Grade 2

Eureka Essentials

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Overview

How to Read **Eureka Essentials**

How to Approach Pacing

- ➢ Cover Major Cluster Standards more thoroughly and move through other Standards more quickly
  - **Major Clusters**: Modules 1, 3-5
    - *If student learning of Module 4 is solid, move through Module 5 more quickly because it applies the same ideas to larger numbers*
  - **Additional/Supporting Clusters**: Modules 2, 6-8
    - *If pacing is a challenge, save Module 6 to the end of the year because Grade 3 starts with multiplication*
- ➢ Use lesson connections (in purple text) to foresee when and how certain concepts will be revisited and further developed in later lessons
- ➢ Embed "reteaching" into the next lesson's activities (Fluency Practice, Application Problems, Concept Development, etc.) rather than repeat a prior lesson when formative assessments indicate lack of student understanding
- ➢ Omit or differentiate lessons labelled ↻ **Review/reinforce** based on students' strengths and needs
- ➢ Follow suggestions for omission or consolidation of lessons labelled ✂ **Cut/consolidate** based on students' strengths and needs

References

- Great Minds Eureka Math Teacher Edition version 3.0 (2015)
- California Common Core State Standards (2013)
- Mathematics Framework for California Public Schools: Kindergarten Through Grade Twelve (2016)

Module 1: Sums and Differences to 100 (Grade 1 Reviewed & Continued)

Summary:

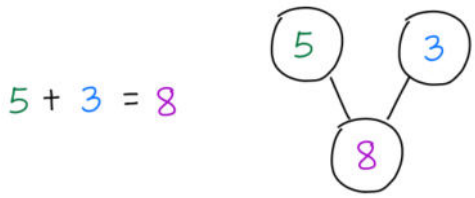
- Decomposition of two-digit numbers [Lessons 1-2]
- Addition of two-digit numbers [Lessons 3-5]
- Subtraction of two-digit numbers [Lessons 3, 6-8]

Definitions:

- **Addition** (Grade 1 Module 1):

$$\underbrace{(\#\text{ of things start with}) + (\#\text{ of things add on})}_{\#\text{ of things all together}}$$

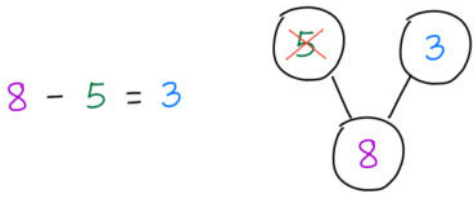
  - Word sentences & equations
    - "8 = 5 + 3" means "8 is the same number as 5 and 3 all together"
  - Number bonds & equations
    - Part + Part = Whole



- **Subtraction** (Grade 1 Module 1):

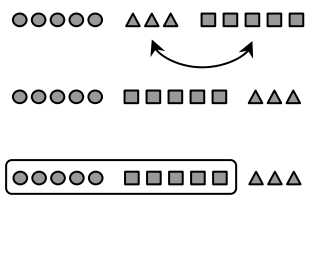
$$\underbrace{(\#\text{ of things start with}) - (\#\text{ of things take away})}_{\#\text{ of things leftover}}$$

  - Word sentences & equations
    - "8 - 5 = 3" means "the leftover of 8 take away 5 is the same number as 3"
  - Number bonds & equations
    - Whole - Part = Part



Key Ideas:

- **Addition** (Grade 1 Modules 2, 4, & 6): Because of the associative and commutative properties of addition, we can add numbers in *any order* and still keep the sum (total) the same
    - Example:



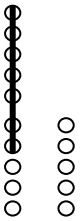
5 + **3 + 5**

= 5 + **5 + 3** ← commutative property of addition

= (5 + 5) + 3 ← associative property of addition
= 10 + 3
= 13

- **Subtraction** (Grade 1 Module 2): We can subtract parts of the subtrahend in *any order* and from *any part* of the minuend (total) that is greater than or equal to the subtrahend part(s) and still keep the difference the same
    - Example:

15 - 7
= 10 + 5 - 7
= (10 - 7) + 5
= 3 + 5
= 8



Topic A: Foundations for Fluency with Sums and Differences Within 100

Decomposition of 10-19

Goals:

- Represent decompositions of 10 with number bond and addition equation (e.g., 7 + 3 = 10) or subtraction equation (e.g., 10 - 3 = 7)

  ✓ Check: Problem Set problem #1
- Decompose 11-19 into ten and ones (e.g., 17 = 10 + 7)

Decomposition of Two-Digit Numbers

Goals:

- Decompose two-digit numbers into tens and ones (e.g., 57 = 50 + 7, 57 is 5 tens and 7 ones)

  ✓ Check: Problem Set problem #4

Topic B: Initiating Fluency with Addition and Subtraction Within 100

Suggestions: Write continuous equations (see examples below) rather than separate equations to keep track of all parts of the expression

Adding and Subtracting: Common Units (Place Value Strategy)

Goals:

- Use addition key idea to add common units (tens, ones)
  - Example:

    51 + 20
    = 50 + 1 + 20
    = (50 + 20) + 1
    = 70 + 1
    = 71

Key Ideas: Add in any order

✔ Check: Problem Set problems #2a-b

- Use subtraction key idea to subtract common units (tens, ones)
  - Example:
    71 - 20
    = 70 + 1 - 20
    = (70 - 20) + 1 — Key Ideas: Subtract from any part of the minuend
    = 50 + 1
    = 51

✔ Check: Problem Set problems #2c-d

Adding Within 20: Making 10

Goals:

- Decompose an addend to make 10 with the other addend (strategy to develop mental fluency for addition within 20)
  - Example:
    9 + 3
    = (9 + 1) + 2 — Key Ideas: Add in any order
    = 10 + 2
    = 12

✔ Check: Problem Set problems #2, #4

Adding Within 100: Making Multiple of 10

Goals:

- Build on **Lesson 4** to add within 100:
  - Decompose an addend to make multiple of 10 with the other addend
    - Example:
      39 + 4
      = (39 + 1) + 3 — Key Ideas: Add in any order
      = 40 + 3
      = 43

✔ Check: Problem Set problems #1d & f

Subtracting from Multiple of 10: Taking from 10

Goals:

- Decompose minuend (total) to take from 10
  - Example:
    40 - 9
    = 30 + **10** - 9
    = 30 + (**10 - 9**)
    = 30 + 1
    = 31

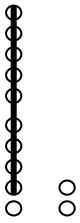
Key Ideas: Subtract from any part of the minuend

Check: Problem Set problems #1e-f

Subtracting Within 20: Taking from 10

Goals:

- Build on **Lesson 6** to subtract within 20:
  - Decompose minuend (total) into ten and ones to take from 10 (strategy to develop mental fluency for subtraction within 20)
    - Example:
      12 - 9
      = **10** + 2 - 9
      = (**10 - 9**) + 2
      = 1 + 2
      = 3



Key Ideas: Subtract from any part of the minuend

Check: Problem Set problems #1c-d

Subtracting Within 100: Taking from 10

Goals:

- Build on **Lessons 6-7** to subtract within 100:
  - Decompose minuend (total) to take from 10
    - Example:

42 - 9
= 32 + **10** - 9
= 32 + (**10 - 9**) Key Ideas: Subtract from any part of the minuend
= 32 + 1
= 33

Check: Problem Set problems #1c & f

Notes to teacher:

- Grade 1 only covered subtraction within 40 (Module 4) and subtraction of tens from multiples of 10 (Module 6 Lesson 10)

Module 2: Addition and Subtraction of Length Units

Summary:

- Measure (using different tools & units) and compare lengths (exactly & approximately/visually)
  - Key lesson: Lesson 6
- Apply understanding to solve word problems involving adding or subtracting lengths
  - Building on addition and subtraction from Module 1

Definitions:

- **To measure length** with (or using) a specified **length unit**: to count the number of length units that fit
  (1) side by side (no overlap or extra space between) and
  (2) from one endpoint to the other endpoint of the object
- **To estimate (approximate) length**: to find the number of units that is closest to the actual length of the object
- **Meter**, **centimeter**: 1 meter = 100 centimeter
  - There are a hundred (cent) centimeters in a meter.

Key Ideas:

- **Relationship between comparing and measuring lengths**:

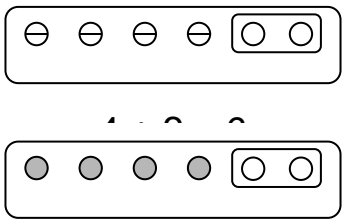
How much …	means how many …
longer is A than B	*more* centimeters (units) is the length of A than the length of B
shorter is A than B	*fewer* centimeters (units) is the length of A than the length of B

- **Relationship between measurement units and values**:

Measuring with a …	yields a …
larger unit	*smaller* value
smaller unit	*larger* value

Reasoning: one larger unit takes more space so fewer can fit in a given space; one smaller unit takes less space so it takes more to fit in a given space

- **Subtraction as addition with unknown addend**: "6 - 4 = __" also means "4 + __ = 6"



Materials:

- Centimeter cubes [Topic A]
- Rulers [Topics A-C]
- Meter stick [Topic B, D]
- Meter tape [Topic B, D]

Topic A: Understand Concepts About the Ruler

Cut/consolidate: Can consolidate Lesson 2 with Lesson 1 or 3 (*Eureka Math's Notes on Pacing*)

Measuring with Multiple Centimeter Cubes

Goals:

- Use centimeter cubes to measure and estimate length (Grade 1 Module 3) of linear objects (e.g., crayons) and their parts (e.g., pen cap)

  Check: Problem Set problem #2
- For Problem Set problem #6b and Homework problem #7: Use the relationship between comparing and measuring lengths to find difference in lengths

  Suggestions: Assign Problem Set problem #6b and Homework problem #7 as "challenge"problems; **Lesson 6** will revisit and focus on this concept

Measuring with One Centimeter Cube

Goals:

- Use "mark and move forward" (iteration) technique to measure length with only one centimeter cube

  Check: Problem Set problem #2

Measuring with Ruler

Goals:

- Create and use centimeter ruler to measure length of objects
- Observe features and functions of ruler:
  - We label the "hash marks" (*not* the space between hash marks) with numbers to easily read length without counting spaces
  - The number under a hash mark tells the number of units between the leftmost hash mark or edge (0) and that hash mark

Check: Problem Set problem #2

Materials: See p. 34 of Teacher Edition for instructions to make ruler

Topic B: Measure and Estimate Length Using Different Measurement Tools

Cut/consolidate: Can consolidate Lessons 4 and 5 (*Eureka Math's Notes on Pacing*)

Measuring with Appropriate Tool

Goals:

- Define meter
- Measure large or long object (e.g., white board) with larger unit like meter stick (more efficient than with centimeter ruler)
- Measure round object (e.g., globe) with meter tape (soft tool)

Check: Problem Set problems #2, #3

Estimating with Mental Benchmarks

Goals:

- Use “mental benchmarks” by “picturing them in your head to estimate the length of an object”:
  - pinky: about 1 cm
  - 3-ring binder (long side): about 30 cm
  - floor to doorknob: about 1 m

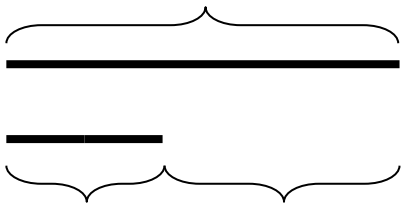
Check: Problem Set problems #2, #6a

Topic C: Measure and Compare Lengths Using Different Length Units

Comparing Lengths

Goals:

- Use the relationship between comparing and measuring lengths and definition of subtraction (or addition with unknown addend) to find difference in lengths
    - Example:



✔ **Check**: Problem Set problems #1, #2

Suggestions: If objects can be physically moved and aligned, students may just directly measure the length of the difference, so include an example that requires measuring each object (e.g., sides of desktop) and *calculating* the difference

Measuring with Different Units

Goals:

- Measure objects with units of different size (e.g., small and large paper clips) and observe the relationship between measurement units and values
- Recognize that:
    - Measurement needs to be done with a unit of one size (e.g., cannot use both large and small paper clips together to measure length by paper clips)
    - Measurement values can only be compared for the same unit (e.g., 7 small paper clips > 5 small paper clips but 7 small paper clips ≯ 5 large paper clips)
- ↻ **Review/reinforce** Lesson 6: Find difference in lengths

✔ **Check**: Problem Set problem #1

- For Problem Set problem #3 and Homework problem #3: Draw a line segment of given length

Topic D: Relate Addition and Subtraction to Length

Adding and Subtracting Lengths

Goals:

- Find total length of a "bending" path (e.g., the length of ribbon to frame a door, the length of Christmas lights to string along steps) by adding the lengths of the parts

  ✓ Check: Problem Set problem #4
- For Problem Set and Homework: Find final length or location on ruler by adding and subtracting lengths

  ✓ Check: Problem Set problem #2
- For Concept Development and Exit Ticket: Find length when the left endpoint of the object is above zero by subtracting the length between zero and the left endpoint

Measuring Curves

Goals:

- Build on **Lesson 4** by measuring curve with string (e.g., lay string on top of zig-zag tape and then mark end of curve on string and measure length of (straightened) string with ruler)

  ✓ Check: Problem Set problem #2
- Build on **Lessons 6 and 8** by using tape diagram (or number line) to represent and compare lengths

  ✓ Check: Problem Set problem #2c

Materials: string (about 50 cm) per student

Two-Step Word Problems

Goals:

- Build on **Lesson 9** to use tape diagram (or number line) to find an unknown length and then the sum of two or more lengths

  ✓ Check: Problem Set problem #2

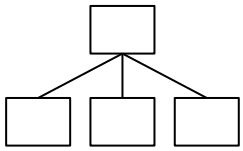
Module 3: Place Value, Counting, and Comparison of Numbers to 1,000 (Grade 1 Module 6 Continued)

Summary:

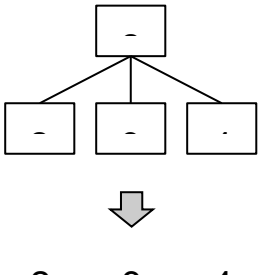
- Counting [Lessons 1-15]
  - Place value
  - How to count to a number
  - How to count from one number to another number
  - Counting ten or more of a unit
  - Different forms of a number (standard form or base-ten numeral, word form or number name, expanded form, unit form)
- Comparing [Lessons 16-18]
  - Greater than, less than, equal
- Increasing/decreasing by 1, 10, and 100 [Lessons 19-21]
  - "1, 10, 100 more" and "less"

Definitions:

- **Unit form of a number**: "unit form of 234" is "2 hundreds 3 tens 4 ones"



  - Note to teacher: Reading/writing numbers in "unit form" is not a state standard but is central to Eureka Math's theme of units and serves as a bridge between the standard form (base-ten numeral) and expanded form
- **Word form of a number (number name*)**: "word form (or number name) of 234" is "two hundred thirty-four"
- **Number form of a number (base-ten numeral*)**: "standard form (or base-ten numeral) of 234" is "234"
- **Expanded form of a number**: "expanded form of 243" is "200 + 40 + 3"



* State standard's terminology

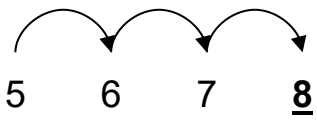
- **Greater than, less than, equals**:

Word form	*Symbolic form*	*Meaning (Definition)*
3 is greater (bigger, more) than 2	3 > 2	3 comes after 2 when counting
2 is less (smaller, fewer) than 3	2 < 3	2 comes before 3 when counting
3 + 0 equals 2 + 1	3 + 0 = 2 + 1	3 + 0 counts to the same number as 2 + 1

- **"1 (or 10 or 100) more than"**: "1 (or 10 or 100) more than 429" means "429 + 1 (or 10 or 100)"
- **"1 (or 10 or 100) less than"**: "1 (or 10 or 100) less than 429" means "429 - 1 (or 10 or 100)"

Key Ideas:

- **Place value**:
  In our number system (base ten), we only have **ten** symbols (the digits 0 to 9) to represent **zero to nine** ones, tens, hundreds, etc. (a unit) so to represent **ten** ones, tens, hundreds, etc. we use the next "place" to the left and make it 1 of that larger unit (e.g., ten 1s = 10, ten 10s = 100, ten 100s = 1000)
- **Counting to a number**: begin with largest base-ten unit (left-most digit)
  - Example: 476
    1. Count from 0 to 400 by hundreds
    2. Count from 400 to 470 by tens
    3. Count from 470 to 476 by ones
- **Counting from one number to another number**: begin with smallest base-ten unit (right-most nonzero digit) of starting number
  - Example: 476 to 600
    1. Count from 476 to 480 by ones
    2. Count from 480 to 500 by tens
    3. Count from 500 to 600 by hundred(s)
- **"Count on" method**: "5 + 3" is the same number as (equals) "starting at 5 and counting on 3 (6, 7, 8)"



- "1 more" or "less" changes the ones digit
- "10 more" or "less" changes the tens digit
- "100 more" or "less" changes the hundreds digit

Materials:

- Base ten units (e.g., Dienes base ten blocks, bundled straws/sticks) [Topics A-C]
- Dollar bills: $1, $10, $100 [Topic D]
- Place value disks [Topics E-F]

Suggestions: Incorporate place value chart in Lessons 1-3 (then Lesson 4 can be omitted or used as review)

Resources: Alternative approach to Lessons 1-4

Topic A: Forming Base Ten Units of Ten, a Hundred, and a Thousand

Counting to 1,000

Goals:

- Use place value to form base ten units (ten, hundred, thousand) and count to a number up to 1,000

Topic B: Understanding Place Value Units of One, Ten, and a Hundred

Counting between Numbers with Ones and Tens

Goals:

- Use place value to count to a number and count from one number to another with ones and tens

Check: Problem Set problem #2

Counting between Numbers with Ones, Tens, and Hundreds

Goals:

- Use place value to count to a number and count from one number to another with ones, tens, and hundreds

Check: Problem Set problems #1, #3

Topic C: Three-Digit Numbers in Unit, Standard, Expanded, and Word Forms

Counting between Numbers with Ones, Tens, and Hundreds (Continued)

Goals:

- Build on **Lessons 2-3** with the place value chart

  ✓ Check: Problem Set problem #3

Notes to teacher:

- Will revisit/reinforce counting between numbers in **Lessons 9 and 12** with dollar bills, empty number line, and place value disks

Unit Form, Word Form, Standard Form

Goals:

- Say, write, and/or match numbers in unit form, word form, and number form

Expanded Form

Goals:

- Use "count on" method of addition to write a number in expanded form and vice versa

  ✓ Check: Problem Set problems #4, #5, #9

Different Forms of a Number

Goals:

- ↻ Review/reinforce Lessons 5-6

  ✓ Check: Problem Set "Match Part 1" problems C & D
- Use place value and unit form of a number to count ten or more of a unit
  - Example: 120
    If counting by tens and not bundling 10 tens into 100, then 120 is 12 tens.

✓ **Check**: Problem Set "Match Part 2" problem F

Notes to teacher:

- Will revisit/reinforce counting ten or more of a unit in **Lesson 14**

Topic D: Modeling Base Ten Numbers Within 1,000 with Money

Representing Numbers with Dollar Bills

Goals:

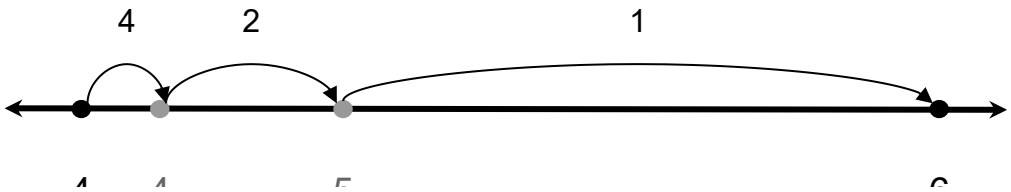
- Represent numbers to 1,000 using $1, $10, and $100 bills
- ↻ **Review/reinforce** Lessons 5-7 by representing value of money in different number forms (number, expanded, unit)

✓ **Check**: Problem Set problem #2

Counting between Numbers with Dollar Bills and Empty Number Line

Goals:

- Build on **Lessons 2-4** by counting between numbers with dollar bills and an empty number line
  - Example: 476 to 600



✓ **Check**: Problem Set problems #3, #5

Notes to teacher:

- Counting between numbers with an empty number line lays groundwork for addition/ subtraction strategies ("the arrow way", counting on) in **Modules 4-5**

Decomposition of $1,000 into $10 bills

Cut/consolidate: Can omit lesson or use as "challenge" task

Goals:

- Build on **Lesson 7** to find how many $10 bills make $1,000 (answer: 100)

Topic E: Modeling Numbers Within 1,000 with Place Value Disks

Suggestions: Incorporate drawing place value disks in Lessons 11-12 (then Lesson 13 can be omitted or used as review)

Representing Numbers with Place Value Disks

Cut/consolidate: Can omit use of Dienes base ten blocks

Goals:

- Represent numbers to 1,000 using place value disks

  Check: Problem Set problems #2a-b

Counting between Numbers with Place Value Disks

Goals:

- Build on **Lessons 2-4 and 9** by counting between numbers with place value disks
  - Example:
    Count from 186 to 300 by counting
    - 4 ones disks from 186 to 190
    - 1 ten disk from 190 to 200
    - 1 hundred disk from 200 to 300

Suggestions: Omit the Problem Set and Homework if the language is confusing

Representing Numbers with Place Value Disks (Continued)

Goals:

- ↻ **Review/reinforce** Lessons 5-7 and 11 by drawing place value disks

  ✓ **Check**: Problem Set problems #1, #2

Counting Ten or More of a Unit

Goals:

- Build on **Lesson 7** by counting ten or more ones or tens with place value disks
  - Example: 140
    If counting by tens disks and not exchanging 10 tens disks for a hundred disk, then 140 is 14 tens disks

  ✓ **Check**: Problem Set problems #1a & c, #2a & c

Word Problems with Counting Tens

Goals:

- Build on **Lessons 2-4, 7, 9, 12 and 14** to solve word problems that involve counting tens and counting between numbers

Topic F: Comparing Two Three-Digit Numbers

Suggestions: Use a 0-999 chart or 0-99, 100-199, …, 900-999 charts to help compare numbers (determine which number comes before or after when counting)

Comparing Numbers

Goals:

- Review definitions of greater than, less than, equals (Grade 1 Modules 4 & 6)
- Use above definitions to compare and order numbers
    - Example:
      Compare 105 and 135
        - To count to 105, we count from 0 to 100 by hundred, then count by ones to 105
        - To count to 135, we count from 0 to 100 by hundred, then count by tens (past 105) to 130, then count by ones to 135
        - 105 comes before 135 when counting so 105 < 135

✓ **Check**: Problem Set problem #2g, #3d

Suggestions: Represent numbers with Dienes base ten blocks or bundled straws/sticks if students need to "see" how a number is greater or less

Comparing Numbers (Continued)

Cut/consolidate: Can consolidate with Lesson 18 (*Eureka Math's Notes on Pacing*)

Goals:

- Build on **Lesson 16** to compare numbers expressed as ten or more of a unit

✓ **Check**: Problem Set problems #2a & e

Ordering Numbers in Different Forms

Goals:

- ↻ **Review/reinforce** Lessons 5-7, 16-17

✓ **Check**: Problem Set problems #2b-d

Topic G: Finding 1, 10, and 100 More or Less Than a Number

Patterns with 1, 10, and 100 More or Less

Goals:

- Review definitions of "1 (or 10 or 100) more than","1 (or 10 or 100) less than" (Grade 1 Modules 4 & 6)
- Use above definitions to observe:

  Key Ideas:
  - "1 more" or "less" changes the ones digit
  - "10 more" or "less" changes the tens digit
  - "100 more" or "less" changes the hundreds digit

Check: Problem Set problems #2b-d, g-h

Patterns with 1, 10, and 100 More or Less (Continued)

Goals:

- Build on **Lesson 19** to observe:
  - "1 more" than a number with 9 in the ones place changes the ones digit to 0 and makes the tens digit increase by 1 (e.g., 1 more than 59 is 60)
  - "10 more" than a number with 9 in the tens place changes the tens digit to 0 and makes the hundreds digit increase by 1 (e.g., 10 more than 90 is 100)
  - "1 less" than a number with 0 in the ones place makes the tens digit decrease by 1 and changes the ones digit to 9 (e.g., 1 less than 230 is 229)
  - "10 less" than a number with 0 in the tens place makes the hundreds digit decrease by 1 and changes the tens digit to 9 (e.g., 10 less than 503 is 493)

  Check: Problem Set problems #1a-b, #2a & d

Notes to teacher:

- Will revisit/reinforce 1 and 10 more or less in **Module 4 Lesson 1**

Skip-Counting Patterns

Cut/consolidate: Can omit lesson or use as "challenge" task

Goals:

- Find skip-counting pattern to fill in missing numbers

  Check: Problem Set problems #2a-c

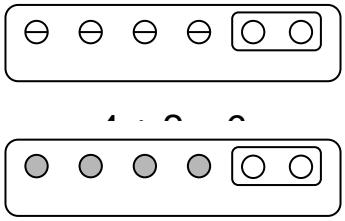
Module 4: Addition and Subtraction Within 200 with Word Problems to 100

Summary:

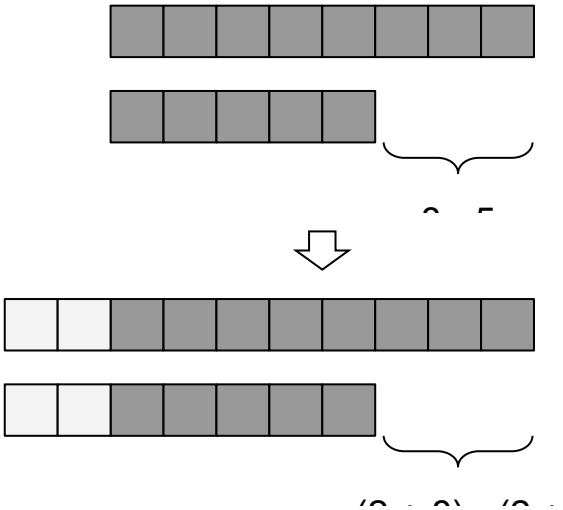
Strategy [Lesson(s)]	Addition	Subtraction	Key Ideas/Notes
Place value (Common units) [Lessons 2, 6 and on]	26 + 30 = **20** + 6 **+ 30** = **20 + 30** + 6 = 50 + 6 = 56 35 + 26 = (30 + **5**) + (20 + **6**) = 30 + 20 + (**5 + 6**) = 30 + 20 + **11** = 30 + 20 + **10 + 1** = 60 + 1 = 61	56 - 30 = **50** + 6 **- 30** = **50 - 30** + 6 = 20 + 6 = 26 46 - 18 = 40 + **6** - 10 **- 8** = 40 - 10 + **6 - 8** = 30 + **10** - 10 + **6 - 8** = 30 - 10 + **10 + 6 - 8** = 30 - 10 + (**16 - 8**) = 20 + 8 = 28	● Addition and subtraction key ideas ● Basis for vertical form (standard algorithms)
Make multiple of 10 [Lesson 4]	28 + 36 = **28** + 34 **+ 2** = **28 + 2** + 34 = 30 + 34 = 64	78 - 39 = **78** - 30 **- 8** - 1 = **78 - 8** - 30 - 1 = 70 - 30 - 1 = 39	● Addition (and subtraction) key ideas
In parts, method 1 (“The arrow way”) [Lessons 2-3]	19 + 32 = **19 + 30** + 2 = 49 + 2 = 51	90 - 51 = **90 - 50** - 1 = 40 - 1 = 39	● Use arrows or number line
In parts, method 2 [Lesson 3]	19 + 29 = **19 + 30** - 1 = 49 - 1 = 48	90 - 39 = **90 - 40** + 1 = 50 + 1 = 51	● Use number line
Count on [Lesson 2]		56 - 30 = __ → 30 + __ = 56 → 30 + 20 + 6 = 56 → 56 - 30 = 26	● Subtraction as addition with unknown addend ● Use (empty) number line (Module 3 Lesson 9)
Compensation [Lesson 4]		34 - 28 = (34 **+ 2**) - (28 **+ 2**) = 36 - 30	● Show simple case with linking cubes ● Use tape diagram

Key Ideas:

- **Addition**: Because of the associative and commutative properties of addition, we can add numbers in *any order* and still keep the sum (total) the same
- **Subtraction**: We can subtract parts of the subtrahend in *any order* and from *any part* of the minuend (total) that is greater than or equal to the subtrahend part(s) and still keep the difference the same
- **Subtraction as addition with unknown addend**: "6 - 4 = __" also means "4 + __ = 6"



- **Compensation**: Addition (or subtraction) of the same number to the minuend and subtrahend keeps the difference the same
  - Example:
    8 - 5 = (2 + 8) - (2 + 5)



Materials:

- Linking/snap cubes [Topic A]
- Place value disks [Topics B-E]

Topic A: Sums and Differences Within 100

Sequences of 1 or 10 More or Less

Goals:

- Build on Module 3 **Lessons 19-20** to:
  - Identify rule in sequence as +1, -1, +10, or -10
  - Determine next number in sequence based on given rule

Check: Problem Set problems #2a, #3b

Adding and Subtracting Multiples of 10

Goals:

- Build on Module 1 to develop strategies for adding multiples of 10
  - "Place value" (common units) strategy

    26 + 30
    = 20 + 6 + 30
    = (20 + 30) + 6 Key Ideas: Add in any order
    = 50 + 6
    = 56
  - "In parts" method 1 ("the arrow way") strategy

    26 + 30
    = (26 + 10) + 10 + 10 Key Ideas: Add in any order
    = (36 + 10) + 10
    = 46 + 10
    = 56

  Check: Problem Set problem #1c
- Build on Module 1 to develop strategies for subtracting multiples of 10
  - "Place value" (common units) strategy

    56 - 30
    = 50 + 6 - 30
    = (50 - 30) + 6 Key Ideas: Subtract from any part of the minuend
    = 20 + 6
    = 26
  - "In parts" method 1 ("the arrow way") strategy

56 - 30

= (56 - 10) - 10 - 10 Key Ideas: Subtract subtrahend parts in any order
= (46 - 10) - 10
= 36 - 10
= 26

- "Count on" strategy
  56 - 30 = __
  - 30 + __ = 56 Key Ideas: Subtraction as addition of unknown addend
  - 30 + 20 + 6 = 56
  - so 56 - 30 = 26

Check: Problem Set problem #2b

Adding and Subtracting Two-Digit Numbers

Goals:

- Build on **Lesson 2** to add two-digit numbers
  - "In parts" method 1 ("the arrow way") strategy
    48 + 21
    = 48 + (20 + 1)
    = (48 + 20) + 1 Key Ideas: Add in any order
    = 68 + 1 Lesson 2: 48 + 20 = 40 + 20 + 8
    = 69
  - "In parts" method 2 strategy
    48 + 19
    = 48 + (20 - 1)
    = (48 + 20) - 1 Key Ideas: Add (subtract from minuend) in any order
    = 68 - 1 Lesson 2: 48 + 20 = 40 + 20 + 8
    = 67

  Check: Problem Set problem #1b
- Build on **Lesson 2** to subtract two-digit numbers
  - "In parts" method 1 ("the arrow way") strategy
    68 - 21
    = 68 - 20 - 1
    = (68 - 20) - 1 Key Ideas: Subtract subtrahend parts in any order
    = 48 - 1 Lesson 2: 68 - 20 = 60 - 20 + 8
    = 47
  - "In parts" method 2 strategy

68 - 19
= 68 - 20 + 1 ← subtracting 20 is too much by 1 so we add back 1
= (68 - 20) + 1 Key Ideas: Subtract from minuend (add) in any order
= 48 + 1 Lesson 2: 68 - 20 = 60 - 20 + 8
= 49

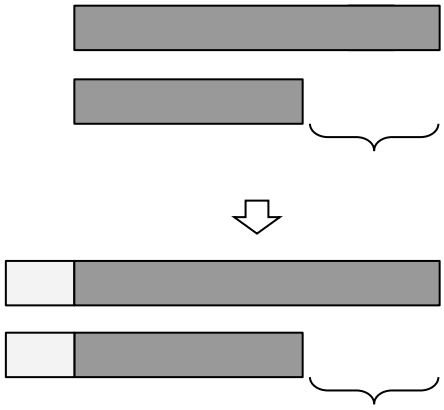
Check: Problem Set problem #1c

Adding and Subtracting Two-Digit Numbers (Continued)

Goals:

- Observe compensation (with linking/snap cubes) and use compensation to subtract two-digit numbers
  - Compensation strategy

34 - 28
= (2 + 34) - (2 + 28)
= 36 - 30 Lesson 2: 36 - 30 = 30 - 30 + 6



Check: Problem Set problem #1b

- Build on Module 1 **Lessons 4-5** ("make 10" strategy) to add two-digit numbers
  - "Make multiple of 10" strategy

28 + 36
= 28 + (34 + 2)
= (28 + 2) + 34 Key Ideas: Add in any order
= 30 + 34 Lesson 2: 30 + 34 = 30 + 30 + 4
= 64

Check: Problem Set problem #2b

Word Problems

Goals:

- Solve one- and two-step word problems using tape diagrams and addition and subtraction strategies from **Lessons 2-4**

  Focus: Concept Development problems #1, #4

  Check: Problem Set problems #3, #4

Notes to teacher:

- Will revisit/reinforce one- and two-step word problems in **Lesson 16** with "place value" strategies

Topic B: Strategies for Composing a Ten

Suggestions: Incorporate drawing place value disks in Lessons 6-7 (then Lesson 8 can be omitted or used as review)

Adding Two-Digit Numbers: Disks

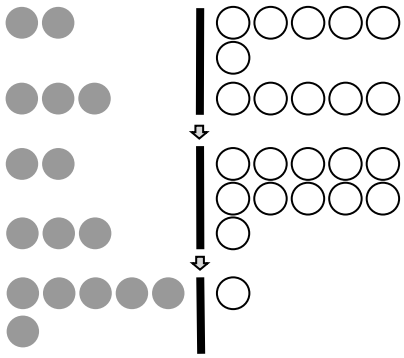
Goals:

- Build on **Lesson 2** (and Grade 1 Modules 4 & 6) by using place value disks to add two two-digit numbers involving composing a ten
  - Example:

    26 + 35
    = (20 + **6**) + (30 + **5**)

    = 20 + 30 + (**6 + 5**)
    = 20 + 30 + **11**

    = 20 + 30 + **10** **+ 1**
    = 60 + 1
    = 61

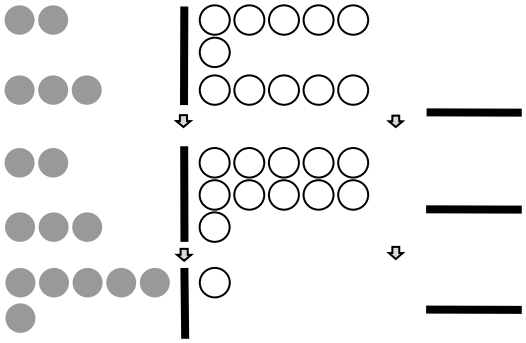


Check: Problem Set problem #2c

Adding Two-Digit Numbers: Disks and Written Vertical Form

Goals:

- Build on **Lesson 6** by using place value disks and written vertical form to add two two-digit numbers involving composing a ten
  - Example:



✔ Check: Problem Set problem #1c

Adding Two-Digit Numbers: Drawings and Written Vertical Form

Goals:

- ↻ Review/reinforce Lesson 7 by drawing place value disks

✔ Check: Problem Set problem #1a

Adding Two-Digit Number to Three-Digit Number

Goals:

- Build on **Lessons 7-8** by using place value disk drawings and written vertical form to add a two-digit number to a three-digit number involving composing a ten

🔍 Focus: Concept Development problem #2

✔ Check: Problem Set problem #1c

Adding Two-Digit Number to Three-Digit Number (Continued)

Goals:

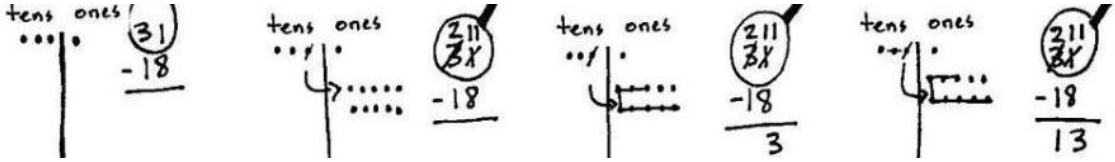
- ↻ **Review/reinforce** Lesson 9

  ✔ **Check**: Problem Set problem #1d

Topic C: Strategies for Decomposing a Ten

Suggestions:

- Incorporate drawing place value disks in Lessons 11-12 (then Lesson 13 can be omitted or used as review)
- Use / for exchange (decomposition) and -- for subtraction in place value drawings

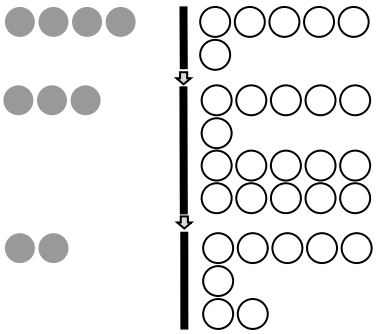


Subtracting Two-Digit Numbers: Disks

Goals:

- **Echo** Lesson 6 for subtraction:
  - Build on **Lesson 2** (and Grade 1 Modules 4 & 6) by using place value disks to subtract two-digit numbers involving decomposing a ten
    - Example:

      46 - 18
      = 40 + **6** - 10 - 8
      = 40 - 10 + **6** - 8 ← not enough to subtract
      = 30 + **10** - 10 + **6** - 8
      = 30 - 10 + **10 + 6** - 8
      = 30 - 10 + (**16** - 8)
      = 20 + 8
      = 28



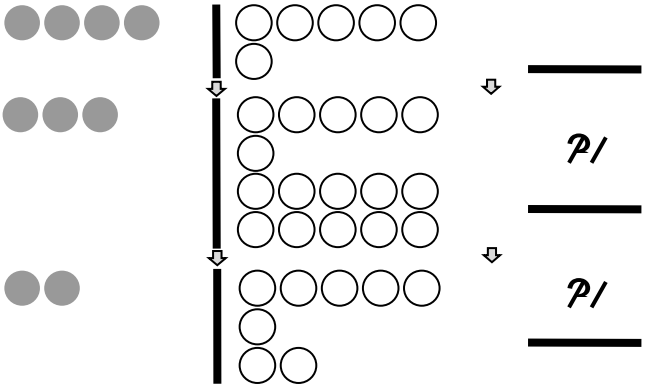
Focus: Concept Development problem #1 or #2

Check: Problem Set problem #2c-d

Subtracting Two-Digit Numbers: Disks and Written Vertical Form

Goals:

- Echo Lesson 7 for subtraction:
  - Build on **Lesson 11** by using place value disks and written vertical form to subtract two-digit numbers involving decomposing a ten
    - Example:



Focus: Concept Development problem #2

Check: Problem Set problem #1d-e

Subtracting Two-Digit Numbers: Drawings and Written Vertical Form

Goals:

- Echo Lesson 8 for subtraction:
  - ↻ Review/reinforce Lesson 12 by drawing place value disks

Focus: Concept Development problem #1

Check: Problem Set problem #1c

Subtracting Two-Digit Number from Three-Digit Number

Goals:

- Echo Lesson 9 for subtraction:
  - Build on **Lessons 12-13** by using place value disk drawings and written vertical form to subtract a two-digit number from a three-digit number involving decomposing a ten

    Check: Problem Set problem #1c

Subtracting Two-Digit Number from Three-Digit Number (Continued)

Goals:

- ↻ Review/reinforce Lesson 14

  Check: Problem Set problem #1c
- For Concept Development: Use subtraction as addition with unknown addend to "check" answer (e.g., to check 172 - 48 = 124, see if 48 + 124 = 172)

Word Problems (Continued)

Goals:

- Echo Lesson 5 with "place value" addition and subtraction strategies:
  - Solve one- and two-step word problems using tape diagrams and addition and subtraction strategies from **Lessons 7-8 and 12-13**

    Focus: Concept Development problems #1, #2, #4

    Check: Problem Set problem #3, #5

Notes to teacher:

- Will revisit/reinforce two-step word problems in **Lesson 31**

Topic D: Strategies for Composing Tens and Hundreds

Suggestions:

- Embed Lesson 29's subtotals ("Totals Below") into Lessons 19-21 as an intermediate step to transitioning to the vertical form (then Lessons 29-30 can be omitted)

- Incorporate drawing place value disks in Lessons 18-19 (then Lessons 20-21 can be omitted or used as review)

Composing Ten or Hundred when Adding Ones or Tens

Goals:

- Use place value and addition within 20 (Module 1 Lesson 4) to compose ten when adding ones and compose hundred when adding tens

  Check: Problem Set problems #1d, #2a

Adding Two Numbers: Disks

Goals:

- Echo Lesson 6 for two compositions:
  - Use place value disks to add two two-digit numbers involving composing a ten and a hundred
    - Example:

      49 + 73
      = (40 + **9**) + (70 + **3**)
      = 40 + 70 + (**9 + 3**)
      = 40 + 70 + **12**
      = 40 + 70 + **10 + 2** ← compose 10 ones into a unit of ten
      = 12 tens + 2 ← 4 tens + 7 tens + 1 ten = 12 tens
      = 100 + 20 + 2 ← compose 10 tens into a unit of hundred
      = 122

    Focus: Concept Development problem #2 or #3

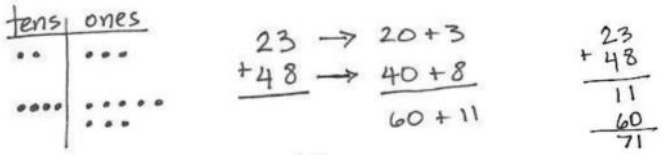
    Check: Problem Set problem #1c

Adding Two Numbers: Disks and Written Vertical Form

Goals:

- Echo Lesson 7 for two compositions:

- Build on **Lesson 18** by using place value disks and written vertical form to add two two-digit numbers involving composing a ten and a hundred



✓ **Check**: Problem Set problem #1d

Adding Two Numbers: Drawings and Written Vertical Form

Goals:

- **Echo** Lesson 8 for two compositions:
  - ↻ **Review/reinforce** Lesson 19 by drawing place value disks

    Focus: Concept Development problem #1

    ✓ **Check**: Problem Set problem #1c

Adding Two Numbers: Drawings and Written Vertical Form (Continued)

Goals:

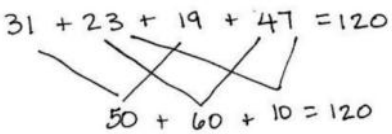
- ↻ **Review/reinforce** Lesson 20

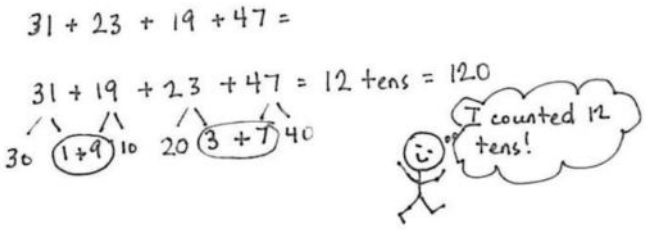
  ✓ **Check**: Problem Set problem #1d

Adding Up to Four Numbers

Goals:

- Use Module 1 addition key idea to make multiples of 10 when adding numbers





Focus: Concept Development problems #2, #5

Check: Problem Set problem #1c

Topic E: Strategies for Decomposing Tens and Hundreds

Suggestions:

- Incorporate drawing place value disks in Lessons 24-25 (then Lesson 26 can be omitted or used as review)
- Use / for exchange (decomposition) and -- for subtraction in place value drawings

Subtracting Multiples of 10

Goals:

- Build on **Lesson 2** to subtract multiples of 10 from three-digit numbers
  - Example:
    127 - 70
    = 100 + 27 - 70
    = (100 - 70) + 27
    = 30 + 27
    = 57

Key Ideas: Subtract from any part of the minuend

Focus: Concept Development problem #2

Check: Problem Set problem #1c

Subtracting from a Three-Digit Number: Disks

Goals:

- Echo Lesson 11 for two decompositions:
  - Use place value disks to subtract a two-digit number from a three-digit number involving decomposing a ten and a hundred
    - Focus: Concept Development problems #1, #3
    - Check: Problem Set problems #2a-b, e

Subtracting from a Three-Digit Number: Disks and Written Vertical Form

Goals:

- Echo Lesson 12 for two decompositions:
  - Build on **Lesson 24** by using place value disks and written vertical form to subtract from a three-digit number involving decomposing a ten and a hundred
    - Focus: Concept Development problem #1 or #2
    - Check: Problem Set problems #1b & g

Subtracting from a Three-Digit Number: Drawings and Written Vertical Form

Goals:

- Echo Lesson 13 for two decompositions:
  - ↻ Review/reinforce Lesson 25 by drawing place value disks
    - Focus: Concept Development problem #1 or #2
    - Check: Problem Set problem #1a-b

Subtracting from a Three-Digit Number with Zero(s)

Goals:

- Build on **Lessons 23-26** to subtract from three-digit numbers with zero in the tens (and ones place)
  - Focus: Concept Development problems #3, #4

✓ **Check**: Problem Set problems #2a & d

Subtracting from a Three-Digit Number with Zero(s) (Continued)

Goals:

- ↻ **Review/reinforce** Lesson 27

  🔍 **Focus**: Concept Development problem #1 or #2

  ✓ **Check**: Problem Set problems #1b-c

Topic F: Student Explanations of Written Methods

✂ **Cut/consolidate**: Can omit Lessons 29-30 (see Suggestion under Topic D) or consolidate Lessons 29-31 (see *Eureka Math's Notes on Pacing*)

"Totals Below" Written Method

Goals:

- Record addition process with the "totals below" written method

  ✓ **Check**: Problem Set problem #2b

Adding Two Numbers (Continued)

Goals:

- ↻ **Review/reinforce** Lessons 17-21, 29

  ✓ **Check**: Problem Set problems #3a-b

Word Problems (Continued)

Goals:

- ↻ **Review/reinforce** Lesson 16: Solve two-step word problems using tape diagrams and addition and subtraction strategies from **Lessons 7-8 and 12-13**

   **Focus**: Concept Development problem #3

   **Check**: Problem Set problem #3

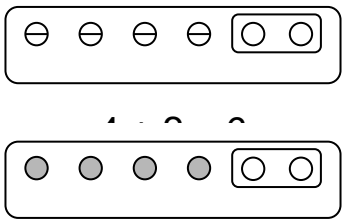
Module 5: Addition and Subtraction Within 1,000 with Word Problems to 100

Summary:

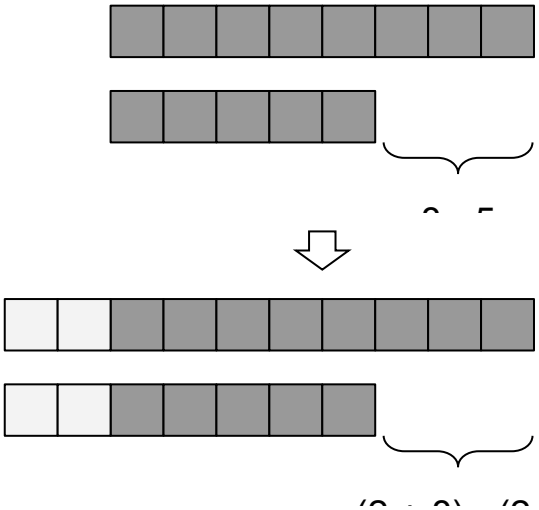
Strategy [Lesson(s)]	Addition	Subtraction	Key Ideas/Notes
Place value (Common units) [Lessons 2, 8 and on]	450 + 300 = **400** + 50 **+ 300** = **400 + 300** + 50 = 700 + 50 = 750	582 - 300 = **500** + 82 **- 300** = **500 - 300** + 82 = 200 + 82 = 282	• Addition and subtraction key ideas • Basis for vertical form (standard algorithms)
Make multiple of 100 [Lessons 3-5]	280 + 230 = **280** + 200 **+ 20** + 10 = **280 + 20** + 200 + 10 = 300 + 200 + 10 = 510	780 - 390 = **780** - 300 **- 80** - 10 = (**780 - 80**) - 300 - 10 = 700 - 300 - 10 = 390	• Addition and subtraction key ideas
In parts, method 1 (“The arrow way”) [Lessons 2-4]	450 + 300 = 450 + 100 + 100 + 100 450 +100→ 550 +100→ 650 +100→ 750 = 750 280 + 230 = 280 + 200 + 30 280 +200→ 480 +30→ 510 = 510	582 - 300 = 582 - 100 - 100 - 100 582 -100→ 482 -100→ 382 -100→ 282 = 282 780 - 390 = 780 - 300 - 50 - 30 - 10 780 -300→ 480 -50→ 430 -30→ 400 -10→ 390 = 390	• Use arrows or number line
In parts, method 2	120 **+ 190** = 120 **+ 200 - 10** = 320 - 10 = 310	780 **- 390** = 780 **- 400 + 10** = 380 + 10 = 390	• Use number line
Count on [Lessons 2 & 18]		582 - 300 = __ → 300 + __ = 582 → 300 + 200 + 82 = 582 → 582 - 300 = 282	• Subtraction as addition with unknown addend • Use (empty) number line (Module 3 Lesson 9)
Compensation [Lessons 6 & 18]		780 - 390 = (780 + 10) - (390 + 10) = 790 - 400 = 390	• Show simple case with linking cubes (Module 4 Lesson 4) • Use tape diagram

Key Ideas:

- **Addition**: Because of the associative and commutative properties of addition, we can add numbers in *any order* and still keep the sum (total) the same
- **Subtraction**: We can subtract parts of the subtrahend in *any order* and from *any part* of the minuend (total) that is greater than or equal to the subtrahend part(s) and still keep the difference the same
- **Subtraction as addition with unknown addend**: "6 - 4 = __" also means "4 + __ = 6"



- **Compensation**: Addition (or subtraction) of the same number to the minuend and subtrahend keeps the difference the same
  - Example:
    8 - 5 = (2 + 8) - (2 + 5)



Materials:

- Place value disks [Topics A-C]

Suggestions: If student learning of Module 4 is solid, move through Module 5 more quickly because it applies the same ideas to larger numbers

Topic A: Strategies for Adding and Subtracting Within 1,000

Sequences of 10 or 100 More or Less

Goals:

- Echo Module 4 Lesson 1 for tens and hundreds:
  - Build on Module 3 **Lessons 19-20** to:
    - Identify rule in sequence as +10, -10, +100, or -100
    - Determine next number in sequence based on given rule

  Check: Problem Set problems #2b-c

Suggestions: Omit (or assign as "challenge problems") Problem Set problem #4, Exit Ticket, and Homework problem #4; these types of problems will be covered in later lessons of the module

Adding and Subtracting Multiples of 100

Goals:

- Echo Module 4 Lesson 2 for multiples of 100:
  - Build on Module 1 to develop strategies for adding multiples of 100
    - "Place value" (common units) strategy

      450 + 300
      = 400 + 50 + 300
      = (400 + 300) + 50
      = 700 + 50
      = 750

      Key Ideas: Add in any order
    - "In parts" method 1 ("the arrow way") strategy

      450 + 300
      = (450 + 100) + 100 + 100
      = (550 + 100) + 100

      Key Ideas: Add in any order

= 650 + 100
= 750

450 +100→ 550 +100→ 650 +100→ 750

✓ Check: Problem Set problem #1c

- Build on Module 1 to develop strategies for subtracting multiples of 100
  - "Place value" (common units) strategy
    582 - 300
    = 500 + 82 - 300
    = (500 - 300) + 82
    = 200 + 82
    = 282

    Key Ideas: Subtract from any part of minuend
  - "In parts" method 1 ("the arrow way") strategy
    582 - 300
    = (582 - 100) - 100 - 100
    = (482 - 100) - 100
    = 382 - 100
    = 282

    Key Ideas: Subtract parts in any order

    582 -100→ 482 -100→ 382 -100→ 282
- "Count on" strategy
  582 - 300 = __
  - 300 + __ = 582

    Key Ideas: Subtraction as addition of unknown addend
  - 300 + 200 + 82 = 582
  - so 582 - 300 = 282

✓ Check: Problem Set problem #2c

Adding Three-Digit Numbers

Goals:

- Echo Module 4 Lessons 3-4 for three-digit numbers:
  - Build on **Lesson 2** to add three-digit numbers
    - "In parts" method 1 ("the arrow way") strategy
      280 + 230
      = 280 + 200 + 30
      = (280 + 200) + 30
      = 480 + 30
      = 510

      Key Ideas: Add in any order

      280 +200→ 480 +30→ 510
  - Build on **Module 4 Lesson 4** ("make 10" strategy) to add three-digit numbers

- "Make multiple of 100" strategy
  280 + 230
  = **280** + 200 **+ 20** + 10
  = (**280 + 20**) + 200 + 10
  = 300 + 200 + 10
  = 510

Key Ideas: Add in any order

Focus: Concept Development problems #3, #5

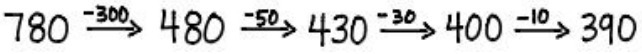
Check: Problem Set problems #2b & d

Subtracting Three-Digit Numbers

Goals:

- Echo Module 4 Lessons 3-4 for three-digit numbers:
  - Build on **Lesson 2** to subtract three-digit numbers
    - "In parts" method 1 ("the arrow way") strategy
      780 - 390
      = 780 - 300 - 90
      = (780 - 300) - 90
      = 480 - 50 - 40
      = 390

Key Ideas: Subtract parts in any order



  - Build on **Lesson 3** to subtract three-digit numbers
    - "Make multiple of 100" strategy
      780 - 390
      = **780** - 300 **- 80** - 10
      = (**780 - 80**) - 300 - 10
      = 700 - 300 - 10
      = 390

Key Ideas: Subtract parts in any order

Focus: Concept Development problem #3

Check: Problem Set problems #2a & c

Adding Three-Digit Numbers (Continued)

Goals:

- ↻ **Review/reinforce** Lesson 3: "Make multiple of 100" strategy
  - Example:
    199 + 25
    = 199 + (1 + 24)
    = (199 + 1) + 24
    = 200 + 24
    = 224

    Key Ideas: Add in any order

  Focus: Concept Development Parts 2-3

  Check: Problem Set problems #2c & f

Suggestions: Write continuous equations (see examples above) rather than separate equations to keep track of all parts of the expression

Subtracting Three-Digit Numbers (Continued)

Goals:

- **Echo** Module 4 Lesson 4 for three-digit numbers:
  - Use compensation to subtract three-digit numbers
    - Compensation strategy
      514 - 290
      = (514 + 10) - (290 + 10)
      = 524 - 300
      = 224

    Focus: Concept Development problems #2, #3

    Check: Problem Set problems #1b & d, #2c

Adding and Subtracting Three-Digit Numbers (Continued)

Goals:

- ↻ **Review/reinforce** Lessons 2-6

  Check: Problem Set problem #1

Topic B: Strategies for Composing Tens and Hundreds Within 1,000

Cut/consolidate: Can omit Lessons 8-9 if students are ready to use place value disk drawings without first using the disks/chart

Adding Three-Digit Numbers: Disks and Written Vertical Form

Goals:

- **Echo** Module 4 Lessons 6-7 for three-digit numbers:
  - Build on **Lesson 2** by using place value disks and written vertical form to add two three-digit numbers involving composing a hundred
    - Example:

      211 + 95
      = (200 + **10** + 1) + (**90** + 5)
      = 200 + (**10 + 90**) + (1 + 5)
      = 200 + **100** + 6
      = 300 + 6
      = 306

    Focus: Concept Development problem #2

    Check: Problem Set problem #1g

Adding Three-Digit Numbers: Disks and Written Vertical Form (Continued)

Goals:

- **Echo** Module 4 Lessons 18-19 for three-digit numbers:
  - Build on **Lesson 8** by using place value disks and written vertical form to add two three-digit numbers involving composing a hundred and composing a ten

    Focus: Concept Development problem #1 or #2

    Check: Problem Set problem #1c

Adding Three-Digit Numbers: Drawings and Written Vertical Form

Goals:

- Echo Module 4 Lesson 8 for three-digit numbers:
  - ↻ Review/reinforce Lesson 8 (one composition) by drawing place value disks
    - Focus: Concept Development problem #2
    - Check: Problem Set problem #1c

Adding Three-Digit Numbers: Drawings and Written Vertical Form (Continued)

Goals:

- Echo Module 4 Lesson 20 for three-digit numbers:
  - ↻ Review/reinforce Lesson 9 (two compositions) by drawing place value disks
    - Focus: Concept Development problem #1
    - Check: Problem Set problem #1c

Adding Three-Digit Numbers (Continued)

Goals:

- ↻ Review/reinforce Lessons 2-11
  - Focus: Concept Development problem #2 or #3
  - Check: Problem Set problem #2

Topic C: Strategies for Decomposing Tens and Hundreds Within 1,000

Subtracting Three-Digit Numbers: Disks and Written Vertical Form

✂ **Cut/consolidate**: Can omit if students are ready to use place value disk drawings without first using the disks/chart

Goals:

- **Echo** Module 4 Lessons 11-12 for three-digit numbers:
  - Build on **Lesson 2** by using place value disks and written vertical form to subtract three-digit numbers involving decomposing a ten or hundred
    - Example:

      254 - 135

      = 200 + 50 + **4** - 100 - 30 - 5

      = 200 - 100 + 50 - 30 + **4** - 5 ← not enough to subtract

      = 200 - 100 + 40 + **10** - 30 + **4** - 5

      = 200 - 100 + 40 - 30 + **14** - 5

      = 100 + 10 + 9

      = 119

🔍 **Focus**: Concept Development problems #1, #2

✓ **Check**: Problem Set problem #2c-d

Subtracting Three-Digit Numbers: Drawings and Written Vertical Form (Continued)

Goals:

- **Echo** Module 4 Lesson 13 for three-digit numbers:
  - ↻ **Review/reinforce** Lesson 13 (one decomposition) by drawing place value disks
  - Verify answer by checking equivalent addition equation

🔍 **Focus**: Concept Development problem #1

✓ **Check**: Problem Set problem #1b

Subtracting Three-Digit Numbers: Drawings and Written Vertical Form (Continued)

Goals:

- Echo Module 4 Lessons 24-26 for three-digit numbers:
  - Build on **Lesson 14** by using drawings and written vertical form to subtract three-digit numbers involving decomposing a ten and decomposing a hundred
    - Focus: Concept Development problem #3
    - Check: Problem Set problem #1d

Subtracting from a Three-Digit Number with Zero(s)

Goals:

- Echo Module 4 Lesson 27 for three-digit numbers:
  - Build on **Lessons 13-15** to subtract from three-digit numbers with zero in the tens (and ones place)
    - Focus: Concept Development problems #1, #2
    - Check: Problem Set problems #1a-b & e

Subtracting from a Three-Digit Number with Zero(s) (Continued)

Goals:

- Echo Module 4 Lesson 28 for three-digit numbers:
  - ↻ Review/reinforce Lesson 16
    - Focus: Concept Development problem #2, #3
    - Check: Problem Set problems #1c & e

Subtracting from a Three-Digit Number with Zero(s) (Continued)

Goals:

- Build on **Lessons 2 and 6** by using compensation and "place value" strategies to subtract from multiple of 100
  - Example:
    300 - 159
    = (300 - 1) - (159 - 1) Key Ideas: Compensation
    = 299 - 158
    = 200 + 90 + 9 - 100 - 50 - 8
    = 200 - 100 + 90 - 50 + 9 - 8 Key Ideas: Subtract from any part of minuend
    = 100 + 40 + 1
    = 141

    Focus: Concept Development problem #1

    Check: Problem Set problem #5a
- Build on **Lesson 2** ("count on" strategy) to subtract from multiple of 100
  - Example:
    400 - 278 = __
    - 278 + __ = 400

      Key Ideas: Subtraction as addition of unknown addend

    - 278 + 2 + 20 + 100 = 400
    - so 400 - 278 = 122

    Focus: Concept Development problem #2

    Check: Problem Set problem #1b

Topic D: Student Explanations for Choice of Solution Methods

Adding and Subtracting Three-Digit Numbers

Goals:

- ↻ **Review/reinforce** Lessons 2-18

Adding and Subtracting Three-Digit Numbers (Continued)

Goals:

- ↻ **Review/reinforce** Lessons 2-18

Module 6: Foundations of Multiplication and Division

Summary:

- Addition of equal groups (sum of equal addends): $n + n + \ldots + n$
- Progression of learning:
  - objects in equal groups → objects in array → squares in rectangle
  - groups ↔ rows or columns
- To prep students for Grade 3:
  - Multiplication will be *shorthand* for addition of equal groups
    - Example: $7 \times 2 = 2 + 2 + 2 + 2 + 2 + 2 + 2$ (total of 7 groups of 2)
  - Area of rectangle: counting total number of unit squares that fit inside rectangle

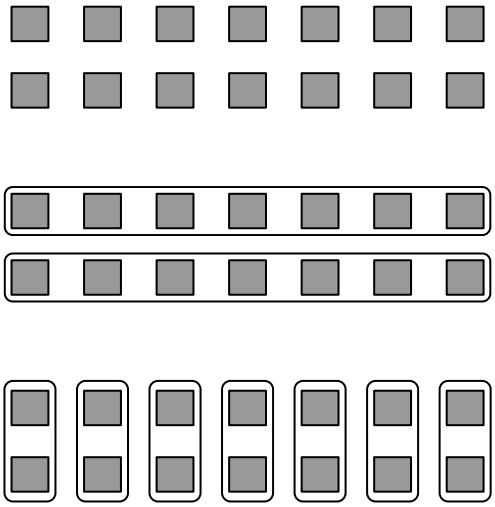
Definitions:

- **Even number**: a number equal to $n + n$ for some whole number n ("twice a whole number," "doubles").
  - Example: $14 = 7 + 7$
- **Odd number**: a number that is not even

Key Ideas:

- **Interpretations of an even number**:
  - An even number is equal to $2 + 2 + \ldots + 2$
    Reasoning:

14



= 7 + 7
(so by definition of even number, 14 is

    a. An even number is in the sequence of skip-counting by twos: $2, 4\ (= 2 + 2), 6\ (= 4 + 2 = 2 + 2 + 2), etc.$
    b. An even number is the total when all objects are paired up with none left unpaired.
  - An even number has last digit 0, 2, 4, 6, or 8.
- **Interpretations of an odd number**:

- An odd number is the total when all objects are paired up with one left unpaired.
  Example: $15 = 7\ pairs\ + 1\ unpaired$
- An odd number is equal to $even\ number + 1$ (or $even\ number\ - 1$).
  Example: $15 = 14 + 1,\ 15 = 16 - 1$

Materials:

- Counters (up to 30 per student/pair) [Topics A-B, D]
- Color Tiles (up to 25 per student/pair) [Topics B-D]
- Ruler [Topic C]

Topic A: Formation of Equal Groups

Equal Groups: Objects

✂ **Cut/consolidate**: Can consolidate with Lesson 2 (*Eureka Math's Notes on Pacing*)

Goals:

- Arrange a set of objects into equal groups

  ✓ **Check**: Problem Set problems #2, #4

Equal Groups: Drawings and Addition Equation

Goals:

- Write the addition equation that corresponds to the drawing and statement "__ groups of __ equals __"
  - Example:

"3 groups of 5 equals 15"

__ + __ + __ → 5 + 5 + 5 → 5 + 5 + 5 = 15

✓ **Check**: Problem Set problem #1

Equal Groups: Drawings and Addition Equation (Continued)

Goals:

- ↻ **Review/reinforce** Lesson 2

  ✓ **Check**: Problem Set problem #1a
- Add pairs of addends ("doubles") as a strategy to find sum more efficiently

Equal Groups: Tape Diagrams

Goals:

- Build on **Lesson 2** by representing equal groups with tape diagram (or number line)

Check: Problem Set problems #1a & c

Topic B: Arrays and Equal Groups

Suggestions: Incorporate Lesson 8's Concept Development into Lesson 5 or 6 and Problem Set into Lesson 7 (then Lesson 8 can be omitted or used as review)

Composing Arrays: Objects

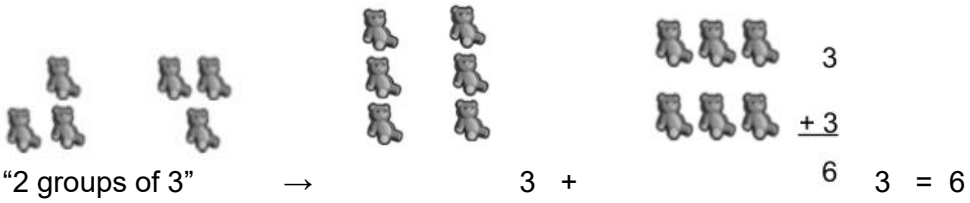
Goals:

- Organize a set of equal groups into an array of rows and columns
  - "Group" is now "row" or "column"

Focus: Concept Development problems #1, #2

Check: Problem Set problem #2

Suggestions: Include the addition equation that corresponds with each array



Decomposing Arrays: Objects

Goals:

- Decompose array into rows or columns and write the corresponding addition equation

Check: Problem Set problems #1c-d

Arrays: Drawings

Goals:

- Make array drawings and use lines between columns or rows to distinguish the equal groups by columns or rows

✔ **Check**: Problem Set problem #2

Arrays: Square Tiles

Goals:

- ↻ **Review/reinforce** Lessons 5-7 with square tiles

✔ **Check**: Problem Set problem #3

Word Problems

Goals:

- Solve word problems involving addition of equal groups
  - Draw groups, array, or tape diagram
  - Write corresponding addition equation

🔍 **Focus**: Concept Development problems #2, #3

✔ **Check**: Problem Set problems #1, #5

Topic C: Rectangular Arrays as a Foundation for Multiplication and Division

Composing Rectangles: Square Tiles

✂ **Cut/consolidate**: Can omit or consolidate with Lesson 11

Goals:

- Compose rectangle or square from array of square tiles
- Write addition equation to find total number of square tiles in rectangle
- Note there can be no overlap or gap

✓ **Check**: Problem Set problems #2, #3a

Composing Rectangles: Square Tiles (Continued)

Goals:

- Compose rectangles with different numbers of rows and columns for a given total number of square tiles

✓ **Check**: Problem Set problem #2

Drawing Rectangles

Goals:

- Use one square tile (and ruler) to draw rectangle composed of square tiles

✓ **Check**: Problem Set problem #3

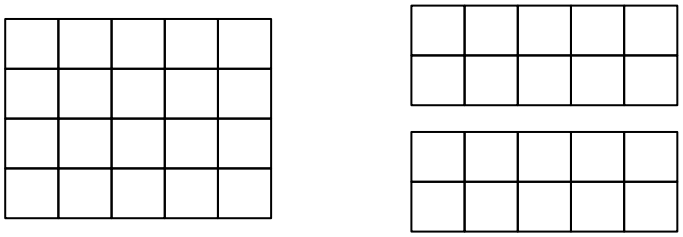
Suggestions: For Problem Set problems #1 and #2, allow students to use one square tile to be consistent with Concept Development and Homework

Decomposing Rectangles: Square Tiles

Cut/consolidate: Can omit because concept is a Grade 3 Standard (2.MD.7)

Goals:

- Decompose rectangle into smaller rectangles and express total number of square tiles as sum of two repeated addition sums



5 + 5 + 5 + 5 = (5 + 5) + (5 + 5)

Check: Problem Set problem #2

- Find the total number of square tiles in a rectangle when one row or column is removed

Decomposing and Composing Rectangles: Paper Squares

Goals:

- Decompose rectangle into rows and columns, and write corresponding addition equations for total number of square tiles in rectangle
  - Example:
    - 2 rows of 4 squares → 4 + 4 = 8
    - 4 columns of 2 squares → 2 + 2 + 2 + 2 = 8

Notes to teacher:

- Flexibility in switching between rows and columns is necessary for reasoning and understanding the relationship between the two main interpretations of even numbers (**Lessons 17-18**)

Materials: Lesson 14 Template (p. 198 of Teacher Edition), scissors

Drawing Rectangles (Continued)

Goals:

- Draw rectangle with given dimensions ("__ rows of __" or "__ columns of __") and write corresponding addition equation for total number of square tiles in rectangle

Tesselation Designs

Cut/consolidate: Can omit or use as enrichment because not directly relevant to Grade 2 Standards

Goals:

- Use colored squares (and triangles) to create a rectangular design ("core unit") and repeat "core unit" to create pattern ("tesselation")

Materials: Lesson 16 Template (p. 221 of Teacher Edition), colored pencils/crayons, scissors

Topic D: The Meaning of Even and Odd Numbers

Even Numbers

Goals:

- Define even number

  Check: Problem Set problem #1c
- Observe and give reasoning for why an even number is also $2 + 2 + \ldots + 2$ and skip-counting by twos (interpretations of an even number #1 and #1a)

  Check: Problem Set problem #2b

Even Numbers (Continued)

Goals:

- Build on **Lesson 17** to observe and give reasoning for why an even number is the total when all objects are paired up with none left unpaired (interpretations of an even number #1b)
- Use definition and interpretations of an even number to determine if a number is even or not

  Check: Problem Set problems #1, #6

Even and Odd Numbers

Goals:

- Define odd number

  ✓ Check: Problem Set problem #3b
- Observe and give reasoning for additional interpretations of an odd number
- Use definitions and interpretations to determine if a number is even or odd
  - Note: If you want to show a number is odd by using the definition ("not even") or interpretation of an odd number #2 ("even number + 1" or "even number - 1"), then you **also** need to show WHY the number is not even or WHY an addend or the minuend (total) is even
    - Example: 19 is odd because $19 = 18 + 1 = even\ number + 1$ **and** 18 is even because $18 = 9 + 9$ (or $18 = 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2$).

  ✓ Check: Problem Set problems #5a-b

Sums of Even or Odd Numbers

Goals:

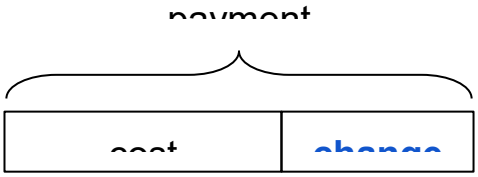
- Use definitions and interpretations of even, odd numbers and reasoning to conclude the following:
  - even + even = even
  - even + odd = odd, odd + even = odd
  - odd + odd = even

  ✓ Check: Problem Set problems #2b-d

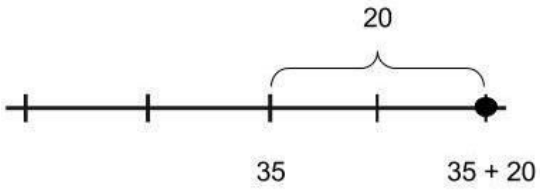
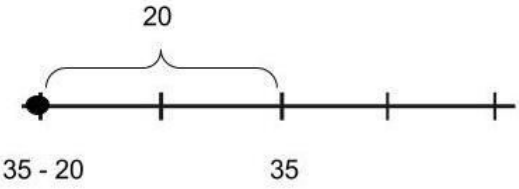
Module 7: Problem Solving with Length, Money, and Data

Definitions:

- **To "make change"**:
  - cost + **change** = payment
  - **change** = payment - cost



- **To measure length** with (or using) a specified **length unit**: to <u>count the number of length units that fit</u>
  (1) side by side (no overlap or extra space between) and
  (2) from one endpoint to the other endpoint of the object
- **To estimate (approximate) length**: to find the number of units that is <u>closest</u> to the actual length of the object
- **Inch, foot, yard**: 12 inches = 1 foot, 3 feet = 1 yard
- **"More than", "less than" on the number line**:

Word form	*Meaning (Definition)*
20 yards more than 35 yards	35 + 20 
20 yards less than 35 yards	35 - 20 

Key Ideas:

- **Relationship between measurement units and values**:

Measuring with a …	yields a …
larger unit	*smaller* value
smaller unit	*larger* value

Reasoning: one larger unit takes more space so fewer can fit in a given space; one smaller unit takes less space so it takes more to fit in a given space

Materials:

- Money [Topic B]
- Centimeter cubes [Topic C]
- Color tiles [Topic C]
- Ruler [Topics D & F]
- Tape measure [Topic D]

Topic A: Problem Solving with Categorical Data

Categories and Table with Counts

Cut/consolidate: Can consolidate with Lesson 2 (*Eureka Math's Notes on Pacing*)

Goals:

- Sort animals into categories based on characteristics such as classification (bird, mammal, reptile, fish), habitat (arctic, woodland, ocean)
- Record category counts into table
- Solve word problems involving addition, subtraction, or comparison of category counts (see questions on p. 17 of Teacher Edition)

Check: Problem Set problems #1, #3a-b

Materials: See p. 15 of Teacher Edition; will continue to use in Lesson 2

Picture Graph

Goals:

- Build on **Lesson 1** by representing categorical data as (vertical and horizontal) "picture graphs"

Check: Problem Set problems #1a-c

Materials: Lesson 2 Templates 1-2 (pp. 46-47 of Teacher Edition)

Bar Graph

Cut/consolidate: Can consolidate with Lesson 4 (*Eureka Math's Notes on Pacing*)

Goals:

- Build on **Lesson 2** by representing categorical data as (vertical and horizontal) bar graphs

- Observe that the category count equals the length (or height) of the bar measured by the count axis (number line)

✓ Check: Problem Set problem #2a

 Materials: Lesson 3 Template 2 (p. 62 of Teacher Edition)

Bar Graph (Continued)

Goals:

- ↻ Review/reinforce Lesson 3

✓ Check: Problem Set problems #1a-b

Word Problems

Goals:

- ↻ Review/reinforce Lesson 3

✓ Check: Problem Set problems #2a-b

Topic B: Problem Solving with Coins and Bills

Coins

Goals:

- Use coin values and addition strategies to find total value of a set of coins

✓ Check: Problem Set problems #4, #12

Word Problems with Coins

Goals:

- Build on **Lesson 6** to solve word problems involving addition (and/or subtraction) of values of coins

  ✓ Check: Problem Set problems #2, #4

Word Problems with Dollar Bills

Goals:

- Solve word problems involving addition (and/or subtraction) of values of dollar bills

  ✓ Check: Problem Set problems #2, #3

Different Coin Combinations

Goals:

- Compose different coin combinations with the same total value

  🔍 Focus: Concept Development Part 1

  ✓ Check: Problem Set problem #2
- Solve word problems involving composition of different coin combinations with the same total value

  🔍 Focus: Concept Development Part 2 Problem #1

  ✓ Check: Problem Set problem #6

Fewest Number of Coins

Goals:

- Find the coin combination that makes the given total value with the fewest number of coins and observe:

  🔑 Key Ideas:
  - Concept Development Part 2: Combination with fewest coins is reached when there is no group of coins that can be exchanged for fewer coins
  - Concept Development Part 3: Strategy to find combination with fewest coins - start with highest coin value possible and then work down

- Example: 27¢ = 25¢ + 1¢ + 1¢

✔ **Check**: Problem Set problem #3

Making $1 or Making Change from $1

✂ **Cut/consolidate**: Can omit or consolidate with Lesson 12 (*Eureka Math's Notes on Pacing*)

Goals:

- Define to "make change"
- Use strategies for subtraction or addition with unknown addend to "make change" from $1 (payment = 100¢)

🔍 **Focus**: Concept Development Part 1

✔ **Check**: Problem Set problem #2b-c

Making $1 or Making Change from $1 Word Problems

Goals:

- Build on **Lesson 11** to solve word problems involving making $1 or making change from $1

🔍 **Focus**: Concept Development Parts 1 & 3

✔ **Check**: Problem Set problem #2

Word Problems with Coins or Dollar Bills

Goals:

- Solve two-step word problems involving addition and/or subtraction of coin or dollar bill values

✔ **Check**: Problem Set problems #1, #2

Topic C: Creating an Inch Ruler

Cut/consolidate: Can consolidate Lessons 14 and 15 (*Eureka Math's Notes on Pacing*)

Measuring Length with One Square-Inch Tile

Goals:

- **Echo** Module 2 Lesson 2 (iterated length units) for inches:
  - Use the "mark and move forward" technique with one square-inch tile to measure and estimate lengths of linear objects

    Check: Problem Set problem #1

Measuring with Ruler

Goals:

- **Echo** Module 2 Lesson 3 (create and measure with ruler) for inches:
  - Define inch, foot
  - Create and use inch ruler to measure lengths of objects
  - Compare and add or subtract lengths

  Check: Problem Set problems #6, #7b

Topic D: Measuring and Estimating Length Using Customary and Metric Units

Measuring with Customary Units

Goals:

- Define yard
- Use inch ruler and yardstick (or tape measure) to measure lengths of objects
- Determine the appropriate unit (inch, foot, yard) for measuring an object

Focus: Concept Development Centers 3-4 (Recording Sheet)

Estimating with Mental Benchmarks

Goals:

- Echo Module 2 Lesson 5 (mental benchmarks) for inches/feet/yards:
  - Use "mental benchmarks" by "picturing them in your head to estimate the length of an object"
    - Sample mental benchmarks:
      - width of quarter: about 1 inch
      - length of paper: about 1 foot
      - width of door: about 1 yard

Check: Problem Set problems d-e

Measuring with Different Units

Goals:

- Echo Module 2 Lesson 7 (comparison of different unit measurements) for centimeters and inches:
  - Measure objects with units of different size (e.g., centimeters and inches) and observe the relationship between measurement units and values

Check: Problem Set problems #4, #5

Comparing Lengths

Goals:

- Echo Module 2 Lesson 6 for inches/feet/yards:
  - Use the relationship between comparing and measuring lengths and definition of subtraction (or addition with unknown addend) to find difference in lengths

    Check: Problem Set problem #2

Topic E: Problem Solving with Customary and Metric Units

Word Problems

Goals:

- Build on **Lesson 19** to solve one-step word problems involving subtraction (or addition with unknown addend) of lengths

  Focus: Concept Development Part 1 (Problem Set problem #1)

  Check: Problem Set problem #2
- Solve two-step word problems involving addition (and subtraction) of lengths

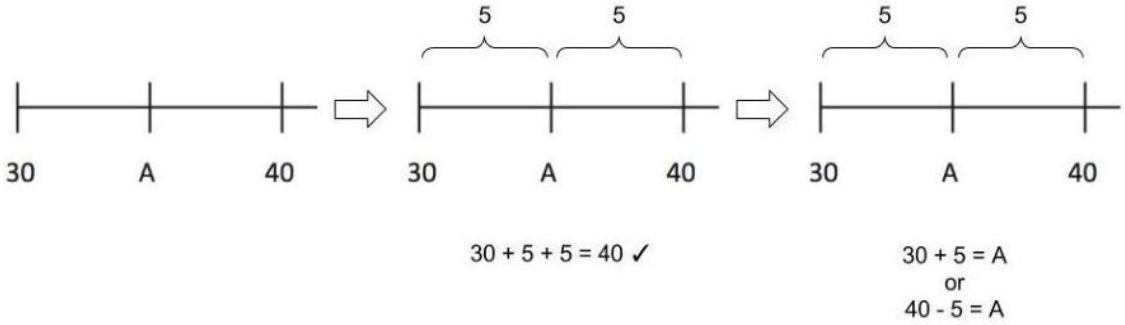
  Focus: Concept Development Part 2 (Problem Set problem #3)

  Check: Problem Set problem #4

Finding Unlabeled Point on Number Line

Goals:

- Use definitions of addition or subtraction to determine if number line has been marked by “units” of 5 or 10 and then find value of unlabeled point



Focus: Concept Development problem #1

Check: Problem Set problem #2

- Use definitions of addition or subtraction to find values of unlabeled points on the number line marked by "units" of 5 or 10

Focus: Concept Development problems #2, #3

Check: Problem Set problems #4, #6

Finding Distance on Number Line

Goals:

- Build on **Lesson 21** to find "more than", "less than" on the number line

Focus: Concept Development problems #1, #2

Check: Problem Set problems #1a & c, #2a & c

- Use definition of addition or subtraction to find distance (or length) between two points on number line (or to find values of points given distance in between)

Focus: Concept Development problem #3

Check: Problem Set problem #4

Topic F: Displaying Measurement Data

Cut/consolidate: Can omit Lesson 26 or consolidate with Lesson 25 (*Eureka Math's Notes on Pacing*)

Suggestions: Use grid paper to display line plots in Lessons 24-26

Table with Counts

Goals:

- Record data (measurements) as tally marks in a table and solve comparison problems using information in the table

  ✔ Check: Problem Set problems #1, #2

Line Plot

Goals:

- Display measurement data as line plot

  🔍 Focus: Concept Development Part 1

  ✔ Check: Problem Set problem #1

- ↻ Review/reinforce Lesson 23 and Lesson 24 Part 1

  🔍 Focus: Concept Development Parts 2-3

  ✔ Check: Problem Set problem #2

Notes to teacher:

- For line plots:
  - Label horizontal axis (scale) with unit of measurement
  - Use double hash mark to skip numbers

Line Plot (Continued)

Goals:

- Build on **Lesson 24** by displaying measurement data as line plot, solving problems involving comparison and totals, and drawing conclusions or making inferences based on the data

  🔍 Focus: Concept Development Part 1 or 2

  ✔ Check: Problem Set problem #2

Line Plot (Continued)

Goals:

- ↻ **Review/reinforce** Lesson 25

  🔍 **Focus**: Concept Development Part 1

  ✔ **Check**: Problem Set problem #2
- Display measurement data as line plot with vertical scale

  🔍 **Focus**: Concept Development Part 2

Module 8: Time, Shapes, and Fractions as Equal Parts of Shapes

Summary:

- Geometry: attributes, classification, construction/drawing, and compositions of shapes [Lessons 1-6]
- Fractions: "equal" partitions of shapes [Lessons 7-12]
- Telling time: half, quarter-partitions of circle [Lessons 13-16]

Definitions:

- **Angle**: figure formed where two sides of a shape meet
  - **Right angle** ("square corner"): "L-shaped" corner; angle formed by sides of index card
- **Parallel lines**: lines that never cross or touch, even if they kept going in both directions
- **Polygon**: closed shape (no gap or overlap) with straight sides
- **Triangle**: polygon with three sides (and three angles)
- **Quadrilateral**: polygon with four sides (and four angles)
  - **Trapezoid**: quadrilateral with *at least one* pair of parallel sides
  - **Parallelogram**: quadrilateral with *two* pairs of parallel sides
  - **Rectangle**: quadrilateral with four right angles (special parallelogram)
  - **Rhombus**: quadrilateral with four equal sides (special parallelogram)
  - **Square**: quadrilateral with four equal sides and four right angles (rhombus and rectangle)
- **Pentagon**: polygon with five sides (and five angles)
- **Hexagon**: polygon with six sides (and six angles)
- **Cube**: solid shape with equal edges (and square faces)
- **Half/Third/Fourth**:
  - To "cut a shape into halves/thirds/fourths" means "to cut a shape into two/three/four parts with equal space ('equal parts')"
  - "1 half/third/fourth of a shape" means "1 part when a shape is cut into halves/thirds/fourths"
- **To tell time to the half or quarter hour**

Time	Analog Clock	Digital Clock (hour:minutes)
Three-*fifteen* *Quarter past* **3** o'clock	hour (short) hand pointed **between 3 and 4**, **closer to 3** minute (long) hand pointed *at 3*	**3**:*15*
Three-*thirty* *Half past* **3** o'clock	hour (short) hand pointed **halfway between 3 and 4** minute (long) hand pointed *at 6*	**3**:*30*

Three-*forty-five* *Quarter to* **4** o'clock	hour (short) hand pointed **between 3 and 4**, **closer to 4** minute (long) hand pointed *at 9*	**3**:*45*

- **a.m.**, **p.m.**
  - "a.m." for times starting at 12:00 midnight to right before 12:00 noon
  - "p.m." for times starting at 12:00 noon to right before 12:00 midnight

Materials:

- Attribute blocks [Topics A-B]
- Geoboards and rubber bands [Topics A, C]
- Rulers [Topic A]
- Index cards [Topic A]
- Tangrams [Topic A]
- Pattern blocks [Topic B]
- Clocks [Topic D]

Topic A: Attributes of Geometric Shapes

Shapes

Goals:

- Define angle
- Construct closed shapes with 3-6 sides or angles
- Identify number of sides and angles in a shape

Check: Problem Set problems #1d-f

Polygons

Goals:

- Construct polygons with specified attributes
- Name two-dimensional shapes based on attributes (see definitions above)
  - Review from Grades K-1: triangle, hexagon
  - New in Grade 2: polygon, quadrilateral, pentagon

Check: Problem Set problems #1c-f

Materials: See p. 25 of Teacher Edition for materials and instruction note

Polygons (Continued)

Goals:

- Draw polygons with specified attributes

  Focus: Concept Development Part 1

  Check: Problem Set problems #1b-c
- Sort polygons or draw specified polygons

  Focus: Concept Development Part 2

  Check: Problem Set problems #2c-d

Right Angles, Parallel Lines, and Quadrilaterals

Goals:

- Draw and identify right angles ("square corners") with index card, parallel lines with ruler

  Focus: Concept Development Part 1

  Check: Problem Set problems #1, #3a-d
- Draw quadrilaterals with specified attributes using ruler and index card
  - New in Grade 2: parallelogram (other quadrilaterals were introduced in Grades K-1 but were not drawn using ruler and index card in those grades)

  Focus: Concept Development Parts 2-4

  Check: Problem Set problems #4, #5

Cubes

Goals:

- Construct and draw cubes

  Check: Problem Set problem #6

Notes to teacher:

- Problem Set problem #1 and Homework problem #1 assume "when looking *straight* at the face of a cube"

Materials: See p. 70 of Teacher Edition for materials and instruction note

Topic B: Composite Shapes and Fraction Concepts

Composite Shapes

Goals:

- ↻ Review/reinforce Lessons 2-4: Name and describe attributes of polygons

- Cut tangram pieces (each student needs a set for the Problem Set, Homework, and Lesson 7 Concept Development Part 1)

Focus: Concept Development Part 1

Check: Problem Set problem #1

- Create composite shapes with tangrams

Focus: Concept Development Part 2

Check: Problem Set problem #2

Composite Shapes with Same (Congruent) Shapes

Goals:

- Create composite shapes made with the same (congruent) shapes

Check: Problem Set problems #1a-e

- Use definition of half, third, fourth to identify if a shape has been cut into halves, thirds, or fourths

Check: Problem Set problem #2

Half, Third, Fourth of a Shape

Goals:

- Use definition of half, third, fourth to:
  - Identify the shape that would cover one half, third, or fourth of the given shape
  - Identify the fraction corresponding to the shaded part(s) of the shape

Materials: Students need pattern blocks to complete Homework problems #1-4, #6

Topic C: Halves, Thirds, and Fourths of Circles and Rectangles

Suggestions:

- To check “equal parts” (parts that take up the same amount of space (area)), trace a part onto wax/patty paper and then see if it can fit exactly on top of the other part(s) after sliding/rotating/flipping
- Use finger to trace or outline “parts” and “whole” as count or identify parts, whole
- Consider the materials for each lesson

Halves

Cut/consolidate: Can consolidate with Lesson 10

Goals:

- Partition circle and rectangle into halves, and shade in one half of the shape
- ↻ Review/reinforce Lesson 7: Identify if a shape has been cut into halves

Check: Problem Set problems #2c-f, #3

Halves, Thirds, and Fourths

Goals:

- Echo Lesson 9 to include thirds and fourths:
  - Partition circle and rectangle into halves, thirds, or fourths, and shade in one half, third, or fourth of the shape
  - ↻ Review/reinforce Lesson 7: Identify if a shape has been cut into halves, thirds, or fourths

Check: Problem Set problems #1, #4a-e

One (“Whole”)

Goals:

- Identify the number of halves, thirds, or fourths to complete a rectangle or circle, which represents the number 1 (“whole”)

🔍 **Focus**: Concept Development Parts 1-2

✔ **Check**: Problem Set problems #1a-c, #2c-d

- Use the identified half, third, or fourth to draw 1 ("whole")
  - Note: more than one configuration is possible (preview of **Lesson 12 Part 3**)

🔍 **Focus**: Concept Development Part 3

✔ **Check**: Problem Set problem #3b

Equal Parts with Different Shapes

Goals:

- Observe and confirm the equality of halves, thirds, or fourths with different shapes

🔍 **Focus**: Concept Development Parts 1-2

✔ **Check**: Problem Set problem #1

Topic D: Application of Fractions to Tell Time

Telling Time to the Half or Quarter Hour

Goals:

- Build on Grade 1 **Module 5 Lessons 10-12** to tell time to the half or quarter hour

  ✔ **Check**: Problem Set problem #2
- Reason that quarter (fourth) of an hour is 15 minutes by
  - observing that the minute hand has traveled a quarter (fourth) of the clock's face when it starts at 12 and ends at 3, and
  - counting the minute marks from 12 to 3 by ones or groups of five minutes

Suggestions: Skip Concept Development Part 2 by borrowing clocks from other grades/ classrooms

Telling Time to Nearest Five Minutes

Goals:

- Tell time to the nearest five minutes

Check: Problem Set problem #3

a.m. and p.m.

Goals:

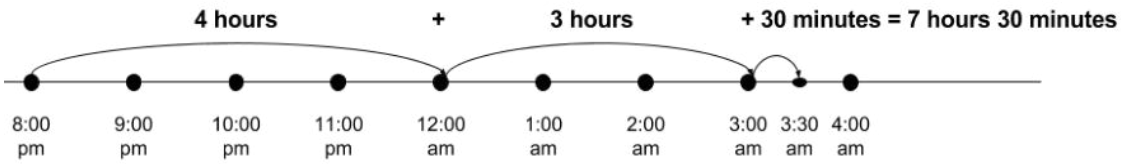
- Use a.m., p.m. to distinguish first twelve hours from second twelve hours in day

Check: Problem Set problems #1a-b, #3

Time Elapsed

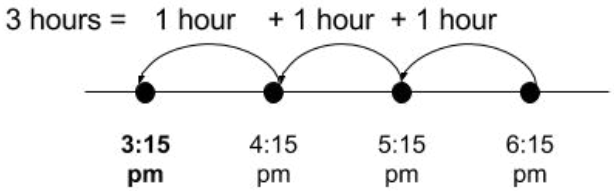
Goals:

- Find time elapsed between hours and/or half hours and solve word problems that involve finding elapsed time



Check: Problem Set problems #1c-f, #2a

- For Problem Set problems #2b-c and Homework problems #2b-c: Solve word problems that involve finding start or end time given time elapsed and end or start time, respectively



Suggestions: Use the number line to solve elapsed time problems as an additional or alternative tool to the physical clock (see examples above)