest inch Nearest half inch

**Engaging Experience 1**

**Teaching Point:** Today I am going to teach you to compare and interpret data using picture and bar graphs.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.DS.A.2**

**Detailed Description/Instructions:**

**One way to do this** is to follow lesson 7-1 to teach students how to understand what the scale represents in picture and bar graphs.

**Bloom's Levels: Interpret**

**Webb's DOK: 2**

**Engaging Experience 2**

**Teaching Point:** Today I am going to teach you to compare and interpret data using frequency tables and picture graphs.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.DS.A.2**

**Standard: 3.DS.A.1** Create frequency tables, scaled picture graphs and bar graphs to represent a data set with several categories.

**Detailed Description/Instructions:**

**One way to do this** is to follow lesson 7-2 to have students use a frequency table to make picture graphs.

**Bloom's Levels: Create**

**Webb's DOK: 4**

### **Engaging Experience 3**

**Teaching Point:** Today I am going to teach you to represent data sets using scaled bar graphs.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.DS.A.2**

**Standard: 3.DS.A.1** Create frequency tables, scaled picture graphs and bar graphs to represent a data set with several categories.

**Detailed Description/Instructions:**

**One way to do this** is to follow lesson 7-3 to teach students how to draw the bars using a scale on a graph to represent data and use the information to answer questions.

**Bloom's Levels: Create**

**Webb's DOK: 4**

### **Engaging Experience 4**

**Teaching Point:** Today I am going to teach you to solve problems using graphs.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.DS.A.2**

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 7-4 to have students solve one- and two-step word problems using information from graphs.

**Bloom's Levels: Interpret**

**Webb's DOK: 2**

### **Engaging Experience 5**

**Teaching Point:** Today I am going to teach you to solve word problems accurately using words, symbols and numbers.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.DS.A.2**

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 7-5 to have students solve one- and two-step word problems using information from graphs.

**Bloom's Levels: Analyze**

**Webb's DOK: 2**

### **Engaging Experience 6**

**Teaching Point:** Today I am going to teach you how to represent data on a line plot.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.DS.A.4**

**Supporting: 3.DS.A.3** Create a line plot to represent data.

**Detailed Description/Instructions:**

**One way to do this** is follow lesson 16-1 (found in Schoology) to teach students how to organize data on a line plot.

**Bloom's Levels: Create**

**Webb's DOK: 4**

## Engaging Scenario

3- ACT Math: Swings and Slides (pg. 252)

In the 3-Act Math for Topic 7, students draw on their conceptual understanding of graphing and data. They make use of representations and tools such as:

- bar graphs,
- pictographs, and
- tables of data



# Unit 3: Numbers and Computation Part 1

**Subject:** Math

**Grade:** 3

**Name of Unit:** Numbers and Computation Part 1

**Length of Unit:** 30 Days

## Overview of Unit:

**In Topic 8** students will focus on using properties, patterns, and mental math to add and subtract within 1,000. Students will also use place-value understanding to round whole numbers to the nearest ten or to the nearest 100.

**In Topic 9** strategies of partial sums and differences are developed and used. These strategies are based on place-value concepts and the use of models and number lines. Students will estimate the sum or difference so that they can check whether the answer is reasonable.

**In Topic 10** students will rely heavily on recall of multiplication facts. Students will use understanding of place value to multiply by multiples of 10.

## Getting Ready for the Unit:

- Watch Listen and Look For videos (teacher background knowledge)
- Watch, *Making Sense Series the Progression of Addition and Subtraction* from Graham Fletcher's website.

## Manipulatives:

- Place value blocks (or Teaching Tool 3)
- Place value charts (or Teaching Tool 5)
- Two-color counters (or Teaching Tool 9)
- Drawing paper
- Colored pencils
- Number lines (or Teaching Tool 7)
- Number tiles (or Teaching Tool 22)
- Multiplication Table (or Teaching Tool 11)

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
Math Interview/ Conference Quick Checks (Check marks within lesson) Topic Pretest Convince Me Look Back	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:**

- Multiplication Number Talks

<b>Number Talk: Doubling and Halving (Category 1)... pg 278</b>		
<b>Category 1: Investigate doubling and halving with basic facts</b>		
The following number talks investigate doubling and halving with basic facts.		
$1 \times 16$ $2 \times 8$ $4 \times 4$ $8 \times 2$ $16 \times 1$	$1 \times 24$ $2 \times 12$ $4 \times 6$ $8 \times 3$	$1 \times 12$ $2 \times 6$ $4 \times 3$
Reference your copy of <i>Number Talks: Whole Number Computation</i> by Sherry Parrish		

<b>Number Talk: Breaking Factors into Smaller Factors (Category 1)... page 283</b>		
<b>Category 1: Breaking factors into smaller factors</b>		
The following number talks consist of problems that focus on breaking basic facts into smaller factors.		
$2 \times 3 \times 4$ $4 \times 3 \times 2$ $6 \times 4$	$2 \times 3 \times 8$ $4 \times 2 \times 6$ $6 \times 8$	$4 \times 3 \times 4$ $2 \times 2 \times 12$ $8 \times 3 \times 2$ $2 \times 2 \times 3 \times 4$ $12 \times 4$
Reference your copy of <i>Number Talks: Whole Number Computation</i> by Sherry Parrish		

**Additional Personalized Practice and Application Suggestions:**

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>● Reteach to Build Understanding</li> <li>● Intervention Activity</li> <li>● Additional Practice</li> <li>● Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Build Mathematical Literacy</li> <li>● Additional Practice</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> </ul>	<ul style="list-style-type: none"> <li>● Enrichment</li> <li>● Pick a Project</li> <li>● enVision STEM Activity</li> <li>● Practice Buddy: Independent Practice;</li> </ul>

	<ul style="list-style-type: none"> <li>● Practice Buddy: Additional Practice</li> <li>● Quick Check (online)</li> </ul>	Problem Solving
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**Topic 8: Use Strategies and Properties to Add and Subtract**  
 Students use strategies based on place value and properties of operations to add and subtract within 1,000 and to multiply a one-digit number by a multiple of 10.

**Essential Questions:** How can sums and differences be estimated and found mentally?

**Enduring Understandings:**

- Some real-world problems that involve joining, separating, part-part-whole, or comparing can be solved using addition. Two or more numbers can be added in any order, and the sum of any number and 0 is that number.
- Generalizations about how addition works emerge from investigating patterns and reasoning about mathematical relationships.
- There is more than one way to do mental math. Techniques involve changing the numbers or expressions so that calculations are easy to do mentally.
- Rounding is a process for finding multiples of 10 and 100 that are closest to a given number.
- There is more than one way to estimate a sum. Two ways to estimate are rounding and using compatible numbers.
- There is more than one way to estimate a difference. Two ways to estimate are rounding and using compatible numbers.
- Good math thinkers choose and apply math they know to show and solve problems from everyday life.

**Priority Standards:**

- 3.RA.D.10 Interpret the reasonableness of answers using mental computation and estimation strategies including rounding.
- 3.NBT.A.1 Round whole numbers to the nearest 10 or 100.

**Supporting Standards:**

- 3.RA.E.11 Identify arithmetic patterns and explain the patterns using properties of operations

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
RA.D.10	Reasonableness of answers	Interpret	Apply	1
RA.D.10	Mental computation and estimation strategies	Use	Apply	1

	(including rounding)			
3.NBT.A.1	Whole numbers to the nearest 10 or 100	Round	Apply	1

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
Round	Associative (Grouping) Property of Addition Commutative (Order) Property of Addition Identity (Zero) Property of Addition Open number line Inverse operations Place value Compatible numbers

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to solve real world problems by using properties of addition.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** RA.D.10

**Supporting:** 3.RA.E.11 Identify arithmetic patterns and explain the patterns using properties of operations

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-1 to teach students that some real problems can be solved by using properties of addition.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you explain patterns in an addition table by using algebraic thinking.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** RA.D.10

**Supporting:** 3.RA.E.11 Identify arithmetic patterns and explain the patterns using properties of operations

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-2 to teach students generalizations about how addition can emerge from patterns and reasoning about mathematical relationships.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to add by using mental math.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** RA.D.10

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-3 to teach students that there is more than one way to do mental math. Techniques involve changing the numbers or the expressions so that calculations are easy to do mentally.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to subtract by using mental math.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** RA.D.10

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-4 to teach students that there is more than one way to do mental math. Techniques involve changing the numbers or the expressions so that calculations are easy to do mentally.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 5**

**Teaching Point:** Today I'm going to teach you to round numbers by using place value and a numberline.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.1

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-5 to teach students that rounding is a process for finding multiples of 10 and 100 that are the closest to a given number.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

### **Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you to estimate a sum by using rounding or compatible numbers.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.1, RA.D.10

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-6 to teach students that there is more than one way to estimate a sum. Two ways to estimate are rounding and

using compatible numbers.

**Bloom's Levels: Appy**

**Webb's DOK: 2**

### **Engaging Experience 7**

**Teaching Point:** Today I'm going to teach you to estimate a difference by using rounding or compatible numbers.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.1, RA.D.10

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-7 to teach students that there is more than one way to estimate a difference. Two ways to estimate are rounding and using compatible numbers.

**Bloom's Levels: Appy**

**Webb's DOK: 2**

### **Engaging Experience 8**

**Teaching Point:** Today I'm going to teach you to solve one-step and multi-step problems by modeling with math.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** RA.D.10

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 8-8 to teach students that good math thinkers choose and apply math they know to show and solve problems from everyday life..

**Bloom's Levels: Appy**

**Webb's DOK: 2**

## **Topic 9: Fluently Add and Subtract within 1,000**

Students use strategies based on place value and properties of operations to add and subtract within 1,000 and to multiply a one-digit number by a multiple of 10.

**Essential Questions:** What are the strategies for adding and subtracting whole numbers?

**Enduring Understandings:**

- The expanded algorithm for adding 3-digit numbers breaks the addition problem into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final sum.
- The process for regrouping and adding 3-digit numbers is an extension of the process for regrouping and adding 2-digit numbers.
- The addition of three or more numbers is an extension of adding two numbers.

- The expanded algorithm for subtracting multi-digit numbers breaks a larger subtraction problem into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final difference.
- The process for regrouping and subtracting 3-digit numbers is an extension of the process for regrouping and subtracting 2-digit numbers.
- There are a variety of strategies that can be used to add or subtract 3-digit numbers.
- Good math thinkers use math to explain why they are right. They can also talk about the math that others do.

**Priority Standards:**

- 3.NBT.A.3 Demonstrate fluency with addition and subtraction within 1,000

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.NBT.A.3	Fluency with addition and subtraction within 1,000	Demonstrate	Apply	1

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
Conjecture	Regroup

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to add two 3-digit numbers by breaking apart problems into simpler problems.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-1 to teach students that the expanded algorithm for adding 3-digit numbers breaks the addition problem into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final sum.

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to add 3-digit numbers by using regrouping.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-2 to teach students that the process for regrouping and adding 3-digit numbers is an extension of the process for adding and regrouping 2-digit numbers.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to add three or more numbers by using addition strategies.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-3 to teach students that the addition of three or more numbers is an extension of adding two numbers.

**Bloom's Levels: Apply**

**Webb's DOK: 2**

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to subtract multi-digit numbers by using an expanded algorithm.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-4 to teach students that the expanded algorithm for subtracting multi-digit numbers breaks a larger subtraction problem into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final difference.

**Bloom's Levels: Analyze**

**Webb's DOK: 2**

### **Engaging Experience 5**

**Teaching Point:** Today I'm going to teach you to subtract 3-digit numbers by using regrouping.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-5 to teach students that the process for regrouping and subtracting 3-digit numbers is an extension of the process for regrouping and subtracting 2-digit numbers.

**Bloom's Levels: Apply**

**Webb's DOK: 2**



### **Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you to add and subtract 3-digit numbers with more than one zero by using strategies.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-6 to teach students that there are a variety of strategies that can be used to add or subtract 3-digit numbers.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

### **Engaging Experience 7**

**Teaching Point:** Today I'm going to teach you to justify a conjecture by using addition and subtraction.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.3

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 9-7 to teach students that good math thinkers use math to explain why they are right. They can also talk about the math that others do.

**Bloom's Levels:** Evaluate

**Webb's DOK:** 3

## Engaging Scenario

3- ACT Math: Fun Raiser (pg. 336)

In the 3 ACT Math for Topic 9, students will draw on their conceptual understanding of addition and subtraction. They will make use of representation and tools such as:

- bar diagrams
- number lines and
- partial sums

## Topic 10: Multiply by Multiples of 10

Students use strategies based on place value and properties of operations to add and subtract within 1,000 and to multiply a one-digit number by a multiple of 10.

**Essential Questions:** What strategies can be used for multiplying by multiples of 10?

**Enduring Understandings:**

- Patterns can be used to find products when one factor is a multiple of 10.
- Different strategies can be used to find products when one factor is a multiple of 10.
- Basic multiplication facts and properties of multiplication can be used to find products when one factor is a multiple of 10.
- Good math thinkers look for relationships in math to help solve problems.

**Priority Standards:**

- 3.NBT.A.4 Multiply whole numbers by multiples of 10 in the range of 10-90.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.NBT.A.4	Whole numbers by multiples of 10 in the range of 10-90	Multiply	Apply	1

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
none	Multiples

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to find products when one factor is a multiple of 10 by using patterns.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.4

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 10-1 to teach students that patterns can be used to find products when one factor is a multiple of 10.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to find products when one factor is a multiple of 10 by using strategies.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.4

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 10-2 to teach students that different strategies can be used to find products when one factor is a multiple of 10.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

**Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to find products when one factor is a multiple of 10 by using properties of multiplication.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.4

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 10-3 to teach students that basic multiplication facts and properties of multiplication can be used to find products when one factor is a multiple of 10.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

#### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to find products when one factor is a multiple of 10 by using multiplication structure and place value.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NBT.A.4

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 10-4 to teach students that good math thinkers look for relationships in math to help solve problems.

**Bloom's Levels:** Analyze

**Webb's DOK:** 3

## Unit 4: Operations and Algebra Part 2

**Subject:** Math

**Grade:** 3

**Name of Unit:** Operations and Algebra Part 2

**Length of Unit:** 10 days

**Overview of Unit:** Students will develop an understanding of using bar models and equations to represent and solve two-step word problems involving the four operations.

**In Topic 11,** the focus is on how to solve two-step word problems involving addition, subtraction, multiplication, and division of whole numbers.

**Getting Ready for the Unit:**

- Watch Listen and Look For videos (teacher background knowledge)
- Print Teaching Tool 32-recording sheet for 3-ACT math activity

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
<ul style="list-style-type: none"> <li>● Math Interview/ Conference</li> <li>● Quick Checks (Check marks within lesson)</li> <li>● Topic Pretest</li> <li>● Convince Me</li> <li>● Look Back</li> <li>● Lesson Assessment Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Online version</li> <li>● Topic Assessment Practice</li> <li>● Topic Performance Task</li> <li>● Cumulative/ Benchmark Assessment (print or online)</li> </ul>

**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:**

- Subtraction Number Talks

### Number Talk: Removal or Counting Back pg 206

The following number talks investigate doubling and halving with basic facts.

*Which of the following problems would be best to use the counting back strategy? Why?*

100-98	100-81
--------	--------

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

### Additional Personalized Practice and Application Suggestions:

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>• Reteach to Build Understanding</li> <li>• Intervention Activity</li> <li>• Additional Practice</li> <li>• Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>• Build Mathematical Literacy</li> <li>• Additional Practice</li> <li>• Practice Buddy: Independent Practice; Problem Solving</li> <li>• Practice Buddy: Additional Practice</li> <li>• Quick Check (online)</li> </ul>	<ul style="list-style-type: none"> <li>• Enrichment</li> <li>• Pick a Project</li> <li>• enVision STEM Activity</li> <li>• Practice Buddy: Independent Practice; Problem Solving</li> </ul>

## Topic 11: Use Operations with Whole Numbers to Solve Problems

Students learn strategies to solve two-step word problems involving four operations. They draw diagrams and write equations to represent relationships in a problem.

### Essential Questions:

- What are ways to solve two-step problems?

### Enduring Understandings:

- Bar diagrams show relationships in a two-set word problem and help identify the operation or operations needed to solve the problem.
- Bar diagrams show relationships in a two-step word problem and help identify the operation or operations needed to solve the problem.
- The way quantities in a two-step problem are related determines the operations used to solve the problem. Equations show these relationships.
- Good math thinkers use math to explain why they are right. They can also talk about the math that others do.

### Priority Standards:

- 3.RA.D.9 Write and solve two-step problems involving variables using any of the four operations

### Supporting Standards:

- 3.RA.A.4 Use multiplication and division within 100 to solve problems.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.RA.D.9	Two-step problems involving variables using the four operations	Write	Applying	2
3.RA.D.9	Two-step problems involving variables using the four operations	Solve	Applying	2

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
Equations	Bar diagrams

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to write equations to solve two-step problems involving addition and subtraction of whole numbers by drawing diagrams and writing equations.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.D.9

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 11-1 to teach students bar diagrams that can be drawn and used to help identify an operation or operations needed to solve a given problem.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to solve two-step problems involving multiplication and division by drawing diagrams and writing equations.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.D.9

**Supporting:** 3.RA.A.4 Use multiplication and division within 100 to solve problems.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 11-2 to teach students how they can use bar diagrams and equations to show how the numbers in 2-step word problems are related.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

**Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to examine the relationships between quantities by writing equations.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.D.9

**Supporting:** 3.RA.D.10 Write and solve two-step problems involving variables using any of the four operations.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 11-3 to teach students how to examine the relationships between numbers by writing equations.

**Bloom's Levels:** Apply

**Webb's DOK:** 2

#### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to critique the reasoning of others by asking questions, identifying mistakes, and providing suggestions for improvement.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.RA.D.9

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 11-4 to teach students good math thinkers use math to explain why they are right. They can also talk about the math that others do.

**Bloom's Levels:** Evaluate

**Webb's DOK:** 3

## Engaging Scenario

3- ACT Math: Cash Bucket (pg. 408)

In the 3 ACT Math task for Topic 11, students will draw on their conceptual understanding of addition, subtraction, and multiplication. They make use of representations and tools such as:

- Place value blocks
- Multiplication tables, and
- Bar diagrams.

## Unit 5: Numbers and Computation Part 2

**Subject:** Math

**Grade:** 3

**Name of Unit:** Numbers and Computation Part 2

**Length of Unit:** 24 days

**Overview of Unit:**

Students develop an understanding of fractions including unit fractions and equivalent fractions. They represent measurement data involving fractions on a line plot.

**In Topic 12,** the focus is on understanding that fractions are numbers that can represent a portion of a whole or a point on the number line. The work in this topic also includes measuring lengths to the nearest half inch or fourth inch and showing the data on a line plot.

**In Topic 13,** the focus is on using models and number sense to understand fraction equivalence and comparison.

**Getting Ready for the Unit:**

- Watch Listen and Look For videos (teacher background knowledge)
- Watch [Graham Flether’s Fraction Progression Video](#)
- Access and review the fraction resources in Schoolgy and determine which might be effective in your classroom.
- Determine what games you will teach your students to play during this unit of study.

**Manipulatives:**

- Number lines (can use EnVision Teaching Tool 7)
- Rulers (one per student)
- Blank fraction strips (can use Envision Teaching Tool 15)
- Coloring supplies (crayons, markers, etc)
- Pre-cut strips of paper

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
<ul style="list-style-type: none"> <li>● Math Interview/ Conference</li> <li>● Quick Checks (Check marks within lesson)</li> <li>● Topic Pretest</li> <li>● Convince Me</li> <li>● Look Back</li> <li>● Lesson Assessment Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Online version</li> <li>● Topic Assessment Practice</li> <li>● Topic Performance Task</li> <li>● Cumulative/ Benchmark Assessment (print or online)</li> </ul>



## 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:

- Subtraction Number Talks

### Number Talk: Adding Up (Category 1) ...pg 209

#### Description:

Two ideas to consider when crafting number talks to encourage the Adding Up strategy for subtraction are: 1) keep the minuend and subtrahend far apart, and 2) frame the problem in a context that implies distance. The farther apart the subtrahend is from the minuend, the more likely it is that students will count or add up. The closer the two numbers are, the more the likelihood that students will count back. For example, if the problem is  $50 - 47$ , it would be quite efficient and easy to count back; but if the problem is  $50 - 17$ , it would be more cumbersome and tedious to count back.

#### Category 1: The number is a multiple of ten or one hundred, and the subtrahend is close to the multiple of ten or landmark number

The following number talks include computation problems that foster the Adding Up strategy by incorporating two ideas: 1) the whole is a multiple of ten or one hundred, and 2) the subtrahend is close to a multiple of ten or a landmark number.

20-5	50-44	80-69
20-14	50-39	80-59
20-9	50-29	80-49
20-8	50-24	80-39

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

### Number Talk: Removal (Category 1) ...pg 212

A primary consideration in helping students think about the Removal strategy is to create a context that implies taking or removing an amount out of the whole.

The following number talks consist of two-digit numbers that do not require regrouping or decomposing.

35-10	53-40	73-50
35-13	53-42	73-51
35-20	56-30	78-20
35-22	56-34	78-27

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

### Number Talk: Keeping a Constant Difference (Category 1) ...pg 226

With the Constant Difference Strategy, both the minuend and subtrahend are adjusted by the same amounts.

The following number talks consist of computation problems that use numbers up to one hundred and are focused on adjusting both numbers by adding or subtracting one or two.

45-10 13-9 14-7 15-6	42-20 39-17 41-19 51-19	61-29 62-30 59-27 49-17
Reference your copy of <i>Number Talks: Whole Number Computation</i> by Sherry Parrish		

**Additional Personalized Practice and Application Suggestions:**

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>● Reteach to Build Understanding</li> <li>● Intervention Activity</li> <li>● Additional Practice</li> <li>● Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Build Mathematical Literacy</li> <li>● Additional Practice</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> <li>● Practice Buddy: Additional Practice</li> <li>● Quick Check (online)</li> </ul>	<ul style="list-style-type: none"> <li>● Enrichment</li> <li>● Pick a Project</li> <li>● enVision STEM Activity</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> </ul>

## Topic 12: Understand Fractions as Numbers

Students develop an understanding of fractions including unit fractions and equivalent fractions. They represent measurement data involving fractions on a line plot.

**Essential Question:**

What are the different meanings of a fraction?

**Enduring Understandings:**

- A unit fraction represents one part of a whole that has been divided into equal parts. A fraction can represent multiple copies of a unit fraction.
- The whole can be found given a fractional part.
- Points on a number line can represent fractions. The denominator represents the number of equal parts between 0 and 1, and the numerator represents the number of parts between 0 and the point.
- A number line can be used to represent fractions greater than 1.
- A line plot is a way to organize data on a number line.

Topic 12 is intended to develop a strong conceptual understanding of fractions as numbers. At the core is an understanding that a unit fraction,  $\frac{1}{b}$ , is the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts. When the whole is a region, one part is a region. When the whole is the distance from 0 to 1 on a number line, one part is a length. For other fractions,  $\frac{a}{b}$  of a region represents a part of size  $\frac{1}{b}$ . On a number line,  $\frac{a}{b}$  represents the distance from 0 of a length of  $\frac{1}{b}$ .

**Priority Standards:**

- **3.NF.A.2** Understand that when a whole is partitioned equally, a fraction can be used to

represent a portion of the whole (A. Describe the numerator as representing the number of pieces being considered. B. Describe the denominator as the number of pieces that make the whole.)

- **3.NF.A.3** Represent fractions on a number line.
  - a. Understand the whole is the interval from 0 to 1.
  - b. Understand the whole is partitioned into equal parts.
  - c. Understand a fraction represents the endpoint of the length of a given number partitions from 0.

**Supporting Standards:**

- 3.NF.A.1 Understand a unit fraction as the quantity formed by one part when a whole is partitioned into equal parts.
- 3.GM.A.3 Partition shapes into parts with equal areas, and expresses the area of each part as a unit fraction of the whole.

<b>Standard</b>	<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
<b>3.NF.A.2</b>	a fraction can be used to represent a portion of a whole, that the numerator represents the number of pieces being considered, and that the denominator is the number of pieces that make the whole	Understand	Understanding	1
<b>3.NF.A.3</b>	fractions on a number line	Represent	Understanding	1

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
Nearest	Fraction Unit fraction Numerator Denominator Line plot

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you that a region can be divided into equal parts by using fractions as names.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NF.A.2

**Supporting:** 3.GM.A.3 Partition shapes into parts with equal areas, and express the area of each part as a unit fraction of the whole.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 12-2 to understand that fractions can represent more than one equal part of a whole.

**Another way to do this** is to lead students through exploration using *Paper Plate Fractions: The Counting Connection* that is shared in Schoology. On day one you may guide students through building and exploring. On day two you may guide them through the Counting Fractions Questions in Schoology.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to read and write unit fractions by using picture models.

**Suggested Length of Time:** 1 days

#### **Standards Addressed**

**Priority:** 3.NF.A.2

**Supporting:** 3.NF.A.1 Understand a unit fraction as the quantity formed by one part when a whole is partitioned into equal parts.

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 12-1 to teach students that a unit fraction represents one part of a whole that has been divided into equal parts. A fraction can represent multiple copies of a unit fraction.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you that one whole can be shown by putting together equal sized fractional parts.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.NF.A.2

#### **Detailed Description/Instructions:**

**One way to do this** use lesson 12-3 to teach students that a whole can be found when given a fractional part.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 4**

**Teaching Point:** Today I am going to teach you that fractions can be represented by using a number line.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.NF.A.3

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 12-4 to teach students that points on a number line can represent fractions. The denominator represents the number of equal parts between 0 and 1 and the numerator represents the number of parts between 0 and the point.

**Another way to do this** is by using the *Whole Unit to Fraction Cards* that are shared

in Schoology.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 5**

**Teaching Point:** Today I am going to teach you that fractions greater than 1 whole can be represented by using a number line.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NF.A.3

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 12-5 to teach students that when using number lines to locate a fraction, the parts that the unit is divided into must be equal.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 6**

**Teaching Point:** Today I am going to teach you to show data on a line plot using lengths measured to the nearest half inch.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.DS.A.4

**Supporting:** 3.DS.A.3 Create a line plot to represent data.

**Detailed Description/Instructions:**

**One way to do this** is follow lesson 12-6 to teach students to measure lengths to the nearest half inch and organize the data on a line plot. In order to address the priority standard, students need to complete the problem-solving questions within the lesson.

**Bloom's Levels: Create**

**Webb's DOK: 4**

### **Engaging Experience 7**

**Teaching Point:** Today I am going to teach you to show data on a line plot using lengths measured to the nearest fourth inch.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.DS.A.4

**Supporting:** 3.DS.A.3 Create a line plot to represent data.

**Detailed Description/Instructions:**

**One way to do this** is follow lesson 12-7 to teach students to measure lengths to the nearest fourth inch and organize the data on a line plot. In order to address the priority standard, students need to complete the problem-solving questions within the lesson.

**Bloom's Levels: Create**

**Webb's DOK: 4**

### **Engaging Experience 8**

**Teaching Point:** Today I'm going to teach you to accurately problem solve by determining if a

problem has extra or missing information.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NF.A.2

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 12-8 to teach students that good math thinkers make sense of problems and think of ways to solve them by determining if a problem has extra or missing information.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

## Topic 13: Fraction Equivalence and Comparison

Students develop an understanding of fractions including unit fractions and equivalent fractions. They represent measurement data involving fractions on a line plot.

**Essential Questions:**

- How do you compare and order fractions?
- How do you determine if fractions are equivalent?

**Enduring Understandings:**

- The same fractional amount can be represented by an infinite set of different but equivalent fractions.
- There are a limitless number of fraction names for each point on the number line. These points can be used to name equivalent fractions.
- If two fractions have the same denominator, the fraction with the greater numerator is the greater fraction.
- Benchmark numbers such as 0,  $\frac{1}{2}$ , and 1 can be used to compare fractions.
- You can use a number line to compare fractions.
- Whole numbers can be represented by many different fraction names.

**Priority Standards:**

- **3.NF.A.5** Recognize and generate equivalent fractions using visual models, and justify why the fractions are equivalent.
- **3.NF.A.6** Compare two fractions with the same numerator or denominator using the symbols  $>$ ,  $=$ , or  $<$ , and justify the solution.

**Supporting Standards:**

- 3.NF.A.4 Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line.
- 3.NF.A.7 Explain why fraction comparisons are only valid when the two fractions refer to the same whole.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.NF.A.5	equivalent fractions using visual models	Recognize	Remembering	1

<b>3.NF.A.5</b>	equivalent fractions using visual models	Generate	Understanding	2
<b>3.NF.A.5</b>	the fraction equivalency	Justify	Understanding	2
<b>3.NF.A.6</b>	two fractions with the same numerator or denominator	Compare	Understanding	2
<b>3.NF.A.6</b>	the solution	Justify	Understanding	2

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
	equivalent fractions

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to find equivalent fractions by naming the same part of a whole.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NF.A.5

**Supporting:** 3.NF.A.4 Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-1 to teach students to identify equivalent fractions using models and pictures.

**Another way to do this is**

**Bloom's Levels: Understand**

**Webb's DOK: 1**

**Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to represent equivalent fractions by using a number line.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.NF.A.5

**Supporting:** 3.NF.A.4 Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-2 to teach students how to use number lines in order to determine if two fractions are equivalent.

**Bloom's Levels: Apply**

**Webb's DOK: 1**

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to compare fractions that have the same denominator by using models or fraction strips.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.NF.A.6

**Supporting:** 3.NF.A.7 Explain why fraction comparisons are only valid when the two fractions refer to the same whole.

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-3 to teach students if two fractions have the same denominator, the fraction with the greater numerator will be the greater fraction.

**Bloom's Levels:** Analyze

**Webb's DOK:** 1

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to compare fractions that have the same numerator by using models or fraction strips.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.NF.A.6

**Supporting:** 3.NF.A.7 Explain why fraction comparisons are only valid when the two fractions refer to the same whole.

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-4 to teach students if two fractions have the same numerator, the fraction with the greater denominator is less than the other fraction.

**Bloom's Levels:** Analyze

**Webb's DOK:** 1

### **Engaging Experience 5**

**Teaching Point:** Today, I'm going to teach you to compare fractions by using benchmark numbers.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.NF.A.6

**Supporting:**

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-5 to teach students how to compare fractions with different numerators and denominators by comparing them to 0 and 1.

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

### **Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you to compare fractions by using a number line.

**Suggested Length of Time:** 1 day



### **Standards Addressed**

**Priority:** 3.NF.A.6

**Supporting:** 3.NF.A.7 Explain why fraction comparisons are only valid when the two fractions refer to the same whole.

### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-6 to teach students how to use number lines to compare fractions. Students will learn that a fraction to the right of another fraction  $y$  is the greater fraction.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 7**

**Teaching Point:** Today I am going to teach you how to use fraction names to represent whole numbers on a number line.

**Suggested Length of Time:** 1 day

### **Standards Addressed**

**Priority:** 3.NF.A.5

**Supporting:** 3.NF.A.4 Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line.

### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-7 to show that whole numbers can be represented by many different fraction names.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 8**

**Teaching Point:** Today I'm going to teach you to construct math arguments by using fraction strips and number lines.

**Suggested Length of Time:** 1 day

### **Standards Addressed**

**Priority:** 3.NF.A.6, 3.NF.A.5

**Supporting:** 3.NF.A.4 Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line. 3.NF.A.7 Explain why fraction comparisons are only valid when the two fractions refer to the same whole.

### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 13-8 to teach students good math; thinkers use math to explain they are right and construct arguments. They can also talk about the math that others do.

**Bloom's Levels: Analyze**

**Webb's DOK: 2**

### **Engaging Experience 9**

## Engaging Scenario

### 3- ACT Math: Where's the Beef? (pg. 484)

In the 3 ACT Math task for Topic 13, students will draw on their conceptual understanding of addition and multiplication. They make use of representations and tools such as:

- Fractions strips
- Area models, and
- Bar diagrams.

## Unit 6: Measurement and Data Part 2

**Subject:** Math

**Grade:** 3

**Name of Unit:** Measurement and Data Part 2

**Length of Unit:** 15 days

**Overview of Unit:** Students extend their understanding of time and solving problems involving estimation and measurement of time intervals, liquid volume (capacity), weight, and length.

**In Topic 14,** the focus is on solving problems by estimating and measuring with units of time, capacity, weight, and length.

#### Getting Ready for the Unit:

- Watch Listen and Look For videos (teacher background knowledge)

Manipulatives:

- Blank clock faces (Teaching Tool 12) or student clocks
- Assorted containers such as liter bottles, soup cans, etc
- Different size bowls
- Marked 1 liter beakers
- Pan balance
- Gram and kilogram weights
- Rulers
- Meter sticks
- Yard sticks

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
<ul style="list-style-type: none"><li>● Math Interview/ Conference</li><li>● Quick Checks (Check marks within lesson)</li><li>● Topic Pretest</li><li>● Convince Me</li><li>● Look Back</li><li>● Lesson Assessment Practice</li></ul>	<ul style="list-style-type: none"><li>● Online version</li><li>● Topic Assessment Practice</li><li>● Topic Performance Task</li><li>● Cumulative/ Benchmark Assessment (print or online)</li></ul>

**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:**

- Subtraction Number Talks

<b>Number Talk: Adjusting One Number to Create an Easier Problem (Category 1) ...pg 223</b>		
The following number talks consist of smaller quantities- even basic facts- to help students consider what happens when numbers are adjusted in a subtraction problem. The following problems focus on adjusting the whole or the minuend.		
9-4 10-4 19-14 20-14	31-15 30-15 29-15 32-15	30-19 29-19 40-19 39-19
Reference your copy of <i>Number Talks: Whole Number Computation</i> by Sherry Parrish		

**Additional Personalized Practice and Application Suggestions:**

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>● Reteach to Build Understanding</li> <li>● Intervention Activity</li> <li>● Additional Practice</li> <li>● Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Build Mathematical Literacy</li> <li>● Additional Practice</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> <li>● Practice Buddy: Additional Practice</li> <li>● Quick Check (online)</li> </ul>	<ul style="list-style-type: none"> <li>● Enrichment</li> <li>● Pick a Project</li> <li>● enVision STEM Activity</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> </ul>

**Topic 14: Solve Time, Capacity, and Mass Problems**

Students learn to tell and write time to the nearest minute. They estimate and measure liquid volumes, and masses, using appropriate units and tools.

**Essential Questions:**

- How can time, capacity and mass be measured?

**Enduring Understandings:**

- Clocks can be used to tell time to the nearest minute.

- Elapsed time can be found by finding the total amount of time that has passed between a starting time and an ending time.
- Time intervals can be added or subtracted to solve problems.
- Benchmarks can be used to estimate capacity (liquid volume).
- Capacity (liquid volume) is a measure of the amount of liquid a container can hold.

**Priority Standards:**

- **3.GM.B.6** Solve problems involving addition and subtraction of minutes.
- **3.GM.B.8** Use the four operations to solve problems involving lengths, liquid volumes, or weights given in the same units.

**Supporting Standards:**

- **3.GM.B.4** Tell and write time to the nearest minute.
- **3.GM.B.5** Estimate time intervals in minutes.
- **3.GM.B.7** Measure or estimate length, liquid volume and weight of objects.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.GM.B.6	Problems involving addition and subtraction of minutes	Solve	Apply	2
3.GM.B.8	Problems involving lengths, liquid volumes, or weights given in the same units, using the four operations	Solve	Apply	2

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
A.M. P.M. capacity pound	elapsed time time interval liquid volume milliliter liter ounce ton inch foot yard mile centimeter meter kilometer

**Engaging Experience 1**

**Teaching Point:** Today I'm going to teach you to show and tell time to the nearest minute by using analog and digital clocks.

**Suggested Length of Time:** 1 day

### **Standards Addressed**

**Priority:** 3.GM.B.6

**Supporting:** 3.GM.B.4 Tell and write time to the nearest minute.

### **Detailed Description/Instructions:**

- **One way to do this** is to use lesson 14-1 to teach students that they can use their knowledge of counting by 5s and 1s to tell time to the nearest minute.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to tell and write time to the nearest minute by measuring the amount of time that has passed between a starting time and an ending time.

**Suggested Length of Time:** 1 day

### **Standards Addressed**

**Priority:** 3.GM.B.6

**Supporting:** 3.GM.B.4 Tell and write time to the nearest minute.

### **Detailed Description/Instructions:**

- **One way to do this** is to use lesson 14-2 to teach students to use clock faces in order to tell elapsed time using 1 hour and 5 minute intervals.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 3**

**Teaching Point:** Today I'm going to teach you to solve problems by adding or subtracting time.

**Suggested Length of Time:** 1 day

### **Standards Addressed**

**Priority:** 3.GM.B.6

### **Detailed Description/Instructions:**

- **One way to do this** is to use lesson 14-3 to show students how to add or subtract time intervals to solve problems.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 4**

**Teaching Point:** Today I'm going to teach you to measure liquid volume by using standard units.

**Suggested Length of Time:** 1-2 Days

### **Standards Addressed**

**Priority:** 3.GM.B.8

**Supporting:** 3.GM.B.7 Measure or estimate length, liquid volume and weight of objects.

### **Detailed Description/Instructions:**

- **One way to do this** is to combine lesson 14-4 and 14-5 to teach students how to estimate and measure liquid volumes in milliliters and Liters.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 5**

**Teaching Point:** Today I'm going to teach you to estimate masses of solid objects by using standard units.

**Suggested Length of Time:** 1-2 Days

**Standards Addressed**

**Priority:** 3.GM.B.8

**Supporting:** 3.GM.B.7 Measure or estimate length, liquid volume and weight of objects.

**Detailed Description/Instructions:**

- **One way to do this** is to combine lessons 14-6 and 14-7 to teach students how to estimate and measure weight in grams and kilograms.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 6**

**Teaching Point:** Today I'm going to teach you to estimate and measure length by using standard units, inches, feet, yards, and miles.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.B.8

**Supporting:** 3.GM.B.7 Measure or estimate length, liquid volume and weight of objects.

**Detailed Description/Instructions:**

- **One way to do this** is to use Eureka Math lessons 16 and 17 from Grade 2, Module 7, Topic D (lesson document found in Schoology).

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 7**

**Teaching Point:** Today I'm going to teach you to estimate and measure length by using metric units, centimeters, meters, and kilometers.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.B.8

**Supporting:** 3.GM.B.7 Measure or estimate length, liquid volume and weight of objects.

**Detailed Description/Instructions:**

- **One way to do this** is to utilize Eureka Math lessons 4 and 5 from Grade 2, Module 2, Topic B (lesson document found in Schoology).

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### **Engaging Experience 8**

**Teaching Point:** Today I'm going to teach you how to solve problems about mass and volume using pictures.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.B.8

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 14-8 to show students how to use bar diagrams to model word problems involving units of mass and volume.
- **Another way to do this**

**Bloom's Levels:** Apply

**Webb's DOK:** 2

**Engaging Experience 9**

**Teaching Point:** Today I'm going to teach you how to make sense of problems by noticing the relationship between words and numbers in a problem.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.B.6

**Detailed Description/Instructions:**

- **One way to do this** is to use lesson 14-9 to teach students that good math thinkers know how to think about words and numbers to solve problems.

**Bloom's Levels:** Analyze

**Webb's DOK:** 4

## Unit 7: Geometry

**Subject:** Math

**Grade:** 3

**Name of Unit:** Geometry

**Length of Unit:** 10 days

**Overview of Unit:** Students develop an understanding of classifying two-dimensional shapes, specifically quadrilaterals. Students will learn that shapes in different categories may share similar attributes.

**In Topic 15,** the focus is on attributes of two-dimensional shapes, especially quadrilaterals. Students learn that shapes in different categories may share attributes that place them in a larger or smaller category.

### Getting Ready for the Unit:

Watch Listen and Look For videos (teacher background knowledge)

Manipulatives:

- For lesson 15-1: Teaching Tool 21
- Coloring supplies (colored pencils or crayons)
- Set of assorted triangles
- Grid paper
- Rulers
- Index cards
- Rulers (one per student)

Formative Assessment Options <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	Summative Assessment Options <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
<ul style="list-style-type: none"> <li>• Math Interview/ Conference</li> <li>• Quick Checks (Check marks within lesson)</li> <li>• Topic Pretest</li> <li>• Convince Me</li> <li>• Look Back</li> <li>• Lesson Assessment Practice</li> </ul>	<ul style="list-style-type: none"> <li>• Online version</li> <li>• Topic Assessment Practice</li> <li>• Topic Performance Task</li> <li>• Cumulative/ Benchmark Assessment (print or online)</li> </ul>



## 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:

- Division Number Talks

### Number Talk: Repeated Subtraction or Sharing/Dealing Out (Category 1) ...pg 287

Repeated Subtraction is an entry-level strategy for division and will naturally occur when students are presented with initial division problems. Since we want to encourage students to move toward multiplicative thinking and away from a removal approach to division, specific number talks are not presented to foster this strategy. If students share this method as their strategy, honor their thinking; however, always make connections to multiplication. Possible ways to make this explicit are suggested in the example that follows using the problem  $12 \div 2$

*If students share their strategy as*  $12 - 2 - 2 - 2$   
 $- 2 - 2 - 2$

*Scaffold to multiplication with*  $3 \times 2 = 6, 3 \times 2 = 6$

*So... $6 \times 2 = 12$*

*So... $12 \div 2 = 6$*

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

## Additional Personalized Practice and Application Suggestions:

Intervention	On-level	Advanced
<ul style="list-style-type: none"><li>● Reteach to Build Understanding</li><li>● Intervention Activity</li><li>● Additional Practice</li><li>● Practice Buddy: Additional Practice</li></ul>	<ul style="list-style-type: none"><li>● Build Mathematical Literacy</li><li>● Additional Practice</li><li>● Practice Buddy: Independent Practice; Problem Solving</li><li>● Practice Buddy: Additional Practice</li><li>● Quick Check (online)</li></ul>	<ul style="list-style-type: none"><li>● Enrichment</li><li>● Pick a Project</li><li>● enVision STEM Activity</li><li>● Practice Buddy: Independent Practice; Problem Solving</li></ul>

## Topic 15: Attributes of Two-Dimensional Shapes

Students analyze and classify two-dimensional shapes, focusing on quadrilaterals. They use attributes to classify quadrilaterals into more specific groups.

**Essential Questions:** How can you organize and group two-dimensional shapes?

### Enduring Understandings:

- Quadrilaterals can be described and classified by their sides and angles.

- Shapes can be classified by their attributes.
- Quadrilaterals can be classified by their attributes.
- Good math thinkers are careful about what they write and say, so their ideas about math are clear.

**Priority Standards:**

- **3.GM.A.2** Distinguish rhombuses and rectangles as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to these subcategories.

**Supporting Standards:**

- **3.GM.A.1** Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.

<b>Standard</b>	<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
3.GM.A.2	Rhombuses and rectangles as examples of quadrilaterals.	Distinguish	Analyze	2
	Examples of quadrilaterals that do not belong to these subcategories.	Draw	Apply	1

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
sides angles	polygon quadrilateral vertex trapezoid parallelogram rectangle right angles rhombus square convex concave

**Engaging Experience 1**

**Teaching Point:** Today I am going to teach you how to identify quadrilaterals by describing their attributes.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority:** 3.GM.A.2

**Supporting:** 3.GM.A.1 Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 15-1 to teach students how to identify different

types of quadrilaterals based on their sides and angles.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

### **Engaging Experience 2**

**Teaching Point:** Today I'm going to teach you to classify shapes by using attributes to describe them.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.GM.A.2

**Supporting:** 3.GM.A.1 Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 15-2 to teach students that shapes can be classified by numbers of sides, equal sides, size of angles and lines.

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

### **Engaging Experience 3**

**Teaching Point:** Today I am going to teach you how to categorize quadrilaterals as parallelograms, trapezoids, or nonspecific quadrilaterals by describing their attributes.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.GM.A.2

**Supporting:** 3.GM.A.1 Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 15-3 to teach students how to categorize different types of quadrilaterals as parallelograms, trapezoids, or nonspecific quadrilaterals based on their sides and angles.

**Bloom's Levels:** Analyze

**Webb's DOK:** 2

### **Engaging Experience 4**

**Teaching Point:** Today I am going to teach you how to solve math problems precisely, efficiently, and accurately by using appropriate tools and math vocabulary.

**Suggested Length of Time:** 1 day

#### **Standards Addressed**

**Priority:** 3.GM.A.2

#### **Detailed Description/Instructions:**

**One way to do this** is to use lesson 15-4 to teach students that good math thinkers are careful about what they write and say, so their ideas about math are clear.

**Bloom's Levels:** Evaluate

**Webb's DOK:** 2

### **Engaging Experience 5**

# Engaging Scenario

## 3- ACT Math: Square It Up (pg. 584)

In the 3 ACT Math task for Topic 15, students will draw on their conceptual understanding of geometric shapes and mass. They make use of representations and tools such as:

- Tables
- Pictures and
- Pan balances

## Unit 8: Measurement and Data Part 3

**Subject:** Math

**Grade:** 3

**Name of Unit:** Measurement and Data Part 3

**Length of Unit:** 10 days

**Overview of Unit:** Students will learn that the perimeter of a figure is a measurable attribute, that the perimeter of common shapes can be found with a standard formula, and that perimeters and areas are independent of one another in that they can differ between shapes.

**In Topic 16,** the focus is on recognizing perimeter as an attribute of polygons, finding perimeter by using addition and multiplication, and finding unknown side lengths by using addition and subtraction.

### Getting Ready for the Unit:

- Watch Listen and Look For videos (teacher background knowledge)
- Gather materials for creating shapes and measuring the perimeter of shapes, both student created and provided:
  - Grid paper (centimeter or 1-inch) - Teaching Tools 13 and 14
  - Paper clips
  - Construction paper
  - Scissors
  - Straightedge
  - Various hand-drawn polygons
  - Rulers or tape measures

<b>Formative Assessment Options</b> <i>(Administered before or during a unit, topic or lesson to guide instruction and give feedback to students.)</i>	<b>Summative Assessment Options</b> <i>(Administered at the end of unit or topic to assess mastery of learning objectives.)</i>
<ul style="list-style-type: none"><li>● Math Interview/ Conference</li><li>● Quick Checks (Check marks within lesson)</li></ul>	<ul style="list-style-type: none"><li>● Online version</li><li>● Topic Assessment Practice</li><li>● Topic Performance Task</li></ul>

<ul style="list-style-type: none"> <li>● Topic Pretest</li> <li>● Convince Me</li> <li>● Look Back</li> <li>● Lesson Assessment Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Cumulative/ Benchmark Assessment (print or online)</li> </ul>
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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 Routines:**

Division Number Talks

**Number Talk: Repeated Subtraction or Sharing/Dealing Out (Category 1) ...pg 287 (continued)**

Repeated Subtraction is an entry-level strategy for division and will naturally occur when students are presented with initial division problems. Since we want to encourage students to move toward multiplicative thinking and away from a removal approach to division, specific number talks are not presented to foster this strategy. If students share this method as their strategy, honor their thinking; however, always make connections to multiplication. Possible ways to make this explicit are suggested in the example that follows using the problem  $12 \div 2$

*If students share their strategy as*  $12 -2 -2 -2$   
 $-2 -2 -2$

*Scaffold to multiplication with*  $3 \times 2 = 6, 3 \times 2 = 6$   
 $So...6 \times 2 = 12$   
 $So...12 \div 2 = 6$

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

**Number Talk: Is the Fraction Closer to 0, ½, or 1 Whole? (Category 1)... page 101**

This category includes proper fractions that you can choose from for each problem.

Is the fraction closer to 0,  $\frac{1}{2}$ , or 1 whole? How do you know?

$\frac{3}{8}$	$\frac{9}{10}$	$\frac{4}{6}$
$\frac{4}{10}$	$\frac{6}{10}$	$\frac{4}{12}$
$\frac{2}{6}$	$\frac{5}{8}$	$\frac{1}{4}$
$\frac{7}{8}$	$\frac{3}{4}$	$\frac{2}{8}$
$\frac{5}{8}$	$\frac{7}{10}$	$\frac{1}{6}$
$\frac{12}{16}$	$\frac{10}{16}$	$\frac{7}{12}$
$\frac{3}{5}$	$\frac{1}{3}$	$\frac{4}{7}$
$\frac{2}{5}$	$\frac{2}{3}$	$\frac{8}{9}$
$\frac{5}{9}$	$\frac{4}{5}$	$\frac{5}{7}$
$\frac{5}{11}$	$\frac{8}{11}$	$\frac{1}{5}$
$\frac{6}{7}$	$\frac{4}{9}$	$\frac{3}{11}$
$\frac{4}{9}$	$\frac{5}{9}$	$\frac{6}{11}$

Reference *Number Talks: Fractions, Decimals and Percentages* by Sherry Parrish

### Additional Personalized Practice and Application Suggestions:

Intervention	On-level	Advanced
<ul style="list-style-type: none"> <li>● Reteach to Build Understanding</li> <li>● Intervention Activity</li> <li>● Additional Practice</li> <li>● Practice Buddy: Additional Practice</li> </ul>	<ul style="list-style-type: none"> <li>● Build Mathematical Literacy</li> <li>● Additional Practice</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> <li>● Practice Buddy: Additional Practice</li> <li>● Quick Check (online)</li> </ul>	<ul style="list-style-type: none"> <li>● Enrichment</li> <li>● Pick a Project</li> <li>● enVision STEM Activity</li> <li>● Practice Buddy: Independent Practice; Problem Solving</li> </ul>

## Topic 16: Solve Perimeter Problems

Students recognize perimeter as a measurable attribute of plane figures and distinguish between perimeter and area.

**Essential Questions:**

- How can perimeter be measured and found?
- How can the four operations be used to solve problems involving perimeter?

**Enduring Understandings:**

- The distance around a figure is its perimeter.
- To find the perimeter of a polygon, add the lengths of the sides.
- Polygons with the same perimeter may have different areas.
- Polygons with the same area may have different perimeters.
- Good math thinkers know how to think about words and numbers to solve problems.

**Priority Standards:**

- **3.GM.D.15** Solve problems involving perimeters of polygons.

**Supporting Standards:**

- **3.GM.D.16** Understand that rectangles can have equal perimeters but different areas, or rectangles can have equal areas but different perimeters.

Standard	Unwrapped Concepts (Students need to know)	Unwrapped Skills (Students need to be able to do)	Bloom's Taxonomy Levels	Webb's DOK
3.GM.D.15	Problems involving perimeters of polygons	Solve	Understand	1

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
perimeter	equilateral triangle

**Engaging Experience 1**

**Teaching Point:** Today, I am going to teach you how to find the perimeter of different polygons by measuring the distance around the outside of a polygon.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.GM.D.15**

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 16-1 to show students how to find the distance around the outside of a polygon by using unit squares or addition when the measurements are given for the side lengths of the figure.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

**Engaging Experience 2**

**Teaching Point:** Today I am going to teach you how to find the perimeter of common shapes, such as squares and rectangles, by using the perimeter formula ( $2l + 2w = P$ ).

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.GM.D.15**

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 16-2 to show students how to reason to find the perimeter of squares and rectangles based on their knowledge of quadrilateral side lengths and the perimeter formula.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### Engaging Experience 3

**Teaching Point:** Today I am going to teach you how to find the length of a missing side in a polygon when the total perimeter and the lengths of other sides are known by using subtraction.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.GM.D.15**

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 16-3 to show students how to determine an unknown side length by using subtraction when the total perimeter and other side lengths are known.

**Bloom's Levels: Understand**

**Webb's DOK: 1**

### Engaging Experience 4

**Teaching Point:** Today I am going to teach you about the relationship between shapes with the same perimeter and different areas by drawing shapes to notice how they are similar and different.

**Suggested Length of Time:** 1 day

**Standards Addressed**

**Priority: 3.GM.D.15**

**Supporting: 3.GM.D.16** Understand that rectangles can have equal perimeters but different areas, or rectangles can have equal areas but different perimeters.

**Detailed Description/Instructions:**

**One way to do this** is to use lesson 16-4 to help students notice how different shapes can have the same perimeter and different areas. Students should understand that these different shapes (squares and rectangles, in this lesson) can look very different and yet still share the same overall perimeter.

**Bloom's Levels: Analyze**

**Webb's DOK: 2**

### Engaging Experience 5

**Teaching Point:** Today I am going to teach you about the relationship between shapes with the same area and different perimeters by drawing shapes to notice how they are similar and different.

**Suggested Length of Time:** 1 day



**Standards Addressed****Priority: 3.GM.D.15****Supporting: 3.GM.D.16** Understand that rectangles can have equal perimeters but different areas, or rectangles can have equal areas but different perimeters.**Detailed Description/Instructions:**

**One way to do this** is to use lesson 16-5 to help students notice how different shapes can have the same area and different perimeters. Students should understand that these different shapes (squares and rectangles, in this lesson) can look very different and yet still share the same overall area.

**Bloom's Levels: Analyze****Webb's DOK: 2****Engaging Experience 6**

**Teaching Point:** Today I am going to teach you how to solve problems about perimeter by using reasoning to simplify and understand the problem before solving it.

**Suggested Length of Time:** 1 day**Standards Addressed****Priority: 3.GM.D.15****Detailed Description/Instructions:**

**One way to do this** is to use lesson 16-6 to help students know how to think about words and numbers to solve problems involving perimeter.

**Bloom's Levels: Apply****Webb's DOK: 2**