

# ClassHero

## What is ClassHero?

ClassHero for Math is a versatile core curricular resource designed to seamlessly augment any school district's core math curriculum. By providing accommodations for diverse learners, it ensures equitable access to the core curriculum in a Tier 1 setting. ClassHero is the perfect solution for teachers seeking to address the diverse academic and linguistic learning needs of their students. With ClassHero, teachers can support student learning by delivering scaffolded supports tailored to their math curriculum's problem sets.

## Why ClassHero?

Research shows that students who use adaptive skill practice tools, which provide timely feedback, align with daily instruction, and offer organized information about student progress, experience accelerated learning. ClassHero is designed to meet these criteria, providing an invaluable resource for both students and teachers.

## How does ClassHero work?

ClassHero simplifies the differentiation process for teachers, making it easier to address the diverse learning needs in today's classrooms. By leveraging district benchmark assessment data and real-time skill assessment data, ClassHero enables teachers to assign differentiated skill practice aligned to the core curriculum with just one click.

With ClassHero, learning becomes accessible for all students. Teachers can assign scaffolded skill practice that is:

1. Differentiated based on each student's learning level, using district benchmark assessment data combined with ClassHero's real-time skill assessment data.
2. Aligned with daily instruction, incorporating scaffolded questions to promote conceptual, visual-spatial, and organizational understanding of the skills being taught.
3. Supportive of the linguistic needs of English Learners and Spanish Dual Language Learners, offering supports in 30+ languages and full text, tutorial support, and voice-over narration in both English and Spanish.

ClassHero also provides real-time visibility of student progress towards skill mastery, making it easy for educators to monitor student development. The ClassHero dashboard allows teachers to get an overview of the entire class progress or dive deeper into individual student performance.

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## ClassHero with Illustrative Math Scope and Sequence

ClassHero can work with any Core Math Curriculum. It does not matter whether the curriculum is commercially purchased or district developed. ClassHero's curriculum integration process can work with any curriculum that has a scope and sequence with content standards that are being addressed within each module, unit, and/or topic of instruction.

To illustrate how ClassHero works we have integrated ClassHero into the [Illustrative Mathematics Curriculum Scope and Sequence](#). (licensed under the [Creative Commons Attribution 4.0](#) license) which could be used by any school teaching to the [Common Core Standards for Mathematics](#). Combining the Illustrative Mathematics curricular resources with ClassHero provides teachers all the tools necessary to provide high quality differentiated instruction with the necessary scaffolded academic and language supports for the diverse set of learners that are walking into classrooms each day.

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## Instructional Resources

The [Illustrative Mathematics Curriculum Framework](#) provides teachers with the following instructional resources for grades Kindergarten through Grade 8:

- Resources for each unit of instruction including
  - ✓ Unit Goals;
  - ✓ Lesson Plans;
  - ✓ Blackline Masters;
  - ✓ Instructional Guides
  - ✓ Quality Classroom Activities (e.g. Tasks); and
  - ✓ Assessment resources including Unit Assessments

[ClassHero's Scaffolded Practice Tasks](#) offer students opportunities to practice skills and concepts aligned with their teacher's instruction, while being tailored to their zone of proximal development. Furthermore, ClassHero reporting provides daily progress monitoring for each student's skill development. These practice tasks support students academically and linguistically, utilizing instructional models aligned with the [Illustrative Mathematics Curriculum Framework](#), such as Number Bonds, Number Lines, Tape Diagrams, Sentence Frames, Visual Manipulatives, and more.

- Number Bonds
- Number Lines
- 100s Chart
- Tape Diagrams
- Area Charts
- Dot Cards
- 5-Frames
- 10-Frames
- Base Ten Pieces
- Place Value Charts
- Sentence Frames
- Number Sentence Frames
- Visual Manipulatives
- Visual Representations

By choosing ClassHero to enhance the Illustrative Mathematics experience, teachers, administrators, and stakeholders will find a comprehensive, user-friendly solution that meets the diverse needs of today's students.

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### Instructional Guides for using ClassHero with Illustrative Math Curriculum

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Kindergarten | [Grade 1](#) | [Grade 2](#) | [Grade 3](#) | [Grade 4](#) | [Grade 5](#) | [Grade 6](#) | [Grade 7](#) | Grade 8

#### Kindergarten

The mathematical work for kindergarten is partitioned into 8 units:

1. [Math in Our World](#)
2. [Numbers 1–10](#)
3. [Flat Shapes All Around Us](#)
4. [Understanding Addition and Subtraction](#)
5. [Composing and Decomposing Numbers to 10](#)
6. [Numbers within 20](#)
7. [Solid Shapes All Around Us](#)
8. [Putting It All Together](#)

**Unit 1 - Math in Our World****Approximate Days:** 20**Standards Addressed:** K.CC.A.1, K.CC.B, K.CC.B.4, K.CC.B.4.a**Overview:** In Unit 1, instructional time should focus on the 4 topics described in the [Grade Kindergarten Unit 1 Math in Our World \(Illustrative Math\)](#):

- A. [Explore Our Math Tools](#)
- B. [Recognize Quantities](#)
- C. [Are There Enough?](#)
- D. [Counting Collections](#)

**ClassHero Scaffolded Practice Tasks for Unit 1**

- **Topic 1: Explore Our Math Tools**
  - ✓ **Task 1.1.1: Count objects to 5**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
- **Topic 2: Recognize Quantities**
  - ✓ **Task 1.2.1: Count objects to 5**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
  - ✓ **Task 1.2.2: Count forward to 5**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
- **Topic 3: Are There Enough?**
  - ✓ **Task 1.3.1: Count objects to 10**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
- **Topic 4: Counting Collections**
  - ✓ **Task 1.4.1: Count objects to 10**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
  - ✓ **Task 1.4.2: Count forward to 10**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*

**Unit 2 - Numbers 1–10****Approximate Days:** 25**Standards Addressed:** K.CC.A.1, K.CC.A.3, K.CC.B.4, K.CC.B.4.a, K.CC.B.4.b, K.CC.B.4.c, K.CC.B.5, K.CC.C.6, K.CC.C.7**Overview:** In Unit 2, instructional time should focus on the 4 topics described in the [Grade Kindergarten Unit 2 Numbers 1-10 \(Illustrative Math\)](#):

- A. [Count and Compare Groups of Objects](#)
- B. [Count and Compare Groups of Images](#)
- C. [Connect Quantities and Numbers](#)
- D. [Compare Numbers](#)

**ClassHero Scaffolded Practice Tasks for Unit 2**

- **Topic 1: Count and Compare Groups of Objects**
  - ✓ **Task 2.1.1: Count objects to 10**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
  - ✓ **Task 2.1.2: Compare sets of objects**  
*Standard K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.*  
*Standard K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.*
- **Topic 2: Count and Compare Groups of Images**
  - ✓ **Task 2.2.1: Count objects to 10**  
*Standard K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.*
  - ✓ **Task 2.2.2: Compare sets of objects**  
*Standard K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many*

objects.

*Standard K.CC.C.6:* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

- **Topic 3: Connect Quantities and Numbers**

- ✓ **Task 2.3.1: Count objects to 10**

*Standard K.CC.B.4:* Understand the relationship between numbers and quantities; connect counting to cardinality.

- ✓ **Task 2.3.2: Count forward to 10**

*Standard K.CC.B.4:* Understand the relationship between numbers and quantities; connect counting to cardinality.

- **Topic 4: Compare written numbers 1–10.**

- ✓ **Task 2.4.1: Count forward to 10**

*Standard K.CC.B.4:* Understand the relationship between numbers and quantities; connect counting to cardinality.

- ✓ **Task 2.4.2: Compare sets of objects**

*Standard K.CC.B.5:* Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

*Standard K.CC.C.6:* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

### Unit 3 - Flat Shapes All Around Us

**Approximate Days:** 15

**Standards Addressed:** K.MD.A.1, K.MD.A.2, K.MD.B.3, K.G.A.1, K.G.A.2, K.B.B.4, K.G.B.5, K.G.B.6

**Overview:** In Unit 3, instructional time should focus on the 2 topics described in the [Grade Kindergarten Unit 3 Flat Shapes All Around Us \(Illustrative Math\)](#):

A. [Exploring Shapes in Our Environment](#)

B. [Making Shapes](#)

#### ClassHero Scaffolded Practice Tasks for Unit 3

- **Topic 1: Exploring Shapes in Our Environment**

- ✓ **Task 3.1.1: Identifying 2D or 3D shapes**

*K.G.A.1:* Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

*K.G.A.2:* Correctly name shapes regardless of their orientations or overall size.

*K.G.A.3:* Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

- ✓ **Task 3.1.2: Analyzing and comparing 2D and 3D shapes**

*K.G.B.4:* Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

- **Topic 2: Making Shapes**

- ✓ **Task 3.2.1: Modeling shapes**

*K.G.B.5:* Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

*K.G.B.6:* Compose simple shapes to form larger shapes.

### Unit 4 - Understanding Addition and Subtraction

**Approximate Days:** 20

**Standards Addressed:** K.OA.A.1, K.OA.A.2, K.OA.A.5, K.CC.B.4.c, K.CC.B.5

**Overview:** In Unit 5, instructional time should focus on the 3 topics described in the [Grade Kindergarten Unit 4 Understanding Addition and Subtraction \(Illustrative Math\)](#):

A. [Count to Add and Subtract](#)

B. [Represent and Solve Story Problems](#)

C. [Addition and Subtraction Expressions](#)

#### ClassHero Scaffolded Practice Tasks for Unit 4

- **Topic 1: Count to Add and Subtract**

- ✓ **Task 4.1.1: Count objects to 20**

*K.CC.B.4:* Understand the relationship between numbers and quantities; connect counting to cardinality.

- ✓ **Task 4.1.2: Answer how many**  
K.CC.B.4: K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
- ✓ **Task 4.1.3: Fluently add within 5**  
K.OA.A.5: Fluently add within 5.
- ✓ **Task 4.1.4: Fluently subtract within 5**  
K.OA.A.5: Fluently subtract within 5.
- **Topic 2: Represent and Solve Story Problems**
  - ✓ **Task 4.2.1: Addition within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.  
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way.
  - ✓ **Task 4.2.2: Addition word problems to 10**  
K.OA.A.2: Solve addition word problems, and add within 10.
  - ✓ **Task 4.2.3: Subtraction within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.  
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way.
  - ✓ **Task 4.2.4: Subtraction word problems to 10**  
K.OA.A.2: Solve addition word problems, and add within 10.
- **Topic 3: Addition and Subtraction Expressions**
  - ✓ **Task 4.3.1: Addition within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.  
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way.
  - ✓ **Task 4.3.2: Addition word problems to 10**  
K.OA.A.2: Solve addition word problems, and add within 10.
  - ✓ **Task 4.3.3: Subtraction within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.  
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way.
  - ✓ **Task 4.3.4: Subtraction word problems to 10**  
K.OA.A.2: Solve addition word problems, and add within 10.

## Unit 5 - Composing and Decomposing Numbers to 10

**Approximate Days:** 15

**Standards Addressed:** K.OA.A.2, K.OA.A.3, K.OA.4, K.OA.A.5

**Overview:** In Unit 5, instructional time should focus on the 3 topics described in the [Grade Kindergarten Unit 5 Composing and Decomposing Numbers to 10 \(Illustrative Math\)](#):

- A. [Make and Break Apart Numbers to 9](#)
- B. [More Types of Story Problems](#)
- C. [Make and Break Apart 10](#)

### ClassHero Scaffolded Practice Tasks for Unit 5

- **Topic 1: Make and Break Apart Numbers to 9**
  - ✓ **Task 5.1.1: Addition within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.  
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way.
  - ✓ **Task 5.1.2: Subtraction within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.  
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way.

- ✓ **Task 5.1.3: Fluently add within 5**  
K.OA.A.5: Fluently add within 5.
- ✓ **Task 5.1.4: Fluently subtract within 5**  
K.OA.A.5: Fluently subtract within 5.
- **Topic 2: More Types of Story Problems**
  - ✓ **Task 5.2.1: Addition word problems to 10**  
K.OA.A.2: Solve addition word problems, and add within 10.
  - ✓ **Task 5.2.2: Subtraction word problems to 10**  
K.OA.A.2: Solve addition word problems, and add within 10.
- **Topic 3: Make and Break Apart 10**
  - ✓ **Task 5.3.1: Make 10**  
K.OA.A.4: For any number from 1 to 9, find the number that makes 10 when added to the given number.

## Unit 6 - Numbers within 20

**Approximate Days:** 20

**Standards Addressed:** K.CC.A.2, K.CC.A.3, K.CC.B.4.a, K.CC.B.4.b, K.CC.B.5, K.NBT.A.1, K.OA.A.1

**Overview:** In Unit 6, instructional time should focus on the 3 topics described in the [Grade Kindergarten Unit 6 Numbers within 20 \(Illustrative Math\)](#):

- A. [Count Groups of 11-20 Objects](#)
- B. [10 Ones and Some More](#)
- C. [Count Groups of 11–20 Images](#)

### ClassHero Scaffolded Practice Tasks for Unit 6

- **Topic 1: Count Groups of 11-20 Objects**
  - ✓ **Task 6.1.1: Count objects to 20**  
K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.
  - ✓ **Task 6.1.2: Answer how many**  
K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
- **Topic 2: 10 Ones and Some More**
  - ✓ **Task 6.2.1: Addition within 10**  
K.OA.A.1: Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
  - ✓ **Task 6.2.2: Composing and decomposing numbers within 20**  
K.NBT.A.1: Compose and decompose numbers from 11 to 19 into ten ones and some further ones. Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
- **Topic 3: Count Groups of 11–20 Images**
  - ✓ **Task 6.3.1: Count forward and backward to 20**  
K.CC.A.1: Count forward and backward to at least 20 with and without objects.
  - ✓ **Task 6.3.2: Counting forward from any given number**  
K.CC.A.2: Count forward beginning from a given number within the known sequence.
  - ✓ **Task 6.3.3: Write numbers (0-20)**  
K.CC.A.3: Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.

## Unit 7 - Solid Shapes All Around Us

**Approximate Days:** 15

**Standards Addressed:** K.G.A.1, K.G.A.2, K.G.A.3, K.G.B.4, K.G.B.5, K.G.B.6, K.MD.B.3

**Overview:** In Unit 7, instructional time should focus on the 2 topics described in the [Grade Kindergarten Unit 7 Solid Shapes All Around Us \(Illustrative Math\)](#):

- A. [Compose and Count with Flat Shapes](#)
- B. [Describe, Compare, and Create Solid Shapes](#)

### ClassHero Scaffolded Practice Tasks for Unit 7

- **Topic 1: Compose and Count with Flat Shapes**
  - ✓ **Task 7.1.1: Modeling shapes**

K.G.B.5: Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

K.G.B.6: Compose simple shapes to form larger shape.

✓ **Task 7.1.2: Answer how many**

K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

✓ **Task 7.1.3: Comparing numbers (1-20)**

K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.

● **Topic 2: Describe, Compare, and Create Solid Shapes**

✓ **Task 7.2.1: Analyzing and comparing 2D and 3D shapes**

K.G.B.4: Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

✓ **Task 7.2.2: Modeling shapes**

K.G.B.5: Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

K.G.B.6: Compose simple shapes to form larger shape.

✓ **Task 7.2.3: Compare objects based on attributes**

K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has "more of" / "less of" the attribute, and describe the difference.

✓ **Task 7.2.4: Classifying objects**

K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

**Unit 8 - Putting It All Together**

**Approximate Days:** 20

**Standards Addressed:** K.CC.A.1, K.OA.A.2, K.OA.A.3, K.OA.A.4, K.OA.A.5

**Overview:** In Unit 8, instructional time should focus on the 4 topics described in the [Grade Kindergarten Unit 8 Putting It All Together \(Illustrative Math\)](#):

- A. [Counting and Comparing](#)
- B. [Math in Our School](#)
- C. [Fluency within 5](#)
- D. [All About 10](#)

**ClassHero Scaffolded Practice Tasks for Unit 8**

● **Topic 1: Counting and Comparing**

✓ **Task 8.1.1: Count objects to 20**

K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.

K.G.B.6: Compose simple shapes to form larger shape.

✓ **Task 8.1.2: Answer how many**

K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

✓ **Task 8.1.3: Comparing numbers (1-20)**

K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.

✓ **Task 8.1.3: Classifying objects**

K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

● **Topic 2: Math in Our School**

✓ **Task 8.2.1: Write numbers (0-20)**

K.CC.A.3: Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.

✓ **Task 8.2.2: Addition within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 8.2.3: Addition word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

✓ **Task 8.2.4: Subtraction within 10**

*K.OA.A.1:* Represent subtraction with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 8.2.5: Subtraction word problems to 10**

*K.OA.A.2:* Solve subtraction word problems, and subtract within 10.

● **Topic 3: Fluency within 5**

✓ **Task 8.3.1: Fluently add within 5**

*K.OA.A.5:* Fluently add within 5.

✓ **Task 8.3.2: Fluently Subtract within 5**

*K.OA.A.5:* Fluently subtract within 5.

● **Topic 4: All About 10**

✓ **Task 8.4.1: Composing and decomposing numbers within 20**

*K.NBT.A.1:* Compose and decompose numbers from 11 to 19 into ten ones and some further ones. Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

✓ **Task 8.4.2: Make 10**

*K.OA.A.4:* For any number from 1 to 9, find the number that makes 10 when added to the given number.



**Grade One** [Kindergarten](#)

The mathematical work for Grade One is partitioned into 8 units:

1. [Adding, Subtracting, and Working with Data](#)
2. [Addition and Subtraction Story Problems](#)
3. [Adding and Subtracting Within 20](#)
4. [Numbers to 99](#)
5. [Adding Within 100](#)
6. [Length Measurements Within 120 Units](#)
7. [Geometry and Time](#)
8. [Putting It All Together](#)

## Unit 1 - Adding, Subtracting, and Working with Data

**Approximate Days:** 15

**Standards Addressed:** 1.MD.C.4, 1.OA.A.1, 1.OA.C.5, 1.OA.C.6

**Overview:** In Unit 1, instructional time should focus on the 3 topics described in the [Grade One Unit 1 Adding, Subtracting, and Working with Data \(Illustrative Math\)](#):

- A. [Add and Subtract within 10](#)
- B. [Show Us Your Data](#)
- C. [What Does the Data Tell Us?](#)

### ClassHero Scaffolded Practice Tasks for Unit 1

- **Topic 1: Add and Subtract within 10**

- ✓ **Task 1.1.1: Addition within 10**

- K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

- K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

- ✓ **Task 1.1.2: Fluently add within 10**

- 1.OA.C.6:* Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- 1.OA.D.8:* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- ✓ **Task 1.1.3: Subtraction within 10**

- K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

- K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

- ✓ **Task 1.1.4: Fluently subtract within 10**

- 1.OA.C.6:* Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- 1.OA.D.8:* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- **Topic 2: Show Us Your Data**

- ✓ **Task 1.2.1: Organizing and interpreting categorical data**

- 1.MD.C.4:* Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

- ✓ **Task 1.2.2: Fluently add within 10**

- 1.OA.C.6:* Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- 1.OA.D.8:* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- ✓ **Task 1.2.3: Fluently subtract within 10**

- 1.OA.C.6:* Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- 1.OA.D.8:* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- **Topic 3: What Does the Data Tell Us?**

- ✓ **Task 1.3.1: Organizing and interpreting categorical data**

- 1.MD.C.4:* Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

- ✓ **Task 1.3.2: Fluently add within 10**

- 1.OA.C.6:* Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- 1.OA.D.8:* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- ✓ **Task 1.3.2: Fluently subtract within 10**

- 1.OA.C.6:* Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- 1.OA.D.8:* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

## Unit 2 - Addition and Subtraction Story Problems

**Approximate Days:** 20

**Standards Addressed:** 1.OA.A.1, 1.OA.B.3, 1.OA.B.4, 1.OA.C, 1.OA.D.7, 1.OA.D.8

**Overview:** In Unit 2, instructional time should focus on the 4 topics described in the [Grade One Unit 2 Addition and Subtraction Story Problems \(Illustrative Math\)](#):

- A. [Add To and Take From Story Problems](#)
- B. [Put Together/Take Apart Story Problems](#)
- C. [Compare Story Problems](#)

D. [All Kinds of Story Problems](#)

**ClassHero Scaffolded Practice Tasks for Unit 2**

● **Topic 1: Add To and Take From Story Problems**

✓ **Task 1.1.1: Addition within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 1.1.2: Addition word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

✓ **Task 1.1.3: Subtraction within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 1.1.4: Subtraction word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

● **Topic 2: Put Together/Take Apart Story Problems**

✓ **Task 2.1.1: Addition within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 2.1.2: Addition word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

✓ **Task 2.1.3: Subtraction within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 2.1.4: Subtraction word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

● **Topic 3: All Kinds of Story Problems**

✓ **Task 3.1.1: Addition within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 3.1.2: Addition word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

✓ **Task 3.1.3: Subtraction within 10**

*K.OA.A.1:* Represent addition with objects, fingers, mental images, drawings 1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

*K.OA.A.3:* Decompose numbers less than or equal to 10 into pairs in more than one way.

✓ **Task 3.1.4: Subtraction word problems to 10**

*K.OA.A.2:* Solve addition word problems, and add within 10.

**Unit 3 - Adding and Subtracting Within 20**

**Approximate Days:** 25

**Standards Addressed:** 1.OA.A.2, 1.OA.B.3, 1.OA.B.4, 1.OA.A.C.5, 1.OA.C.6, 1.OA.D.7, 1.OA.D.8, 1.NBT.B.2.a, 1.NBT.B.2.b

**Overview:** In Unit 3, instructional time should focus on the 4 topics described in the [Grade One Unit 3 Adding and Subtracting Within 20 \(Illustrative Math\)](#):

- A. [Develop Fluency with Addition and Subtraction within 10](#)
- B. [Add and Subtract using Ten as a Unit](#)
- C. [Add within 20](#)
- D. [Subtract within 20](#)

**ClassHero Scaffolded Practice Tasks for Unit 3**

- **Topic 1: Develop Fluency with Addition and Subtraction within 10**
  - ✓ **Task 3.1.1: Fluently add within 10**  
1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
  - ✓ **Task 3.1.2: Fluently subtract within 10**  
1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
- **Topic 2: Add and Subtract using Ten as a Unit**
  - ✓ **Task 3.2.1: Counting, reading, writing numbers to 120**  
1.NBT.A.1: Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
  - ✓ **Task 3.2.2: Working with tens and ones**  
1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."
- **Topic 3: Add within 20**
  - ✓ **Task 3.2.1: Addition within 20**  
1.OA.B.3: Apply properties of operations as strategies to add and subtract.  
1.OA.C.5: Relate counting to addition and subtraction.  
1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
- **Topic 4: Subtract within 20**
  - ✓ **Task 4.2.1: Subtraction within 20**  
1.OA.B.3: Apply properties of operations as strategies to add and subtract.  
1.OA.B.4: Understand subtraction as an unknown-addend problem.  
1.OA.C.5: Relate counting to addition and subtraction.  
1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

#### Unit 4 - Numbers to 99

**Approximate Days:** 20

**Standards Addressed:** 1.NBT.A.1, 1.NBT.B.2, 1.NBT.B.2.c, 1.NBT.B.3, 1.NBT.C.5

**Overview:** In Unit 4, instructional time should focus on the 4 topics described in the [Grade One Unit 4 Numbers to 99 \(Illustrative Math\)](#):

- A. [Units of Ten](#)
- B. [Tens and Ones](#)
- C. [Compare Numbers to 99](#)
- D. [Different Ways to Make a Number](#)

#### ClassHero Scaffolded Practice Tasks for Unit 4

- **Topic 1: Units of Ten**
  - ✓ **Task 4.1.1: Counting, reading, writing numbers to 120**  
1.NBT.A.1: Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
  - ✓ **Task 4.1.2: Working with tens and ones**  
1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."
  - ✓ **Task 4.1.3: Adding and Subtracting with 10s**  
1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.  
1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.  
1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.
- **Topic 2: Tens and Ones**
  - ✓ **Task 4.2.1: Working with tens and ones**  
1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."
  - ✓ **Task 4.2.2: Adding and Subtracting with 10s**  
1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.  
1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.  
1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.

- **Topic 3: Compare Numbers to 99**
  - ✓ **Task 4.3.1: Counting, reading, writing numbers to 120**

1.NBT.A.1: Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
  - ✓ **Task 4.3.2: Working with tens and ones**

1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."
  - ✓ **Task 4.3.3: Comparing numbers (1-120)**

1.NBT.B.3: Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ , and  $<$ .
- **Topic 4: Different Ways to Make a Number**
  - ✓ **Task 4.3.1: Counting, reading, writing numbers to 120**

1.NBT.A.1: Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
  - ✓ **Task 4.3.2: Working with tens and ones**

1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."
  - ✓ **Task 4.3.3: Comparing numbers (1-120)**

1.NBT.B.3: Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ , and  $<$ .
  - ✓ **Task 4.3.4: Adding and Subtracting with 10s**

1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.

## Unit 5 - Adding Within 100

**Approximate Days:** 20

**Standards Addressed:** 1.NBT.C.4, 1.NBT.C.5, 1.NBT.C.6, 1.OA.C.5, 1.OA.C.6

**Overview:** In Unit 5, instructional time should focus on the 3 topics described in the [Grade One Unit 5 Adding Within 100 \(Illustrative Math\)](#):

- A. [Add Without Making a Ten](#)
- B. [Make a Ten: Add One- and Two-digit Numbers](#)
- C. [Make a Ten: Add Within 100](#)

### ClassHero Scaffolded Practice Tasks for Unit 5

- **Topic 1: Add Without Making a Ten**
  - ✓ **Task 5.1.1: Addition within 20**

1.OA.B.3: Apply properties of operations as strategies to add and subtract.

1.OA.C.5: Relate counting to addition and subtraction.

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
  - ✓ **Task 5.1.2: Addition and subtraction word problems within 20**

1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.
- **Topic 2: Make a Ten: Add One- and Two-digit Numbers**
  - ✓ **Task 5.2.1: Working with tens and ones**

1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."
  - ✓ **Task 5.2.2: Adding and Subtracting with 10s**

1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.

- **Topic 3: Make a Ten: Add Within 100**

- ✓ **Task 5.3.1: Working with tens and ones**

1.NBT.B.2: Understand that 10 can be thought of as a bundle of ten ones — called a "ten."

- ✓ **Task 5.3.2: Adding and Subtracting with 10s**

1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.

## Unit 6 - Length Measurements Within 120 Units

**Approximate Days:** 20

**Standards Addressed:** 1.MD.A.1, 1.MD.A.2, 1.MD.B.3, 1.NBT.A.1, 1.OA.A1

**Overview:** In Unit 6, instructional time should focus on the 3 topics described in the [Grade One Unit 6 Length Measurements Within 120 Units \(Illustrative Math\)](#):

- A. [From Direct to Indirect Comparisons](#)
- B. [Measure by Iterating up to 120 Length Units](#)
- C. [All Kinds of Story Problems](#)

### ClassHero Scaffolded Practice Tasks for Unit 6

- **Topic 1: From Direct to Indirect Comparisons**

- ✓ **Task 6.1.1: Compare and order objects by length**

1.MD.A.1: Order three objects by length; compare the lengths of two objects indirectly by using a third object.

1.MD.A.2: Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

- **Topic 2: Measure by Iterating up to 120 Length Units**

- ✓ **Task 6.2.1: Compare and order objects by length**

1.MD.A.1: Order three objects by length; compare the lengths of two objects indirectly by using a third object.

1.MD.A.2: Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

- **Topic 3: All Kinds of Story Problems**

- ✓ **Task 6.3.1: Addition and subtraction word problems within 20**

1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

1.OA.A.2: Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.

## Unit 7 - Geometry and Time

**Approximate Days:** 20

**Standards Addressed:** 1.MD.B.3, 1.G.A.1, 1.G.A.2, 1.G.A.3, 1.MD.C.4

**Overview:** In Unit 7, instructional time should focus on the 3 topics described in the [Grade One Unit 7 Geometry and Time \(Illustrative Math\)](#):

- A. [Flat and Solid Shapes](#)
- B. [Halves and Quarters](#)
- C. [Tell Time in Hours and Half Hours](#)

### ClassHero Scaffolded Practice Tasks for Unit 7

- **Topic 1: Flat and Solid Shapes**

- ✓ **Task 7.1.1: Identify shapes based on attributes**

1.G.A.1: Distinguish between defining attributes versus non-defining attributes.

Build and draw shapes to possess defining attributes.

- ✓ **Task 7.1.2: Composing Composite Shapes**

1.G.A.2: Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a

composite shape, and compose new shapes from the composite shape.

- **Topic 2: Halves and Quarters**

- ✓ **Task 7.2.1: Partition shapes into halves, and fourths**

1.G.A.3: Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

- **Topic 3: Tell Time in Hours and Half Hours**

- ✓ **Task 7.3.1: Time - hours and half hours**

1.MD.B.3: Tell and write time in hours and half-hours using analog and digital clocks.

## Unit 8 - Putting It All Together

**Approximate Days:** 20

**Standards Addressed:** K.CC.A.1, K.OA.A.2, K.OA.A.3, K.OA.A.4, K.OA.A.5

**Overview:** In Unit 8, instructional time should focus on the 3 topics described in the [Grade One Unit 8 Putting It All Together \(Illustrative Math\)](#):

- A. [Add and Subtract Within 20](#)
- B. [Story Problems](#)
- C. [Numbers to 120](#)

### ClassHero Scaffolded Practice Tasks for Unit 8

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

- ✓ **Task 8.1.1: Fluently add within 10**

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

1.OA.D.8: Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- ✓ **Task 8.1.1: Fluently subtract within 10**

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

1.OA.D.8: Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

- ✓ **Task 8.1.3: Addition within 20**

1.OA.B.3: Apply properties of operations as strategies to add and subtract.

1.OA.C.5: Relate counting to addition and subtraction.

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- ✓ **Task 8.1.4: Subtraction within 20**

1.OA.B.3: Apply properties of operations as strategies to add and subtract.

1.OA.B.4: Understand subtraction as an unknown-addend problem.

1.OA.C.5: Relate counting to addition and subtraction.

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- ✓ **Task 8.1.5: Addition and subtraction word problems within 20**

1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

1.NBT.C.5: Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.C.6: Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.

- **Topic 2: Story Problems**

- ✓ **Task 8.2.1: Addition within 20**

1.OA.B.3: Apply properties of operations as strategies to add and subtract.

1.OA.C.5: Relate counting to addition and subtraction.

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- ✓ **Task 8.2.2: Subtraction within 20**

1.OA.B.3: Apply properties of operations as strategies to add and subtract.

1.OA.B.4: Understand subtraction as an unknown-addend problem.

1.OA.C.5: Relate counting to addition and subtraction.

1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

- ✓ **Task 8.2.3: Addition and subtraction word problems within 20**

1.NBT.C.4: Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and

a multiple of 10.

*1.NBT.C.5:* Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

*1.NBT.C.6:* Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.

● **Topic 3: Numbers to 120**

✓ **Task 8.3.1: Counting, reading, writing numbers to 120**

*1.NBT.A.1:* Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

✓ **Task 8.3.2: Working with tens and ones**

*1.NBT.A.1:* Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

✓ **Task 8.3.3: Comparing numbers (1-120)**

*1.NBT.B.3:* Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ , and  $<$ .

✓ **Task 8.3.4: Adding and Subtracting with 10s**

*1.NBT.C.4:* Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

*1.NBT.C.5:* Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

*1.NBT.C.6:* Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90.



**Grade Two**

The mathematical work for Grade Two is partitioned into 8 units:

1. [Adding, Subtracting, and Working with Data](#)
2. [Adding and Subtracting within 100](#)
3. [Measuring Length](#)
4. [Addition and Subtraction on the Number Line](#)
5. [Numbers to 1,000](#)
6. [Geometry, Time, and Money](#)
7. [Adding and Subtracting within 1,000](#)
8. [Equal Groups](#)
9. [Putting It All Together](#)

**Unit 1 - Adding, Subtracting, and Working with Data**

**Approximate Days:** 20

**Standards Addressed:** 2.OA.A.1, 2.OA.B.2 , 2.NBT.5, 2.MD.D.10

**Overview:** In Unit 1, instructional time should focus on the 3 topics described in the [Grade Two Unit 1 Adding, Subtracting, and Working with Data \(Illustrative Math\)](#):

- A. [Add and Subtract Within 20](#)
- B. [Ways to Represent Data](#)
- C. [Diagrams to Compare](#)

**ClassHero Scaffolded Practice Tasks for Unit 1**

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

- ✓ **Task 1.1.1: Fluently add within 20**

- 2.OA.B.2: Fluently add within 20 using mental strategies.

- ✓ **Task 1.1.2: Fluently subtract within 20**

- 2.OA.B.2: Fluently subtract within 20 using mental strategies.

- ✓ **Task 1.1.3: Addition within 100**

- 2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- 2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- **Topic 2: Ways to Represent Data**

- ✓ **Task 1.2.1: Represent and interpret graphs with 4 categories**

- 2.MD.D.9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

- 2.MD.D.10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

- ✓ **Task 1.2.2: Addition word problems within 20**

- 2.OA.B.2: Fluently add within 20 using mental strategies.

- ✓ **Task 1.2.2: Subtraction word problems within 20**

- 2.OA.B.2: Fluently subtract within 20 using mental strategies.

- **Topic 3: Diagrams to Compare**

- ✓ **Task 1.3.1: Represent and interpret graphs with 4 categories**

- 2.MD.D.9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

- 2.MD.D.10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

- ✓ **Task 1.3.2: Addition within 100**

- 2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- 2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- ✓ **Task 1.3.2: Subtraction within 100**

- 2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- 2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

## Unit 2 - Adding and Subtracting within 100

**Approximate Days:** 15

**Standards Addressed:** 2.NBT.B.5, 2.NBT.B.6

**Overview:** In Unit 2, instructional time should focus on the 3 topics described in the [Grade Two Unit 2 Adding and Subtracting within 100 \(Illustrative Math\)](#):

- A. [Add and Subtract](#)
- B. [Decompose to Subtract](#)
- C. [Represent and Solve Story Problems](#)

### ClassHero Scaffolded Practice Tasks for Unit 2

- **Topic 1: Add and Subtract**

- ✓ **Task 1.1.1: Addition within 100**

- 2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- 2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- ✓ **Task 1.1.2: Subtraction within 100**

- 2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- 2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- **Topic 2: Decompose to Subtract**

- ✓ **Task 2.1.1: Subtraction within 100**

- 2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- 2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- **Topic 3: Represent and Solve Story Problems**

- ✓ **Task 3.1.1: Addition word problems within 100**

- 2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

- ✓ **Task 3.1.2: Subtraction Word Problems within 100**

- 2.OA.A.1: Use subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

## Unit 3 - Measuring Length

**Approximate Days:** 20

**Standards Addressed:** 2.MD.A.1, 2.MD.A.2, 2.MD.A.3, 2.MD.A.4, 2.OA.A.1, 2.MD.B.5, 2.NBT.B.5, 2.MD.D.9

**Overview:** In Unit 3, instructional time should focus on the 3 topics described in the [Grade Two Unit 3 Measuring Length \(Illustrative Math\)](#):

- A. [Metric Measurement](#)
- B. [Customary Measurement](#)
- C. [Line Plots](#)

### ClassHero Scaffolded Practice Tasks for Unit 3

- **Topic 1: Metric Measurement**

- ✓ **Task 3.1.1: Measure length of objects**

2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

2.MD.A.3: Estimate lengths using units of inches, feet, centimeters, and meters.

✓ **Task 3.1.2: Measure and compare lengths of two objects**

2.MD.A.4: Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

2.MD.B.5: Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units.

● **Topic 2: Customary Measurement**

✓ **Task 3.2.1: Measure length of objects**

2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

✓ **Task 3.2.2: Measure and compare lengths of two objects**

2.MD.A.4: Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

2.MD.B.5: Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units.

● **Topic 3: Line Plots**

✓ **Task 3.2.1: Measure length of objects**

2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

✓ **Task 3.2.2: Represent and interpret graphs with 4 categories**

2.MD.D.9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

2.MD.D.10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

**Unit 4 - Addition and Subtraction on the Number Line**

**Approximate Days:** 20

**Standards Addressed:** 2.MD.B.5, 2.MD.B.6, 2.OA.A.1

**Overview:** In Unit 4, instructional time should focus on the 2 topics described in the [Grade Two Unit 4 Addition and Subtraction on the Number Line \(Illustrative Math\)](#):

A. [The Structure of the Number Line](#)

B. [Add and Subtract on a Number Line](#)

**ClassHero Scaffolded Practice Tasks for Unit 4**

● **Topic 1: The Structure of the Number Line**

✓ **Task 4.1.1: Measure length of objects**

2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

✓ **Task 4.1.2: Represent numbers on a number line**

2.MD.B.6: Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

● **Topic 2: Add and Subtract on a Number Line**

✓ **Task 4.2.1: Measure length of objects**

2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

✓ **Task 4.2.2: Represent numbers on a number line**

2.MD.B.6: Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

**Unit 5 - Numbers to 1,000**

**Approximate Days:** 20

**Standards Addressed:** 2.NBT.A.1, 2.NBT.A.1.a, 2.NBT.A.1.b, 2.NBT.A.2, 2.NBT.A.3, 2.NBT.A.4, 2.NBT.B.8

**Overview:** In Unit 5, instructional time should focus on the 2 topics described in the [Grade Two Unit 5 Numbers to 1,000 \(Illustrative Math\)](#):

A. [The Value of Three Digits](#)

B. [Compare and Order Numbers within 1,000](#)

**ClassHero Scaffolded Practice Tasks for Unit 5**

● **Topic 1: The Value of Three Digits**

✓ **Task 5.1.1: Place value with 3-digits**

2.NBT.A.1: Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.

✓ **Task 5.1.2: Skip Counting by 5s, 10s, and 100s. within 1000**

2.NBT.A.2: Count within 1000; skip-count by 5s, 10s, and 100s.

✓ **Task 5.1.3: Reading & Writing Numbers to 1,200**

2.NBT.A.3: Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

● **Topic 2: Compare and Order Numbers within 1,000**

✓ **Task 5.2.1: Place value with 3-digits**

2.NBT.A.1: Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.

✓ **Task 5.2.2: Skip Counting by 5s, 10s, and 100s. within 1000**

2.NBT.A.2: Count within 1000; skip-count by 5s, 10s, and 100s.

✓ **Task 5.2.3: Reading & Writing Numbers to 1,200**

2.NBT.A.3: Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

✓ **Task 5.2.3: Compare two three-digit numbers**

2.NBT.A.4: Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**Unit 6 - Measuring Length, Time, Liquid Volume, and Mass**

**Approximate Days:** 20

**Standards Addressed:** 2.G.A.1, 2.G.A.3, 2.MD.C.7, 2.MD.C.8, 2.OA.A.1

**Overview:** In Unit 6, instructional time should focus on the 4 topics described in the [Grade Two Unit 6 Geometry, Time, and Money \(Illustrative Math\)](#):

A. [Attributes of Shapes](#)

B. [Halves, Thirds, and Fourths](#)

C. [Time on the Clock](#)

D. [The Value of Money](#)

**ClassHero Scaffolded Practice Tasks for Unit 6**

● **Topic 1: Attributes of Shapes**

✓ **Task 6.1.1: Define shapes based on attributes**

2.G.A.1: Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

● **Topic 2: Halves, Thirds, and Fourths**

✓ **Task 6.2.1: Define shapes based on attributes**

2.G.A.1: Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

✓ **Task 6.2.1: Partition shapes into halves, thirds, and fourths**

2.G.A.2: Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

2.G.A.3: Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of

identical wholes need not have the same shape.

- **Topic 3: Time on the Clock**

- ✓ **Task 6.3.1: Tell and write time to the nearest 5 minutes**

- 2.MD.C.7: Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

- **Topic 4: The Value of Money**

- ✓ **Task 6.3.1: Money**

- 2.MD.C.8: Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.

## Unit 7 - Two-dimensional Shapes and Perimeter

**Approximate Days:** 15

**Standards Addressed:** 3.OA.A.1, 3.OA.A.3, 3.MD.A.1, 3.MD.A.2, 3.MD.B.4

**Overview:** In Unit 7, instructional time should focus on the 3 topics described in the [Grade Three Unit 7 Two-dimensional Shapes and Perimeter \(Illustrative Math\)](#):

- A. [Reason with Shapes](#)
- B. [What is Perimeter?](#)
- C. [Expanding on Perimeter](#)
- D. [Design with Perimeter and Area](#)

### ClassHero Scaffolded Practice Tasks for Unit 7

- **Topic 1: Add and Subtract within 1,000 without Composition or Decomposition**

- ✓ **Task 7.1.1: Addition within 1000**

- 2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

- 2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.7: Add within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- ✓ **Task 7.1.2: Subtraction within 1000**

- 2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

- 2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.7: Add within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- **Topic 2: Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.**

- ✓ **Task 7.2.1: Add up to four two-digit numbers**

- 2.NBT.B.6: Add up to four two-digit numbers using strategies based on place value and properties of operations.

- ✓ **Task 7.2.2: Addition within 1000**

- 2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

- 2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

- 2.NBT.B.7: Add within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.

- 2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

- **Topic 3: Subtract within 1,000 using Place Value Strategies**

- ✓ **Task 7.3.1: Subtraction within 1000**

- 2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

- 2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.7: Add within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.

2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

### Unit 8 - Equal Groups

**Approximate Days:** 15

**Standards Addressed:** 2.OA.C.3, 2.OA.C.4, 2.NBT.2, 2.G.A.2

**Overview:** In Unit 8, instructional time should focus on the 2 topics described in the [Grade Two Unit 8 Equal Groups \(Illustrative Math\)](#):

- A. [Odd and Even](#)
- B. [Rectangular Arrays](#)

#### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Odd and Even**

- ✓ **Task 8.1.1: Determine odd or even**

2.OA.C.3: Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

- **Topic 2: Rectangular Arrays**

- ✓ **Task 8.2.1: Repeated Addition**

2.OA.C.4: Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

- ✓ **Task 8.2.2: Partition shapes into halves, thirds, and fourths**

2.G.A.2: Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

2.G.A.3: Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

### Unit 9 - Putting It All Together

**Approximate Days:** 10

**Standards Addressed:** 2.OA.2, 2.NBT.5, 2.NBT.6, 2.NBT.7, 2.NBT.8, 2.NBT.9

**Overview:** In Unit 9, instructional time should focus on the 3 topics described in the [Grade Two Unit 9 Putting It All Together \(Illustrative Math\)](#):

- A. [Fluency Within 20 and Measurement](#)
- B. [Numbers to 1,000](#)
- C. [Create and Solve Story Problems](#)

#### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Fluency Within 20 and Measurement**

- ✓ **Task 8.1.1: Fluently add within 20**

2.OA.B.2: Fluently add within 20 using mental strategies.

- ✓ **Task 8.1.2: Fluently subtract within 20**

2.OA.B.2: Fluently subtract within 20 using mental strategies.

- ✓ **Task 8.1.3: Measure length of objects**

2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

2.MD.A.3: Estimate lengths using units of inches, feet, centimeters, and meters.

- ✓ **Task 8.1.3: Measure and compare lengths of two objects**

2.MD.A.4: Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

2.MD.B.5: Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units.

- ✓ **Task 8.1.5: Represent and interpret graphs with 4 categories**

2.MD.D.9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

2.MD.D.10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

● **Topic 2: Numbers to 1,000**

✓ **Task 8.2.1: Addition within 100**

2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

✓ **Task 8.2.2: Subtraction within 100**

2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

2.NBT.B.5: Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

✓ **Task 8.2.3: Addition within 1000**

2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.7: Add within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.

2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

✓ **Task 8.2.4: Subtraction within 1000**

2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.7: Add within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.

2.NBT.B.9: Explain why addition strategies work, using place value and the properties of operations.

● **Topic 3: Create and Solve Story Problems**

✓ **Task 8.3.1: Addition word problems within 100**

2.OA.A.1: Use addition within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

✓ **Task 8.3.2: Subtraction Word Problems within 100**

2.OA.A.1: Use subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.



### Grade Three

The mathematical work for kindergarten is partitioned into 8 units:

1. [Introducing Multiplication](#)
2. [Area and Multiplication](#)
3. [Wrapping Up Addition and Subtraction Within 1,000](#)
4. [Relating Multiplication to Division](#)
5. [Fractions as Numbers](#)
6. [Measuring Length, Time, Liquid Volume, and Mass](#)
7. [Two-dimensional Shapes and Perimeter](#)
8. [Putting It All Together](#)

## Unit 1 - Introducing Multiplication

**Approximate Days:** 20

**Standards Addressed:** 3.OA.A.1, 3.OA.A.3, 3.OA.A.4, 3.OA.B.5, 3.MD.B.3

**Overview:** In Unit 1, instructional time should focus on the 3 topics described in the [Grade Three Unit 1 Introducing Multiplication \(Illustrative Math\)](#):

- A. [Interpret and Represent Data on Scaled Graphs](#)
- B. [From Graphs to Multiplication](#)
- C. [Represent Multiplication with Arrays and the Commutative Property](#)

### ClassHero Scaffolded Practice Tasks for Unit 1

- **Topic 1: Interpret and Represent Data on Scaled Graphs**

- ✓ **Task 1.1.1: Solve problems with bar graphs**

3.MD.B.3: Draw a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

- ✓ **Task 1.1.2: Solve problems with picture graphs**

3.MD.B.3: Draw a scaled picture graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled picture graphs.

- **Topic 2: From Graphs to Multiplication**

- ✓ **Task 1.2.1: Multiplication within 100**

3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.

3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

- ✓ **Task 1.2.2: Multiplication story problems within 100**

3.OA.A.3: Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

- ✓ **Task 1.2.2: Identify arithmetic patterns**

3.OA.D.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

- **Topic 3: Represent Multiplication with Arrays and the Commutative Property**

- ✓ **Task 1.3.1: Multiplication within 100**

3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.

3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

- ✓ **Task 1.3.2: Multiplication story problems within 100**

3.OA.A.3: Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

- ✓ **Task 1.3.2: Identify arithmetic patterns**

3.OA.D.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

## Unit 2 - Area and Multiplication

**Approximate Days:** 20

**Standards Addressed:** 3.OA.8 \*, 3.MD.C.5, 3.MD.C.5.a, 3.MD.C.5.b, 3.MD.C.6, 3.MD.C.7, 3.MD.C.7.a, 3.MD.C.7.b, 3.MD.C.7.c \*, 3.MD.C.7.d

**Overview:** In Unit 2, instructional time should focus on the 3 topics described in the [Grade Three Unit 2 Area and Multiplication \(Illustrative Math\)](#):

- A. [Concepts of Area Measurement](#)
- B. [Relate Area to Multiplication](#)
- C. [Find Area of Figures Composed of Rectangles](#)

**ClassHero Scaffolded Practice Tasks for Unit 2**

- **Topic 1: Concepts of Area Measurement**

- ✓ **Task 1.1.1: Area**

- 3.MD.C.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

- 3.MD.C.6: Measure areas by counting unit squares.

- ✓ **Task 1.1.2: Multiplication within 100**

- 3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.

- 3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

- 3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

- **Topic 2: Relate Area to Multiplication**

- ✓ **Task 2.2.1: Multiplication within 100**

- 3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.

- 3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

- 3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

- ✓ **Task 2.2.2: Area**

- 3.MD.C.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

- 3.MD.C.6: Measure areas by counting unit squares.

- ✓ **Task 2.2.3: Area word problems**

- 3.MD.C.7: Relate area to the operations of multiplication and addition.

- **Topic 3: Find Area of Figures Composed of Rectangles**

- ✓ **Task 2.3.1: Area**

- 3.MD.C.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

- 3.MD.C.6: Measure areas by counting unit squares.

- ✓ **Task 2.3.2: Area word problems**

- 3.MD.C.7: Relate area to the operations of multiplication and addition.

**Unit 3 - Wrapping Up Addition and Subtraction Within 1,000**

Approximate Days: 20

Standards Addressed: 3.OA.C.7 \*, 3.OA.D.8, 3.OA.D.9, 3.NBT.A.1, 3.NBT.A.2, 3.G.A.2

Overview: In Unit 3, instructional time should focus on the 4 topics described in the [Grade Three Unit 3 Wrapping Up Addition and Subtraction Within 1,000 \(Illustrative Math\)](#):

A. [Add Within 1,000](#)

B. [Subtract Within 1,000](#)

C. [Round Within 1,000](#)

D. [Solve Two-Step Problems](#)

**ClassHero Scaffolded Practice Tasks for Unit 3**

- **Topic 1: Add Within 1,000**

- ✓ **Task 3.1.1: Fluently add within 1000**

- 3.NBT.A.2: Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

- ✓ **Task 3.1.2: Identify arithmetic patterns**

- 3.OA.D.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

- **Topic 2: Subtract Within 1,000**

- ✓ **Task 3.2.1: Fluently subtract within 1000**

- 3.NBT.A.2: Fluently subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

- ✓ **Task 3.2.2: Fluently add within 1000**  
3.NBT.A.2: Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **Topic 3: Round Within 1,000**
  - ✓ **Task 3.2.1: Rounding Numbers to 10 and 100**  
3.NBT.A.1: Use place value understanding to round whole numbers to the nearest 10 or 100.
  - ✓ **Task 3.2.2: Fluently add within 1000**  
3.NBT.A.2: Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
  - ✓ **Task 3.2.3: Fluently subtract within 1000**  
3.NBT.A.2: Fluently subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **Topic 4: Solve Two-Step Problems**
  - ✓ **Task 3.2.1: Rounding Numbers to 10 and 100**  
3.NBT.A.1: Use place value understanding to round whole numbers to the nearest 10 or 100.
  - ✓ **Task 3.2.2: Fluently add within 1000**  
3.NBT.A.2: Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
  - ✓ **Task 3.2.3: Fluently subtract within 1000**  
3.NBT.A.2: Fluently subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
  - ✓ **Task 3.2.4: Use operations to solve two-step problems**  
3.OA.D.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity.

#### Unit 4 - Relating Multiplication to Division

**Approximate Days:** 20

**Standards Addressed:** 3.OA.C.7 \*, 3.OA.D.8, 3.OA.D.9, 3.NBT.A.1, 3.NBT.A.2, 3.G.A.2

**Overview:** In Unit 4, instructional time should focus on the 4 topics described in the [Grade Three Unit 4 Relating Multiplication to Division \(Illustrative Math\)](#):

- A. [What is Division?](#)
- B. [Relate Multiplication and Division](#)
- C. [Multiplying Larger Numbers](#)
- D. [Dividing Larger Numbers](#)

#### ClassHero Scaffolded Practice Tasks for Unit 4

- **Topic 1: What is Division?**
  - ✓ **Task 4.1.1: Division within 100**  
3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.  
3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.  
3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
  - ✓ **Task 4.1.2: Division story problems within 100**  
3.OA.A.3: Represent and solve problems involving division.
- **Topic 2: Relate Multiplication and Division**
  - ✓ **Task 4.2.1: Multiplication within 100**  
3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.  
3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.  
3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

✓ **Task 4.2.2: Multiplication story problems within 100**

3.OA.A.3: Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

✓ **Task 4.2.3: Division within 100**

3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.

3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

✓ **Task 4.2.4: Division story problems within 100**

3.OA.A.3: Represent and solve problems involving division.

● **Topic 3: Multiplying Larger Numbers**

✓ **Task 4.3.1: Multiplication facts within 100**

3.OA.C.7: Fluently multiply within 100, using strategies such as the relationship between multiplication and division or properties of operations.

✓ **Task 4.3.2: Multiplying single digit whole numbers by 10's**

3.NBT.A.3: Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g.,  $9 \times 80$ ,  $5 \times 60$ ) using strategies based on place value and properties of operations.

✓ **Task 4.3.3: Multiplication story problems within 100**

3.OA.A.3: Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

● **Topic 4: Dividing Larger Numbers**

✓ **Task 4.3.1: Division facts within 100**

3.OA.A.3: Represent and solve problems involving division.

✓ **Task 4.3.2: Division within 100**

3.OA.A.1: Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each.

3.OA.A.2: Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

3.OA.A.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

✓ **Task 4.3.3: Division story problems within 100**

3.OA.A.3: Represent and solve problems involving division.

**Unit 5 - Fractions as Numbers**

**Approximate Days:** 20

**Standards Addressed:** 3.NF.A.1, 3.NF.A.2, 3.NF.A.2.a, 3.NF.A.2.b, 3.NF.A.3, 3.NF.A.3.a, 3.NF.A.3.b, 3.NF.A.3.c, 3.NF.A.3.d

**Overview:** In Unit 5, instructional time should focus on the 4 topics described in the [Grade Three Unit 5 Fractions as Numbers \(Illustrative Math\)](#):

- A. [Introduction to Fractions](#)
- B. [Fractions on the Number Line](#)
- C. [Equivalent Fractions](#)
- D. [Fraction Comparisons](#)

**ClassHero Scaffolded Practice Tasks for Unit 5**

● **Topic 1: Introduction to Fractions**

✓ **Task 5.1.1: Understanding fractions**

3.NF.A.1: Understand a fraction  $1/b$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $a/b$  as the quantity formed by  $a$  parts of size  $1/b$ .

● **Topic 2: Fractions on the Number Line**

✓ **Task 5.2.1: Represent fractions on a number line**

3.NF.A.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram.

- ✓ **Task 5.2.2: Understanding fractions**  
3.NF.A.1: Understand a fraction  $\frac{1}{b}$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $\frac{a}{b}$  as the quantity formed by  $a$  parts of size  $\frac{1}{b}$ .

- **Topic 3: Equivalent Fractions**

- ✓ **Task 5.3.1: Equivalent fractions**  
3.NF.A.3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
- ✓ **Task 5.3.2: Represent fractions on a number line**  
3.NF.A.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram.
- ✓ **Task 5.3.2: Understanding fractions**  
3.NF.A.1: Understand a fraction  $\frac{1}{b}$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $\frac{a}{b}$  as the quantity formed by  $a$  parts of size  $\frac{1}{b}$ .

- **Topic 4: Fraction Comparisons**

- ✓ **Task 5.3.1: Equivalent fractions**  
3.NF.A.3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
- ✓ **Task 5.3.2: Represent fractions on a number line**  
3.NF.A.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram.
- ✓ **Task 5.3.2: Understanding fractions**  
3.NF.A.1: Understand a fraction  $\frac{1}{b}$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $\frac{a}{b}$  as the quantity formed by  $a$  parts of size  $\frac{1}{b}$ .

## Unit 6 - Measuring Length, Time, Liquid Volume, and Weight

**Approximate Days:** 15

**Standards Addressed:** 3.NF.A.1, 3.NF.A.2, 3.NF.A.2.a, 3.NF.A.2.b, 3.NF.A.3, 3.NF.A.3.a, 3.NF.A.3.b, 3.NF.A.3.c, 3.NF.A.3.d

**Overview:** In Unit 6, instructional time should focus on the 4 topics described in the [Grade Three Unit 6 Measuring Length, Time, Liquid Volume, and Weight \(Illustrative Math\)](#):

- A. [Measurement Data on Line Plots](#)
- B. [Weight and Liquid Volume](#)
- C. [Problems Involving Time](#)
- D. [Measurement Problems in Context](#)

### ClassHero Scaffolded Practice Tasks for Unit 6

- **Topic 1: Measurement Data on Line Plots**

- ✓ **Task 6.1.1: Measuring lengths using rulers**  
3.MD.B.4: Measuring lengths using rulers marked with halves and fourths of an inch.
- ✓ **Task 6.1.2: Represent fractions on a number line**  
3.NF.A.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram.

- **Topic 2: Weight and Liquid Volume**

- ✓ **Task 6.2.1: Solve problems involving mass**  
3.MD.A.2: Measure and estimate masses of objects using standard units of grams (g), and kilograms (kg). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.
- ✓ **Task 6.2.1: Solve problems involving volume**  
3.MD.A.2: Measure and estimate liquid volumes of objects using standard units of liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving volumes that are given in the same units.

- **Topic 3: Problems Involving Time**

- ✓ **Task 6.3.1: Tell and write time to the nearest 1 minute**  
3.MD.A.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes.

- **Topic 4: Measurement Problems in Context**

- ✓ **Task 6.3.1: Measuring lengths using rulers**  
3.MD.B.4: Measuring lengths using rulers marked with halves and fourths of an inch.
- ✓ **Task 6.3.2: Solve problems involving length**  
3.MD.A.2: Measure and estimate lengths of objects using standard units of measure. Add, subtract, multiply, or divide to solve one-step word problems involving length that are given in the same units.

## Unit 7 - Two-dimensional Shapes and Perimeter

Approximate Days: 20

Standards Addressed: 3.OA.D.8 \*, 3.NBT.A.2 \*, 3.MD.D.8, 3.G.A.1

Overview: In Unit 7, instructional time should focus on the 4 topics described in the [Grade Three Unit 7 Two-dimensional Shapes and Perimeter \(Illustrative Math\)](#):

- A. [Reason with Shapes](#)
- B. [What is Perimeter?](#)
- C. [Expanding on Perimeter](#)
- D. [Design with Perimeter and Area](#)

### ClassHero Scaffolded Practice Tasks for Unit 7

- **Topic 1: Reason with Shapes**

- ✓ **Task 7.1.1: Recognize Shapes and Attributes**

3.G.A.1: Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

- **Topic 2: What is Perimeter?**

- ✓ **Task 7.2.1: Perimeter**

3.MD.D.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

- **Topic 3: Expanding on Perimeter**

- ✓ **Task 7.3.1: Perimeter**

3.MD.D.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

- **Topic 4: Design with Perimeter and Area**

- ✓ **Task 7.4.1: Perimeter**

3.MD.D.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

- ✓ **Task 7.4.2: Area**

3.MD.C.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

3.MD.C.6: Measure areas by counting unit squares.

- ✓ **Task 7.4.3: Area word problems**

3.MD.C.7: Relate area to the operations of multiplication and addition.

## Unit 8 - Putting It All Together

Approximate Days: 20

Standards Addressed: 3.OA.A.3, 3.OA.C.7, 3.OA.D.8, 3.OA.D.9, 3.NBT.A.1, 3.NBT.A.2

Overview: In Unit 8, instructional time should focus on the 3 topics described in the [Grade Three Unit 8 Putting It All Together \(Illustrative Math\)](#):

- A. [Fraction Fun](#)
- B. [Measurement and Data](#)
- C. [Multiplication and Division Games](#)

### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Fraction Fun**

- ✓ **Task 8.1.1: Understanding fractions**

3.NF.A.1: Understand a fraction  $\frac{1}{b}$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $\frac{a}{b}$  as the quantity formed by  $a$  parts of size  $\frac{1}{b}$ .

- ✓ **Task 8.1.2: Represent fractions on a number line**

3.NF.A.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram.

✓ **Task 8.1.2: Equivalent fractions**

3.NF.A.3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

● **Topic 2: Measurement and Data**

✓ **Task 8.2.1: Solve problems with bar graphs**

3.MD.B.3: Draw a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

✓ **Task 8.2.2: Solve problems with picture graphs**

3.MD.B.3: Draw a scaled picture graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled picture graphs.

✓ **Task 8.2.3: Measuring lengths using rulers**

3.MD.B.3: 3.MD.B.4: Measuring lengths using rulers marked with halves and fourths of an inch.

✓ **Task 8.2.4: Area**

3.MD.C.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

3.MD.C.6: Measure areas by counting unit squares.

✓ **Task 8.2.5: Area word problems**

3.MD.C.7: Relate area to the operations of multiplication and addition.

✓ **Task 8.2.6: Perimeter**

3.MD.D.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

● **Topic 3: Multiplication and Division Games**

✓ **Task 8.3.1: Multiplication facts within 100**

3.OA.C.7: Fluently multiply within 100, using strategies such as the relationship between multiplication and division or properties of operations.

✓ **Task 8.3.2: Multiplication story problems within 100**

3.OA.A.3: Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

✓ **Task 8.3.3: Division facts within 100**

3.OA.C.7: Fluently divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.

✓ **Task 8.3.4: Division story problems within 100**

3.OA.A.3: Represent and solve problems involving division.

✓ **Task 8.3.5: Multiplying and dividing properties**

3.OA.B.5: Apply properties of operations as strategies to multiply and divide.

3.OA.B.6: Understand division as an unknown-factor problem.



**Grade Four**

The mathematical work for Grade Four is partitioned into 9 units:

1. [Factors and Multiples](#)
2. [Fraction Equivalence and Comparison](#)
3. [Extending Operations to Fractions](#)
4. [From Hundredths to Hundred-thousands](#)
5. [Multiplicative Comparison and Measurement](#)
6. [Multiplying and Dividing Multi-digit Numbers](#)
7. [Angles and Angle Measurement](#)
8. [Properties of Two-dimensional Shapes](#)
9. [Putting It All Together](#)

## Unit 1 - Factors and Multiples

**Approximate Days:** 10

**Standards Addressed:** 4.OA.B.4

**Overview:** In Unit 1, instructional time should focus on the 2 topics described in the [Grade Four Unit 1 Factors and Multiples \(Illustrative Math\)](#):

- A. [Understand Factors and Multiples](#)
- B. [Find Factor Pairs and Multiples](#)

### ClassHero Scaffolded Practice Tasks for Unit 1

- **Topic 1: Understand Factors and Multiples**

- ✓ **Task 1.1.1: Factors pairs to 100**

4.OA.B.4: Find all factor pairs for a whole number in the range 1-100.

- ✓ **Task 1.1.2: Multiples of a one-digit number to 100**

4.OA.B.4: Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number.

- ✓ **Task 1.1.3: Prime numbers to 100**

4.OA.B.4: Determine whether a given whole number in the range 1-100 is prime or composite.

- ✓ **Task 1.1.4: Generate a number or shape pattern that follows a given rule**

4.OA.C.5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

- **Topic 2: Find Factor Pairs and Multiples**

- ✓ **Task 1.2.1: Multi- Step Problems**

4.OA.A.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

- ✓ **Task 1.2.2: Factors pairs to 100**

4.OA.B.4: Find all factor pairs for a whole number in the range 1-100.

- ✓ **Task 1.2.3: Multiples of a one-digit number to 100**

4.OA.B.4: Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number.

- ✓ **Task 1.2.3: Prime numbers to 100**

4.OA.B.4: Determine whether a given whole number in the range 1-100 is prime or composite.

## Unit 2 - Fraction Equivalence and Comparison

**Approximate Days:** 15

**Standards Addressed:** 4.NF.A.1, 4.NF.A.2

**Overview:** In Unit 2, instructional time should focus on the 3 topics described in the [Grade Four Unit 2 Fraction Equivalence and Comparison \(Illustrative Math\)](#):

- A. [Size and Location of Fractions](#)
- B. [Equivalent Fractions](#)
- C. [Fraction Comparison](#)

### ClassHero Scaffolded Practice Tasks for Unit 2

- **Topic 1: Size and Location of Fractions**

- ✓ **Task 1.1.1: Recognize equivalent Fractions**

4.NF.A.1: Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models.

- ✓ **Task 1.1.2: Compare fractions with different numerators and denominators**

4.NF.A.2: Compare two fractions with different numerators and different denominators.

- **Topic 2: Equivalent Fractions**

- ✓ **Task 2.2.1: Recognize equivalent Fractions**

4.NF.A.1: Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models.

- ✓ **Task 2.2.2: Compare fractions with different numerators and denominators**

4.NF.A.2: Compare two fractions with different numerators and different denominators.

- **Topic 3: Fraction Comparison**

- ✓ **Task 2.3.1: Recognize equivalent Fractions**

- 4.NF.A.1: Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models.
- ✓ **Task 2.3.2: Compare fractions with different numerators and denominators**
- 4.NF.A.2: Compare two fractions with different numerators and different denominators.

### Unit 3 - Extending Operations to Fractions

**Approximate Days:** 20

**Standards Addressed:** 4.NF.B.3, 4.NF.B.3.a, 4.NF.B.3.b, 4.NF.B.3.c, 4.NF.B.3.d, 4.NF.B.4, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c, 4.MD.A.2 \*, 4.MD.B.4

**Overview:** In Unit 3, instructional time should focus on the 4 topics described in the [Grade Four Unit 3 Extending Operations to Fractions \(Illustrative Math\)](#):

- A. [Equal Groups of Fractions](#)
- B. [Addition and Subtraction of Fractions](#)
- C. [Addition of Tenths and Hundredths](#)

#### ClassHero Scaffolded Practice Tasks for Unit 3

- **Topic 1: Equal Groups of Fractions**
  - ✓ **Task 3.1.1: Understand fractions**
    - 4.NF.B.3: Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$ .
    - 4.NF.B.4.A: Understand a fraction  $a/b$  as a multiple of  $1/b$ .
  - ✓ **Task 3.1.2: Multiply fractions by a whole number**
    - 4.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- **Topic 2: Addition and Subtraction of Fractions**
  - ✓ **Task 3.2.1: Add fractions with like denominators**
    - 4.NF.B.3: Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$ .
  - ✓ **Task 3.2.2: Subtract fractions with like denominators**
    - 4.NF.B.3: Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$ .
  - ✓ **Task 3.2.3: Add and subtract mixed numbers with like denominators**
    - 4.NF.B.3.C: Add and subtract mixed numbers with like denominators.
  - ✓ **Task 3.2.4: Line plots with 4th grade fractions**
    - 4.MD.B.4: Make a line plot to display a data set of measurements in fractions of a unit ( $1/2, 1/4, 1/8$ ). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
- **Topic 3: Addition of Tenths and Hundredths**
  - ✓ **Task 3.2.1: Add fractions with denominators of 10 and 100**
    - 4.NF.C.5: Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

### Unit 4 - From Hundredths to Hundred-thousands

**Approximate Days:** 25

**Standards Addressed:** 4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7

**Overview:** In Unit 4, instructional time should focus on the 4 topics described in the [Grade Four Unit 4 From Hundredths to Hundred-thousands \(Illustrative Math\)](#):

- A. [Decimals with Tenths and Hundredths](#)
- B. [Place-value Relationships through 1,000,000](#)
- C. [Compare, Order, and Round](#)
- D. [Add and Subtract](#)

#### ClassHero Scaffolded Practice Tasks for Unit 4

- **Topic 1: Decimals with Tenths and Hundredths**
  - ✓ **Task 4.1.1: Add fractions with denominators of 10 and 100**
    - 4.NF.C.5: Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
  - ✓ **Task 4.1.2: Convert fractions to decimals**
    - 4.NF.C.6: Use decimal notation for fractions with denominators 10 or 100.
  - ✓ **Task 4.1.2: Compare decimals to hundredths**
    - 4.NF.C.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only

when the two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual model.

- **Topic 2: Place-value Relationships through 1,000,000**

- ✓ **Task 4.2.1: Place value to 1 million**

- 4.NBT.A.1: Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

- ✓ **Task 4.2.2: Read, write and compare multi digit numbers**

- 4.NBT.A.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

- **Topic 3: Compare, Order, and Round**

- ✓ **Task 4.3.1: Read, write and compare multi digit numbers**

- 4.NBT.A.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

- ✓ **Task 4.3.2: Rounding multi-digit whole numbers**

- 4.NBT.A.3: Use place value understanding to round multi-digit whole numbers to any place.

- **Topic 4: Add and Subtract**

- ✓ **Task 4.3.1: Add within 1 Million**

- 4.NBT.B.4: Fluently add multi-digit whole numbers using the standard algorithm.

- ✓ **Task 4.3.2: Subtract within 1 Million**

- 4.NBT.B.4: Fluently subtract multi-digit whole numbers using the standard algorithm.

## Unit 5 - Multiplicative Comparison and Measurement

**Approximate Days:** 20

**Standards Addressed:** 4.OA.A.1, 4.OA.A.2, 4.OA.A.3, 4.OA.C.5, 4.NBT.A.1, 4.NBT.B.5, 4.MD.A.1, 4.MD.A.2

**Overview:** In Unit 5, instructional time should focus on the 4 topics described in the [Grade Four Unit 5 Multiplicative Comparison and Measurement \(Illustrative Math\)](#):

- [Multiplicative Comparison](#)
- [Measurement Conversion](#)
- [Let's Put it to Work](#)

### ClassHero Scaffolded Practice Tasks for Unit 5

- **Topic 1: Multiplicative Comparison**

- ✓ **Task 5.1.1: Multiply 2-digits by 2-digits**

- 4.NBT.B.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

- ✓ **Task 5.1.2: Multiplication Word Problems**

- 4.OA.A.1: Interpret a multiplication equation as a comparison.
    - 4.OA.A.2: Multiply or divide to solve word problems involving multiplicative comparison.

- ✓ **Task 5.1.3: Multi- Step Problems**

- 4.OA.A.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

- **Topic 2: Measurement Conversion**

- ✓ **Task 5.2.1: Units of measurement**

- 4.MD.A.1: Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.

- ✓ **Task 5.2.2: Measurement word problems**

- 4.MD.A.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.

- **Topic 3: Let's Put it to Work**

- ✓ **Task 5.3.1: Multiplication Word Problems**

- 4.OA.A.1: Interpret a multiplication equation as a comparison.
    - 4.OA.A.2: Multiply or divide to solve word problems involving multiplicative comparison.

✓ **Task 5.3.2: Multi- Step Problems**

4.OA.A.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

✓ **Task 5.3.2: Measurement word problems**

4.MD.A.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.

**Unit 6 - Multiplying and Dividing Multi-digit Numbers**

**Approximate Days:** 20

**Standards Addressed:** 4.OA.A.3, 4.NBT.B.5, 4.NBT.B.6

**Overview:** In Unit 6, instructional time should focus on the 4 topics described in the [Grade Four Unit 6 Multiplying and Dividing Multi-digit Numbers \(Illustrative Math\)](#):

- A. [Features of Patterns](#)
- B. [Multi-digit Multiplication](#)
- C. [Multi-digit Division](#)
- D. [Let's Put It to Work: Problem Solving with Large Numbers](#)

**ClassHero Scaffolded Practice Tasks for Unit 6**

● **Topic 1: Features of Patterns**

✓ **Task 6.1.1: Generate a number or shape pattern that follows a given rule**

4.OA.C.5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

● **Topic 2: Multi-digit Multiplication**

✓ **Task 6.2.1: Multiply by 10, 100, and 1,000**

4.NBT.B.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

✓ **Task 6.2.2: Multiply up to 4-digits by 1-digit**

4.NBT.B.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

✓ **Task 6.2.3: Multiply 2-digits by 2-digits**

4.NBT.B.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

● **Topic 3: Multi-digit Division**

✓ **Task 6.3.1: Division up to four-digit dividends and one-digit divisors**

4.NBT.B.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.

● **Topic 4: Let's Put It to Work: Problem Solving with Large Numbers**

✓ **Task 6.4.1: Multiplication Word Problems**

4.OA.A.1: Interpret a multiplication equation as a comparison.

4.OA.A.2: Multiply or divide to solve word problems involving multiplicative comparison.

✓ **Task 6.4.2: Multi- Step Problems**

4.OA.A.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

✓ **Task 6.4.3: Measurement word problems**

4.MD.A.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.

**Unit 7 - Angles and Angle Measurement**

**Approximate Days:** 15

**Standards Addressed:** 4.MD.B.4, 4.MD.C.5, 4.MD.C.6, 4.MD.C.7

**Overview:** In Unit 7, instructional time should focus on the 3 topics described in the [Grade Four Unit 7 Angles and Angle Measurement \(Illustrative Math\)](#):

- A. [Points, Lines, Segments, Rays, and Angles](#)
- B. [The Size of Angles](#)

C. [Angle Analysis](#)

**ClassHero Scaffolded Practice Tasks for Unit 7**

- **Topic 1: Points, Lines, Segments, Rays, and Angles**

- ✓ **Task 7.1.1: Recognize angles**

- 4.MD.C.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.

- ✓ **Task 7.1.2: Identify angles & lines in 2D figures**

- 4.G.A.1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

- **Topic 2: The Size of Angles**

- ✓ **Task 7.2.1: Recognize angles**

- 4.MD.C.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.

- ✓ **Task 7.2.2: Measure angles**

- 4.MD.C.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

- ✓ **Task 7.2.3: Recognize angle measure as additive**

- 4.MD.C.7: Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.

- ✓ **Task 7.2.4: Identify angles & lines in 2D figures**

- 4.G.A.1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

- **Topic 3: Angle Analysis**

- ✓ **Task 7.3.1: Identify angles & lines in 2D figures**

- 4.G.A.1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

- ✓ **Task 7.3.2: Classify 2D figures based on line & angle attributes**

- 4.G.A.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

- ✓ **Task 7.3.3: Measure angles**

- 4.MD.C.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

- ✓ **Task 7.3.4: Recognize angle measure as additive**

- 4.MD.C.7: Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.

**Unit 8 - Properties of Two-dimensional Shapes**

**Approximate Days:** 10

**Standards Addressed:** 4.G.A.1, 4.G.A.2, 4.G.A.3, 4.MD.A.3

**Overview:** In Unit 8, instructional time should focus on the 2 topics described in the [Grade Four Unit 8 Properties of Two-dimensional Shapes \(Illustrative Math\)](#):

A. [Side Lengths, Angles, and Lines of Symmetry](#)

B. [Reason about Attributes to Solve Problems](#)

**ClassHero Scaffolded Practice Tasks for Unit 8**

- **Topic 1: Side Lengths, Angles, and Lines of Symmetry**

- ✓ **Task 8.1.1: Identify angles & lines in 2D figures**

- 4.G.A.1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

- ✓ **Task 8.1.2: Classify 2D figures based on line & angle attributes**

- 4.G.A.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

- ✓ **Task 8.1.3: Recognizing line of symmetry**

- 4.G.A.3: Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

- **Topic 2: Reason about Attributes to Solve Problems**

- ✓ **Task 8.2.1: Units of measurement**  
4.MD.A.1: Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.
- ✓ **Task 8.2.2: Measurement word problems**  
4.MD.A.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.
- ✓ **Task 8.2.3: Area and perimeter word problems**  
4.MD.A.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

## Unit 9 - Putting It All Together

**Approximate Days:** 10

**Standards Addressed:** 4.NF.A.1, 4.NF.A.2, 4.NF.B.3, 4.NF.B.4, 4.OA.A.2, 4.OA.A.3, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6

**Overview:** In Unit 8, instructional time should focus on the 2 topics described in the [Grade Four Unit 9 Putting It All Together \(Illustrative Math\)](#):

- A. [Reason with Fractions](#)
- B. [Whole-number Operations](#)
- C. [Solve Problems with Multiplication and Division](#)
- D. [Creation and Design](#)

### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Reason with Fractions**

- ✓ **Task 8.1.1: Add fractions with like denominators**  
4.NF.B.3: Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$
- ✓ **Task 8.1.2: Subtract fractions with like denominators**  
4.NF.B.3: Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$ .
- ✓ **Task 8.1.3: Add and subtract mixed numbers with like denominators**  
4.NF.B.3.C: Add and subtract mixed numbers with like denominators.
- ✓ **Task 8.1.4: Multiply fractions by a whole number**  
4.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- ✓ **Task 8.1.5: Add fractions with denominators of 10 and 100**  
4.NF.C.5: Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

- **Topic 2: Whole-number Operations**

- ✓ **Task 8.2.1: Add within 1 Million**  
4.NBT.B.4: Fluently add multi-digit whole numbers using the standard algorithm.
- ✓ **Task 8.2.2: Subtract within 1 Million**  
4.NBT.B.4: Fluently subtract multi-digit whole numbers using the standard algorithm.
- ✓ **Task 8.2.3: Multiply by 10, 100, and 1,000**  
4.NBT.B.5: Multiply by 10, 100, and 1,000.
- ✓ **Task 8.2.4: Multiply up to 4-digits by 1-digit**  
4.NBT.B.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.
- ✓ **Task 8.2.5: Multiply 2-digits by 2-digits**  
4.NBT.B.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.
- ✓ **Task 8.2.6: Divide with up to 4-digit dividends and 2-digit divisors**  
5.NBT.B.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

- **Topic 3: Solve Problems with Multiplication and Division**

- ✓ **Task 8.3.1: Multiplication Word Problems**  
4.OA.A.1: Interpret a multiplication equation as a comparison.  
4.OA.A.2: Multiply or divide to solve word problems involving multiplicative comparison.
- ✓ **Task 8.3.2: Multi- Step Problems**

4.OA.A.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.



**Grade Five**

The mathematical work for Grade Four is partitioned into 9 units:

1. [Finding Volume](#)
2. [Fractions as Quotients and Fraction Multiplication](#)
3. [Multiplying and Dividing Fractions](#)
4. [Wrapping Up Multiplication and Division with Multi-Digit Numbers](#)
5. [Place Value Patterns and Decimal Operations](#)
6. [More Decimal and Fraction Operations](#)
7. [Shapes on the Coordinate Plane](#)
8. [Putting It All Together](#)

## Unit 1 - Finding Volume

**Approximate Days:** 15

**Standards Addressed:** 5.MD.C.3, 5.MD.C.4, 5.MD.C.5

**Overview:** In Unit 1, instructional time should focus on the 3 topics described in the [Grade Five Unit 1 Finding Volume \(Illustrative Math\)](#):

- A. [Unit Cubes and Volume](#)
- B. [Expressions for Finding Volume](#)
- C. [Volume of Solid Figures](#)

### ClassHero Scaffolded Practice Tasks for Unit 1

- **Topic 1: Unit Cubes and Volume**

- ✓ **Task 1.1.1: Understand volume measurement**

- 5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

- 5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

- ✓ **Task 1.1.2: Solve story problems involving volume**

- 5.MD.C.5: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- **Topic 2: Expressions for Finding Volume**

- ✓ **Task 1.2.1: Understand volume measurement**

- 5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

- 5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

- ✓ **Task 1.2.2: Solve story problems involving volume**

- 5.MD.C.5: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- **Topic 3: Volume of Solid Figures**

- ✓ **Task 1.3.1: Understand volume measurement**

- 5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

- 5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

- ✓ **Task 1.3.2: Solve story problems involving volume**

- 5.MD.C.5: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

## Unit 2 - Fractions as Quotients and Fraction Multiplication

**Approximate Days:** 15

**Standards Addressed:** 5.NF.B.3, 5.NF.B.4, 5.NF.B.6

**Overview:** In Unit 2, instructional time should focus on the 3 topics described in the [Grade Five Unit 2 Fractions as Quotients and Fraction Multiplication \(Illustrative Math\)](#):

- A. [Fractions as Quotients](#)
- B. [Fractions of Whole Numbers](#)
- C. [Area and Fractional Side Lengths](#)

### ClassHero Scaffolded Practice Tasks for Unit 2

- **Topic 1: Fractions as Quotients**

- ✓ **Task 1.1.1: Understand fractions as division**

- 5.NF.B.3: Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.

- **Topic 2: Fractions of Whole Numbers**

- ✓ **Task 2.2.1: Understand fractions as division**

- 5.NF.B.3: Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.

- ✓ **Task 2.2.2: Multiply a fraction or whole number by a fraction**

- 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

- 5.NF.B.5: Interpret multiplication as scaling.

- **Topic 3: Area and Fractional Side Lengths**

- ✓ **Task 2.3.1: Understand fractions as division**

5.NF.B.3: Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.

✓ **Task 2.3.2: Multiply a fraction or whole number by a fraction**

5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

5.NF.B.5: Interpret multiplication as scaling.

### Unit 3 - Multiplying and Dividing Fractions

**Approximate Days:** 25

**Standards Addressed:** 5.NF.B.4, 5.NF.B.5, 5.NF.B.6, 5.NF.B.7, 5.NF.B.7

**Overview:** In Unit 3, instructional time should focus on the 3 topics described in the [Grade Five Unit 3 Multiplying and Dividing Fractions \(Illustrative Math\)](#):

A. [Fraction Multiplication](#)

B. [Fraction Division](#)

C. [Problem Solving with Fractions](#)

#### ClassHero Scaffolded Practice Tasks for Unit 3

- **Topic 1: Fraction Multiplication**

- ✓ **Task 3.1.1: Multiply a fraction or whole number by a fraction**

- 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

- 5.NF.B.5: Interpret multiplication as scaling.

- **Topic 2: Fraction Division**

- ✓ **Task 3.2.1: Divide fractions involving whole numbers**

- 5.NF.B.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

- **Topic 3: Problem Solving with Fractions**

- ✓ **Task 3.3.1: Multiply a fraction or whole number by a fraction**

- 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

- 5.NF.B.5: Interpret multiplication as scaling.

- ✓ **Task 3.3.2: Fraction multiplication story problems**

- 5.NF.B.6: Solve real world problems involving multiplication of fractions and mixed numbers.

- ✓ **Task 3.3.3: Divide fractions involving whole numbers**

- 5.NF.B.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

### Unit 4 - Wrapping Up Multiplication and Division with Multi-Digit Numbers

**Approximate Days:** 25

**Standards Addressed:** 5.NBT.B.5, 5.NBT.B.6, 5.MD.C.5

**Overview:** In Unit 4, instructional time should focus on the 4 topics described in the [Grade Five Unit 4 Wrapping Up Multiplication and Division with Multi-Digit Numbers \(Illustrative Math\)](#):

A. [Multi-digit Multiplication Using the Standard Algorithm](#)

B. [Multi-digit Division Using Partial Quotients](#)

C. [Let's Put it to Work](#)

#### ClassHero Scaffolded Practice Tasks for Unit 4

- **Topic 1: Multi-digit Multiplication Using the Standard Algorithms**

- ✓ **Task 4.1.1: Fluently multiply multi-digit whole numbers**

- 5.NBT.B.5: Fluently multiply multi-digit whole numbers using the standard algorithm.

- **Topic 2: Multi-digit Division Using Partial Quotients**

- ✓ **Task 4.2.1: Divide with up to 4-digit dividends and 2-digit divisors**

- 5.NBT.B.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

- **Topic 3: Let's Put it to Work**

- ✓ **Task 4.3.1: Fluently multiply multi-digit whole numbers**

- 5.NBT.B.5: Fluently multiply multi-digit whole numbers using the standard algorithm.

✓ **Task 4.3.2: Divide with up to 4-digit dividends and 2-digit divisors**

5.NBT.B.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**Unit 5 - Place Value Patterns and Decimal Operations**

**Approximate Days:** 25

**Standards Addressed:** 5.NBT.A.1, 5.NBT.A.2, 5.NBT.A.3, 5.NBT.A.4, 5.NBT.B.7

**Overview:** In Unit 5, instructional time should focus on the 4 topics described in the [Grade Five Unit 5 Place Value Patterns and Decimal Operations \(Illustrative Math\)](#):

- A. [Numbers to Thousandths](#)
- B. [Add and Subtract Decimals](#)
- C. [Multiply Decimals](#)
- D. [Divide Decimals](#)

**ClassHero Scaffolded Practice Tasks for Unit 5**

● **Topic 1: Numbers to Thousandths**

✓ **Task 5.1.1: Read & write decimals to thousandths**

5.NBT.A.3.A: Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,  $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .

✓ **Task 5.1.2: Compare decimals to thousandths**

5.NBT.A.3.B: Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

✓ **Task 5.1.3: Round Decimals**

5.NBT.A.4: Use place value understanding to round decimals to any place.

● **Topic 2: Add and Subtract Decimals**

✓ **Task 5.2.1: Add and subtract decimals to hundredths**

5.NBT.B.7: Add decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

● **Topic 3: Multiply Decimals**

✓ **Task 5.3.1: Multiply decimals to hundredths**

5.NBT.B.7: Multiply decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

● **Topic 4: Divide Decimals**

✓ **Task 5.4.1: Divide decimals to hundredths**

5.NBT.B.7: Divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

**Unit 6 - More Decimal and Fraction Operations**

**Approximate Days:** 15

**Standards Addressed:** 5.NF.A.1, 5.NF.A.2, 5.NF.B.5, 5.MD.A.1, 5.MD.B.2

**Overview:** In Unit 6, instructional time should focus on the 4 topics described in the [Grade Five Unit 6 More Decimal and Fraction Operations \(Illustrative Math\)](#):

- A. [Measurement Conversions and Powers of 10](#)
- B. [Add and Subtract Fractions with Unlike Denominators](#)
- C. [The Size of Products](#)

**ClassHero Scaffolded Practice Tasks for Unit 6**

● **Topic 1: Measurement Conversions and Powers of 10**

✓ **Task 6.1.1: Convert like measurement units**

5.MD.A.1: Convert like measurement units within a given measurement system.

✓ **Task 6.1.2: Understand power of 10**

5.NBT.A.1: Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and  $\frac{1}{10}$  of what it represents in the place to its left.

5.NBT.A.2: Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

- **Topic 2: Add and Subtract Fractions with Unlike Denominators**

- ✓ **Task 6.2.1: Use a line plot graph to solve problems**

5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots.

- ✓ **Task 6.2.2: Add fractions with unlike denominators**

5.NF.A.1: Add fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.

- ✓ **Task 6.2.3: Subtract fractions with unlike denominators**

5.NF.A.1: Subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.

- **Topic 3: The Size of Products**

- ✓ **Task 6.3.1: Multiply a fraction or whole number by a fraction**

5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

5.NF.B.5: Interpret multiplication as scaling.

- ✓ **Task 6.3.2: Solve fraction word problems**

5.NF.A.2: Solve word problems involving addition and subtraction of fractions.

- ✓ **Task 6.3.3: Use a line plot graph to solve problems**

5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots.

## Unit 7 - Shapes on the Coordinate Plane

**Approximate Days:** 15

**Standards Addressed:** 5.G.A.1, 5.G.A.2, 5.G.B.3, 5.G.B.4

**Overview:** In Unit 7, instructional time should focus on the 3 topics described in the [Grade Five Unit 7 Shapes on the Coordinate Plane \(Illustrative Math\)](#):

- [The Coordinate Plane](#)
- [The Hierarchy of Shapes](#)
- [Numerical Patterns](#)

### ClassHero Scaffolded Practice Tasks for Unit 7

- **Topic 1: The Coordinate Plane**

- ✓ **Task 7.1.1: Use and understand a coordinate system**

5.G.A.1: Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.

- **Topic 2: The Hierarchy of Shapes**

- ✓ **Task 7.2.1: Classify 2D figures based on properties**

5.G.B.3: Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.

5.G.B.4: Classify two-dimensional figures into categories based on their properties.

- **Topic 3: Numerical Patterns**

- ✓ **Task 7.3.1: Graph coordinate points to solve problems**

5.G.A.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

- ✓ **Task 7.3.2: Numerical expression**

5.OA.A.1: Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

5.OA.A.2: Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.

- ✓ **Task 7.3.3: Number patterns**

5.OA.B.3: Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.

## Unit 8 - Putting It All Together

**Approximate Days:** 15

**Standards Addressed:** 5.OA.A.1, 5.OA.A.2, 5.NBT.B.5, 5.NBT.B.6, 5.NBT.B.7, 5.MD.C.3, 5.MD.C.4, 5.MD.C.5, 5.NF.A.2, 5.NF.B.3, 5.NF.B.4

**Overview:** In Unit 8, instructional time should focus on the 2 topics described in the [Grade Five Unit 9 Putting It All Together \(Illustrative Math\)](#):

- A. [Multiply and Divide Whole Numbers](#)
- B. [Apply Volume Concepts](#)
- C. [Fraction and Decimal Operations](#)
- D. [Creation and Design](#)

### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Multiply and Divide Whole Numbers**

- ✓ **Task 8.1.1: Fluently multiply multi-digit whole numbers**

- 5.NBT.B.5: Fluently multiply multi-digit whole numbers using the standard algorithm.*

- ✓ **Task 8.1.2: Divide with up to 4-digit dividends and 2-digit divisors**

- 5.NBT.B.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.*

- **Topic 2: Apply Volume Concepts**

- ✓ **Task 8.2.1: Understand volume measurement**

- 5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.*

- 5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.*

- ✓ **Task 8.2.2: Solve story problems involving volume**

- 5.MD.C.5: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.*

- **Topic 3: Fraction and Decimal Operations**

- ✓ **Task 8.3.1: Add and subtract decimals to hundredths**

- 5.NBT.B.7: Add decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.*

- ✓ **Task 8.3.2: Multiply decimals to hundredths**

- 5.NBT.B.7: Multiply decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.*

- ✓ **Task 8.3.3: Divide decimals to hundredths**

- 5.NBT.B.7: Divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.*

- ✓ **Task 8.3.4: Add fractions with unlike denominators**

- 5.NF.A.1: Add fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.*

- ✓ **Task 8.3.5: Subtract fractions with unlike denominators**

- 5.NF.A.1: Subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.*

- ✓ **Task 8.3.6: Multiply a fraction or whole number by a fraction**

- 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.*
    - 5.NF.B.5: Interpret multiplication as scaling.*

**Grade Six**

The mathematical work for Grade Four is partitioned into 9 units:

1. [Area and Surface Area](#)
2. [Introducing Ratios](#)
3. [Unit Rates and Percentages](#)
4. [Dividing Fractions](#)
5. [Arithmetic in Base Ten](#)
6. [Expressions and Equations](#)
7. [Rational Numbers](#)
8. [Data Sets and Distributions](#)
9. [Putting it All Together](#)

## Unit 1 - Area and Surface Area

**Approximate Days:** 21

**Standards Addressed:** 6.G.A.1, 6.G.A.2, 6.G.A.4, 6.EE.A.1, 6.EE.A.2.a, 6.EE.A.2.c

**Overview:** In Unit 1, instructional time should focus on the 6 topics described in the [Grade Six Unit 1 Area and Surface Area \(Illustrative Math\)](#):

- A. Reasoning to Find Area - Lessons 1-3
- B. Parallelograms - Lessons 4-6
- C. Triangles - Lessons 7-10
- D. Polygons - Lessons 11
- E. Surface Area - Lessons 12-16
- F. Squares and Cubes - Lessons 17-18
- G. Let's Put it to Work - Lessons 19

### ClassHero Scaffolded Practice Tasks for Unit 1

- **Topic 1: Reasoning to Find Area - Lessons 1-3**

- ✓ **Task 1.1.1: Area**

- 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.

- 6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

- **Topic 2: Parallelograms - Lessons 4-6**

- ✓ **Task 1.2.1: Area**

- 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.

- 6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

- **Topic 3: Triangles - Lessons 7-10**

- ✓ **Task 1.3.3: Area**

- 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.

- 6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

- **Topic 4: Polygons - Lessons 11**

- ✓ **Task 1.4.1: Area**

- 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.

- 6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

- **Topic 5: Surface Area - Lessons 12-16**

- ✓ **Task 1.4.1: 3-Dimensional surface area**

- 6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

- **Topic 6: Squares and Cubes - Lessons 17-18**

- ✓ **Task 1.6.1: 3-Dimensional surface area**

- 6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

## Unit 2 - Introducing Ratios

**Approximate Days:** 19

**Standards Addressed:** 6.RP.A.1, 6.RP.A.2, 6.RP.A.3, 6.RP.A.3.b,

**Overview:** In Unit 2, instructional time should focus on the 6 topics described in the [Grade Six Unit 2 Introducing Ratios \(Illustrative Math\)](#):

- A. What are Ratios? - Lessons 1-2
- B. Equivalent Ratios - Lessons 3-5
- C. Representing Equivalent Ratios - Lessons 6-10



- D. Solving Ratio and Rate Problems - Lessons 11-14
- E. Part-part-whole Ratios - Lessons 15-16
- F. Let's Put it to Work - Lessons 17

**ClassHero Scaffolded Practice Tasks for Unit 2**

- **Topic 1: What are Ratios? - Lessons 1-2**
  - ✓ **Task 2.1.1: Understand ratios as units**
    - 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
    - 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.
    - 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.
- **Topic 2: Equivalent Ratios - Lessons 3-5**
  - ✓ **Task 2.2.1: Understand ratios as units**
    - 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
    - 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.
    - 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.
  - ✓ **Task 2.2.2: Use tables to compare ratios**
    - 6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- **Topic 3: Representing Equivalent Ratios - Lessons 6-10**
  - ✓ **Task 2.3.1: Understand ratios as units**
    - 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
    - 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.
    - 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.
  - ✓ **Task 2.3.2: Use tables to compare ratios**
    - 6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- **Topic 4: Solving Ratio and Rate Problems - Lessons 11-14**
  - ✓ **Task 2.4.1: Understand ratios as units**
    - 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
    - 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.
    - 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.
  - ✓ **Task 2.4.2: Use tables to compare ratios**
    - 6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
  - ✓ **Task 2.4.3: Find a percent of a quantity.**
    - 6.RP.A.3.C: Find a percent of a quantity as a rate per 100.
  - ✓ **Task 2.4.4: Use ratios to convert measurement units**
    - 6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- **Topic 5: Part-part-whole Ratios - Lessons 15-16**
  - ✓ **Task 2.5.1: Find a percent of a quantity.**
    - 6.RP.A.3.C: Find a percent of a quantity as a rate per 100.
  - ✓ **Task 2.5.2: Use ratios to convert measurement units**
    - 6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- **Topic 6: Let's Put it to Work - Lessons 17**
  - ✓ **Task 2.6.1: Find a percent of a quantity.**
    - 6.RP.A.3.C: Find a percent of a quantity as a rate per 100.
  - ✓ **Task 2.6.2: Use ratios to convert measurement units**
    - 6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when

multiplying or dividing quantities.

### Unit 3 - Unit Rates and Percentages

**Approximate Days:** 18-19

**Standards Addressed:** 6.RP.A.2, 6.RP.A.3, 6.RP.A.3.b, 6.RP.A.3.c, 6.RP.A.3.d, 6.G.A, 6.RP.A

**Overview:** In Unit 3, instructional time should focus on the 5 topics described in the [Grade Six Unit 3 Unit Rates and Percentages \(Illustrative Math\)](#):

- A. Units of Measurement - Lessons 1
- B. Unit Conversion- Lessons 2-4
- C. Rates- Lessons 5-9
- D. Percentages- Lessons 10-16
- E. Let's Put it to Work- Lessons 17

#### ClassHero Scaffolded Practice Tasks for Unit 3

- **Topic 1: Units of Measurement - Lessons 1**

- ✓ **Task 3.1.1: Understand ratios as units**

- 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

- 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

- 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.

- **Topic 2: Unit Conversion- Lessons 2-4**

- ✓ **Task 3.2.1: Use ratios to convert measurement units**

- 6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

- **Topic 3: Rates- Lessons 5-9**

- ✓ **Task 3.3.1: Understand ratios as units**

- 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

- 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

- 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.

- ✓ **Task 3.3.2: Use tables to compare ratios**

- 6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

- ✓ **Task 3.3.3: Use ratios to convert measurement units**

- 6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

- **Topic 4: Percentages- Lessons 10-16**

- ✓ **Task 3.4.1: Find a percent of a quantity.**

- 6.RP.A.3.C: Find a percent of a quantity as a rate per 100.

- **Topic 5: Let's Put it to Work- Lessons 17**

- ✓ **Task 3.5.1: Understand ratios as units**

- 6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

- 6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

- 6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.

- ✓ **Task 3.5.2: Use tables to compare ratios**

- 6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

- ✓ **Task 3.5.3: Find a percent of a quantity.**

- 6.RP.A.3.C: Find a percent of a quantity as a rate per 100.

- ✓ **Task 3.5.4: Use ratios to convert measurement units**

- 6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

## Unit 4 - Dividing Fractions

**Approximate Days:** 20

**Standards Addressed:** 6.NS.A, 6.G.A.1, 6.G.A.2

**Overview:** In Unit 4, instructional time should focus on the 5 topics described in the [Grade Six Unit 4 Dividing Fractions \(Illustrative Math\)](#):

- A. Making Sense of Division - Lessons 1-3
- B. Meanings of Fraction Division - Lessons 4-9
- C. Algorithm for Fraction Division - Lessons 10-11
- D. Fractions in Lengths, Areas, and Volumes - Lessons 12-15
- E. Let's Put It to Work - Lessons 16-17

### ClassHero Scaffolded Practice Tasks for Unit 4

- **Topic 1: Making Sense of Division - Lessons 1-3**

- ✓ **Task 4.1.1: Divide fractions**

- 6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.*

- **Topic 2: Meanings of Fraction Division - Lessons 4-9**

- ✓ **Task 4.2.1: Divide fractions**

- 6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.*

- **Topic 3: Algorithm for Fraction Division - Lessons 10-11**

- ✓ **Task 4.3.1: Divide fractions**

- 6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.*

- **Topic 4: Fractions in Lengths, Areas, and Volumes - Lessons 12-15**

- ✓ **Task 4.4.1: Divide fractions**

- 6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.*

- ✓ **Task 4.4.2: Area**

- 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.*

- ✓ **Task 4.4.3: Volume**

- 6.G.A.2: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas  $V = lwh$  and  $V = bh$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.*

- **Topic 5: Let's Put It to Work - Lessons 16-17**

- ✓ **Task 4.5.1: Divide fractions**

- 6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.*

- ✓ **Task 4.5.2: Area**

- 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.*

- ✓ **Task 4.5.3: Volume**

- 6.G.A.2: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas  $V = lwh$  and  $V = bh$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.*

## Unit 5 - Arithmetic in Base Ten

**Approximate Days:** 16-18

**Standards Addressed:** 6.NS.B.3, 6.EE.A, 6.NS.B, 6.NS.B.2, 6.EE.A.4

**Overview:** In Unit 5, instructional time should focus on the 5 topics described in the [Grade Six Unit 5 Place Value Patterns and Decimal Operations \(Illustrative Math\)](#):

- A. Warming Up to Decimals - Lessons 1
- B. Adding and Subtracting Decimals - Lessons 2-4
- C. Multiplying Decimals - Lessons 5-8
- D. Dividing Decimals - Lessons 9-13
- E. Let's Put It to Work - Lessons 14-15

### ClassHero Scaffolded Practice Tasks for Unit 5

- **Topic 1: Warming Up to Decimals - Lessons 1**
  - ✓ **Task 5.1.1: Multi-digit decimal computation**  
6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- **Topic 2: Adding and Subtracting Decimals - Lessons 2-4**
  - ✓ **Task 5.2.1: Multi-digit decimal computation**  
6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- **Topic 3: Multiplying Decimals - Lessons 5-8**
  - ✓ **Task 5.3.1: Multi-digit decimal computation**  
6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- **Topic 4: Dividing Decimals - Lessons 9-13**
  - ✓ **Task 5.4.1: Multi-digit division computation**  
6.NS.B.2: Fluently divide multi-digit numbers using the standard algorithm.
  - ✓ **Task 5.4.2: Equivalent expressions**  
6.EE.A.3: Apply the properties of operations to generate equivalent expressions.  
6.EE.A.4: Identify when two expressions are equivalent.
  - ✓ **Task 5.4.3: Multi-digit decimal computation**  
6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- **Topic 5: Let's Put It to Work - Lessons 14-15**
  - ✓ **Task 5.5.1: Multi-digit division computation**  
6.NS.B.2: Fluently divide multi-digit numbers using the standard algorithm.
  - ✓ **Task 5.5.2: Equivalent expressions**  
6.EE.A.3: Apply the properties of operations to generate equivalent expressions.  
6.EE.A.4: Identify when two expressions are equivalent.
  - ✓ **Task 5.5.3: Multi-digit decimal computation**  
6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

## Unit 6 - Expressions and Equations

**Approximate Days:** 20-22

**Standards Addressed:** 6.EE.A.1, 6.EE.A.2, 6.EE.A.3, 6.EE.A.4, 6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.NS.B.3, 6.EE.C.9, 6.RP.A.1, 6.RP.A.3.a, 6.RP.A.3.b

**Overview:** In Unit 6, instructional time should focus on the 5 topics described in the [Grade Six Unit 6 Expressions and Equations \(Illustrative Math\)](#):

- A. Equations in One Variable - Lessons 1-5
- B. Equal and Equivalent - Lessons 6-11
- C. Expressions with Exponents - Lessons 12-15
- D. Relationships Between Quantities - Lessons 16-18
- E. Let's Put it to Work - Lessons 19

### ClassHero Scaffolded Practice Tasks for Unit 6

- **Topic 1: Equations in One Variable - Lessons 1-5**
  - ✓ **Task 6.1.1: Expression inequality**  
6.EE.B.5: Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
  - ✓ **Task 6.1.2: Solving equations**  
6.EE.B.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.  
6.EE.B.7: Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.
- **Topic 2: Equal and Equivalent - Lessons 6-11**
  - ✓ **Task 6.2.1: Expressions with a variable**  
6.EE.A.2.a: Write expressions that record operations with numbers and with letters standing for numbers.  
6.EE.A.2.b: Identify parts of an expression using mathematical terms. View one or more parts of an expression as a single entity.

- ✓ **Task 6.2.2: Order of operations**  
6.EE.A.2.c: Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order.
- ✓ **Task 6.2.3: Equivalent expressions**  
6.EE.A.3: Apply the properties of operations to generate equivalent expressions.  
6.EE.A.4: Identify when two expressions are equivalent.
- **Topic 3: Expressions with Exponents - Lessons 12-15**
  - ✓ **Task 6.3.1: Expressions with whole number exponents**  
6.EE.A.1: Write and evaluate numerical expressions involving whole-number exponents.
  - ✓ **Task 6.3.2: Order of operations**  
6.EE.A.2.c: Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order.
  - ✓ **Task 6.3.3: Expression inequality**  
6.EE.B.5: Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- **Topic 4: Relationships Between Quantities - Lessons 16-18**
  - ✓ **Task 6.4.1: Variable relationship**  
6.EE.C.9: Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
  - ✓ **Task 6.4.2: Understand ratios as units**  
6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.  
6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.  
6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.
  - ✓ **Task 6.4.3: Use tables to compare ratios**  
6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- **Topic 5: Let's Put it to Work - Lessons 19**
  - ✓ **Task 6.5.1: Expressions with a variable**  
6.EE.A.2.a: Write expressions that record operations with numbers and with letters standing for numbers.  
6.EE.A.2.b: Identify parts of an expression using mathematical terms. View one or more parts of an expression as a single entity.
  - ✓ **Task 6.5.2: Order of operations**  
6.EE.A.2.c: Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order.
  - ✓ **Task 6.5.3: Solving equations**  
6.EE.B.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.  
6.EE.B.7: Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.
  - ✓ **Task 6.5.4: Variable relationship**  
6.EE.C.9: Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

**Unit 7 - Rational Numbers**

**Approximate Days:** 21

**Standards Addressed:** 6.NS.B.4, 6.NS.C.5, 6.NS.C.6, 6.NS.C.7, 6.NS.C.8, 6.EE.A.2.b, 6.EE.B.5, 6.EE.B.6, 6.EE.B.8, 6.G.A.3

**Overview:** In Unit 7, instructional time should focus on the 5 topics described in the [Grade Six Unit 7 Rational Numbers \(Illustrative Math\)](#):

- A. Negative Numbers and Absolute Value - Lessons 1-7
- B. Inequalities - Lessons 8-10
- C. The Coordinate Plane - Lessons 11-15
- D. Common Factors and Common Multiples - Lessons 16-18
- E. Let's Put it to Work - Lessons 19

**ClassHero Scaffolded Practice Tasks for Unit 7**

- **Topic 1: Negative Numbers and Absolute Value - Lessons 1-7**

- ✓ **Task 7.1.1: Opposite numbers**

- 6.NS.C.6.A: Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself.

- ✓ **Task 7.1.2: Opposite signs**

- 6.NS.C.6.B: Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

- ✓ **Task 7.1.3: Compare numbers**

- 6.NS.C.7.A: Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

- 6.NS.C.7.B: Write, interpret, and explain statements of order for rational numbers in real-world contexts.

- ✓ **Task 7.1.4: Absolute number**

- 6.NS.C.7.C: Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

- 6.NS.C.7.D: Distinguish comparisons of absolute value from statements about order.

- **Topic 2: Inequalities - Lessons 8-10**

- ✓ **Task 7.2.1: Expression inequality**

- 6.EE.B.5: Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

- ✓ **Task 7.2.1: Solving equations**

- 6.EE.B.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

- 6.EE.B.7: Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

- ✓ **Task 7.2.2: Inequality**

- 6.EE.B.8: Write an inequality of the form  $x > c$  or  $x < c$  to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form  $x > c$  or  $x < c$  have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

- **Topic 3: The Coordinate Plane - Lessons 11-15**

- ✓ **Task 7.3.1: Coordinates**

- 6.NS.C.6.C: Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

- ✓ **Task 7.3.2: Shapes in coordinate plane**

- 6.G.A.3: Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

- ✓ **Task 7.3.3: Graphing**

- 6.NS.C.8: Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.

- **Topic 4: Common Factors and Common Multiples - Lessons 16-18**

- ✓ **Task 7.4.1: GCF & LCM**

6.NS.B.4: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

- **Topic 5: Let's Put it to Work - Lessons 19**

- ✓ **Task 7.5.1: Shapes in coordinate plane**

6.G.A.3: Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

- ✓ **Task 7.5.2: Graphing**

6.NS.C.8: Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.

## Unit 8 - Data Sets and Distributions

**Approximate Days:** 21

**Standards Addressed:** 6.SP.B

**Overview:** In Unit 8, instructional time should focus on the 5 topics described in the [Grade Six Unit 8 Data Sets and Distributions \(Illustrative Math\)](#):

- A. Data, Variability, and Statistical Questions - Lessons 1-2
- B. Dot Plots and Histograms - Lessons 3-8
- C. Measures of Center and Variability - Lessons 9-12
- D. Median and IQR - Lessons 13-17
- E. Let's Put it to Work - Lessons 18

### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Data, Variability, and Statistical Questions - Lessons 1-2**

- ✓ **Task 8.1.1: Statistical question**

6.SP.A.1: Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

- ✓ **Task 8.1.2: Display and summarize data in plots**

6.SP.B.4: Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.B.5: Summarize numerical data sets in relation to their context.

- **Topic 2: Dot Plots and Histograms - Lessons 3-8**

- ✓ **Task 8.2.1: Statistical question**

6.SP.A.1: Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

- ✓ **Task 8.2.2: Display and summarize data in plots**

6.SP.B.4: Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.B.5: Summarize numerical data sets in relation to their context.

- **Topic 3: Measures of Center and Variability - Lessons 9-12**

- ✓ **Task 8.3.1: Mean, median & range**

6.SP.A.2: Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6.SP.A.3: Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

- ✓ **Task 8.3.2: Display and summarize data in plots**

6.SP.B.4: Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.B.5: Summarize numerical data sets in relation to their context.

- **Topic 4: Median and IQR - Lessons 13-17**

- ✓ **Task 8.4.1: Statistical question**

6.SP.A.1: Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

- ✓ **Task 8.4.2: Mean, median & range**

6.SP.A.2: Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6.SP.A.3: Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while

a measure of variation describes how its values vary with a single number.

✓ **Task 8.4.3: Display and summarize data in plots**

6.SP.B.4: Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.B.5: Summarize numerical data sets in relation to their context.

● **Topic 5: Let's Put it to Work - Lessons 18**

✓ **Task 8.5.1: Mean, median & range**

6.SP.A.2: Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6.SP.A.3: Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

✓ **Task 8.5.2: Display and summarize data in plots**

6.SP.B.4: Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.B.5: Summarize numerical data sets in relation to their context.

**Unit 9 - Putting it All Together**

**Approximate Days:** 0-18

**Standards Addressed:** 6.G.A, 6.NS.A, 6.NS.B, 6.RP.A

**Overview:** In Unit 8, instructional time should focus on the 2 topics described in the [Grade Six Unit 9 Putting It All Together \(Illustrative Math\)](#):

A. Making Connections - Lessons 1-3

B. Voting - Lessons 4-6

**ClassHero Scaffolded Practice Tasks for Unit 8**

● **Topic 1: Making Connections - Lessons 1-3**

✓ **Task 8.1.1: Area**

6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.

✓ **Task 8.1.2: Volume**

6.G.A.2: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas  $V = lwh$  and  $V = bh$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

✓ **Task 8.1.3: Shapes in coordinate plane**

6.G.A.3: Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

✓ **Task 8.1.4: 3-Dimensional surface area**

6.G.A.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

● **Topic 2: Voting - Lessons 4-6**

✓ **Task 8.2.1: Understand ratios as units**

6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

6.RP.A.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

6.RP.A.3.B: Solve unit rate problems including those involving unit pricing and constant speed.

✓ **Task 8.2.2: Use tables to compare ratios**

6.RP.A.3.A: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

✓ **Task 8.2.3: Find a percent of a quantity.**

6.RP.A.3.C: Find a percent of a quantity as a rate per 100.

✓ **Task 8.2.4: Use ratios to convert measurement units**

6.RP.A.3.D: Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.





**Grade Seven**

The mathematical work for Grade Four is partitioned into 9 units:

1. [Scale Drawings](#)
2. [Introducing Proportional Relationships](#)
3. [Measuring Circles](#)
4. [Proportional Relationships and Percentages](#)
5. [Rational Number Arithmetic](#)
6. [Expressions, Equations, and Inequalities](#)
7. [Angles, Triangles, and Prisms](#)
8. [Probability and Sampling](#)
9. [Putting it All Together](#)

## Unit 1 - Scale Drawings

**Approximate Days:** 21-22

**Standards Addressed:** 7.G.A.1, 7.G.B.4, 7.G.B.6, 7.RP.A.2

**Overview:** In Unit 1, instructional time should focus on the 3 topics described in the [Grade Seven Unit 1 Scale Drawings \(Illustrative Math\)](#):

- A. Scaled Copies - Lessons 1-6
- B. Scale Drawings - Lessons 7-12
- C. Let's Put it to Work - Lessons 13

### ClassHero Scaffolded Practice Tasks for Unit 1

- **Topic 1: Scaled Copies - Lessons 1-6**

- ✓ **Task 1.1.1: Scaling figures**

- 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

- ✓ **Task 1.1.2: Circles**

- 7.G.B.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

- ✓ **Task 1.1.3: Proportional relationship**

- 7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

- 7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

- **Topic 2: Scale Drawings - Lessons 7-12**

- ✓ **Task 1.2.1: Scaling figures**

- 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

- ✓ **Task 1.2.2: Area & Volume**

- 7.G.B.6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

- ✓ **Task 1.2.2: Constant of proportionality**

- 7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

- ✓ **Task 1.2.2: Ratio & percentage**

- 7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

- **Topic 3: Let's Put it to Work - Lessons 13**

- ✓ **Task 1.2.1: Scaling figures**

- 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

## Unit 2 - Introducing Proportional Relationships

**Approximate Days:** 17

**Standards Addressed:** 7.G.A.1, 7.G.B.6, 7.RP.A, 7.EE.A

**Overview:** In Unit 2, instructional time should focus on the 5 topics described in the [Grade Seven Unit 2 Introducing Proportional Relationships \(Illustrative Math\)](#):

- A. Representing Proportional Relationships with Tables - Lessons 1-3
- B. Representing Proportional Relationships with Equations - Lessons 4-6
- C. Comparing Proportional and Nonproportional Relationships - Lessons 7-9
- D. Representing Proportional Relationships with Graphs - Lessons 10-13
- E. Let's Put it to Work - Lessons 14

### ClassHero Scaffolded Practice Tasks for Unit 2

- **Topic 1: Representing Proportional Relationships with Tables - Lessons 1-3**

- ✓ **Task 2.1.1: Scaling figures**

- 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a

scale drawing and reproducing a scale drawing at a different scale.

✓ **Task 2.1.2: Proportional relationship**

7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

✓ **Task 2.1.2: Constant of proportionality**

7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

● **Topic 2: Representing Proportional Relationships with Equations - Lessons 4-6**

✓ **Task 2.2.1: Constant of proportionality**

7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

✓ **Task 2.2.2: Proportional equations**

7.RP.A.2c: Represent proportional relationships by equations.

● **Topic 3: Comparing Proportional and Nonproportional Relationships - Lessons 7-9**

✓ **Task 2.3.1: Proportional relationship**

7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

✓ **Task 2.3.2: Constant of proportionality**

7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

✓ **Task 2.3.3: Proportional equations**

7.RP.A.2c: Represent proportional relationships by equations.

✓ **Task 2.3.4: Area & Volume**

7.G.B.6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

● **Topic 4: Representing Proportional Relationships with Graphs - Lessons 10-13**

✓ **Task 2.4.1: Proportional relationship**

7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

✓ **Task 2.4.2: Proportional graphs**

7.RP.A.2d: Explain what a point  $(x, y)$  on the graph of a proportional relationship means in terms of the situation, with special attention to the points  $(0, 0)$  and  $(1, r)$  where  $r$  is the unit rate.

✓ **Task 2.4.3: Equivalent expressions**

7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.A.2: Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

● **Topic 5: Let's Put it to Work - Lessons 14**

✓ **Task 2.5.1: Proportional relationship**

7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

✓ **Task 2.5.2: Constant of proportionality**

7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

✓ **Task 2.5.3: Proportional equations**

7.RP.A.2c: Represent proportional relationships by equations.

✓ **Task 2.5.4: Proportional graphs**

7.RP.A.2d: Explain what a point  $(x, y)$  on the graph of a proportional relationship means in terms of the situation, with special attention to the points  $(0, 0)$  and  $(1, r)$  where  $r$  is the unit rate.

**Unit 3 - Measuring Circles**

**Approximate Days:** 11-13

**Standards Addressed:** 7.G.A, 7.G.B, 7.RP.A, 7.EE.B.3

**Overview:** In Unit 3, instructional time should focus on the 3 topics described in the [Grade Seven Unit 3 Measuring Circles \(Illustrative Math\)](#):

- A. Circumference of a Circle - Lessons 1-5
- B. Area of a Circle- Lessons 6-9
- C. Let's Put it to Work- Lessons 10-11

**ClassHero Scaffolded Practice Tasks for Unit 3**

• **Topic 1: Circumference of a Circle - Lessons 1-5**

✓ **Task 3.1.1: Circles**

7.G.B.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

• **Topic 2: Area of a Circle- Lessons 6-9**

✓ **Task 3.2.1: Circles**

7.G.B.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

• **Topic 3: Let's Put it to Work- Lessons 10-11**

✓ **Task 3.3.1: Circles**

7.G.B.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

✓ **Task 3.3.2: Scaling figures**

7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

✓ **Task 3.3.3: Drawing shapes**

7.G.A.2: Draw geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

✓ **Task 3.3.4: Decomposing 3D figures**

7.G.A.3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

**Unit 4 - Proportional Relationships and Percentages**

**Approximate Days:** 17-18

**Standards Addressed:** 7.RP.A, 7.EE.A.1, 7.NS.A.2.d

**Overview:** In Unit 4, instructional time should focus on the 4 topics described in the [Grade Seven Unit 4 Proportional Relationships and Percentages \(Illustrative Math\)](#):

- A. Proportional Relationships with Fractions - Lessons 1-5
- B. Percent Increase and Decrease - Lessons 6-9
- C. Applying Percentages - Lessons 10-15
- D. Let's Put It to Work - Lessons 16

**ClassHero Scaffolded Practice Tasks for Unit 4**

• **Topic 1: Proportional Relationships with Fractions - Lessons 1-5**

✓ **Task 4.1.1: Proportional relationship**

7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

✓ **Task 4.1.2: Constant of proportionality**

7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

✓ **Task 4.1.3: Proportional equations**

7.RP.A.2c: Represent proportional relationships by equations.

● **Topic 2: Percent Increase and Decrease - Lessons 6-9**

✓ **Task 4.2.1: Ratio & percentage**

7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

● **Topic 3: Applying Percentages - Lessons 10-15**

✓ **Task 4.3.1: Ratio & percentage**

7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

● **Topic 4: Let's Put It to Work - Lessons 16**

✓ **Task 4.4.1: Ratio & percentage**

7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

**Unit 5 - Rational Number Arithmetic**

**Approximate Days:** 19

**Standards Addressed:** 7.NS.A.1, 7.NS.A.2, 7.EE.B, 7.NS.A.3

**Overview:** In Unit 5, instructional time should focus on the 6 topics described in the [Grade Seven Unit 5 Rational Number Arithmetic \(Illustrative Math\)](#):

- A. Interpreting Negative Numbers - Lesson 1
- B. Adding and Subtracting Rational Numbers - Lessons 2-7
- C. Multiplying and Dividing Rational Numbers - Lessons 8-12
- D. Four Operations with Rational Numbers - Lessons 13-14
- E. Solving Equations When There Are Negative Numbers- Lessons 15-16
- F. Let's Put It to Work - Lesson 17

**ClassHero Scaffolded Practice Tasks for Unit 5**

● **Topic 1: Interpreting Negative Numbers - Lesson 1**

✓ **Task 5.1.1: Opposite quantities**

7.NS.A.1a: Describe situations in which opposite quantities combine to make 0.

✓ **Task 5.1.2: Distance**

7.NS.A.1b: Understand  $p + q$  as the number located a distance  $|q|$  from  $p$ , in the positive or negative direction depending on whether  $q$  is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

● **Topic 2: Adding and Subtracting Rational Numbers - Lessons 2-7**

✓ **Task 5.2.1: Add & subtract with rational numbers**

7.NS.A.1c: Understand subtraction of rational numbers as adding the additive inverse,  $p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

7.NS.A.1d: Apply properties of operations as strategies to add and subtract rational numbers.

● **Topic 3: Multiplying and Dividing Rational Numbers - Lessons 8-12**

✓ **Task 5.3.1: Multiplication with rational numbers**

7.NS.A.2.a: Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as  $(-1)(-1) = 1$  and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

7.NS.A.2.c: Apply properties of operations as strategies to multiply and divide rational numbers.

✓ **Task 5.3.1: Division with rational numbers**

7.NS.A.2.b: Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-(p/q) = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real-world contexts.

7.NS.A.2.c: Apply properties of operations as strategies to multiply and divide rational numbers.

- **Topic 4: Four Operations with Rational Numbers - Lessons 13-14**

- ✓ **Task 5.4.1: Word problems with rational numbers**

7.NS.A.3: Solve real-world and mathematical problems involving the four operations with rational numbers.

- ✓ **Task 5.4.2: Equality of equation**

7.EE.B.4a: Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

- **Topic 5: Solving Equations When There Are Negative Numbers- Lessons 15-16**

- ✓ **Task 5.4.1: Word problems with rational numbers**

7.NS.A.3: Solve real-world and mathematical problems involving the four operations with rational numbers.

- ✓ **Task 5.4.2: Multi-step real world problems**

7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

- **Topic 6: Let's Put It to Work - Lesson 17**

- ✓ **Task 5.5.1: Multi-step real world problems**

7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

- ✓ **Task 5.5.2: Word problems with rational numbers**

7.NS.A.3: Solve real-world and mathematical problems involving the four operations with rational numbers.

## Unit 6 - Expressions, Equations, and Inequalities

**Approximate Days:** 26

**Standards Addressed:** 7.EE.A.1, 7.EE.A.2, 7.EE.B.3, 7.EE.B.4

**Overview:** In Unit 6, instructional time should focus on the 5 topics described in the [Grade Seven Unit 6 Expressions, Equations, and Inequalities \(Illustrative Math\)](#):

- Representing Situations of the Form  $px+q=r$  and  $p(x+q)=r$ - Lessons 1-6
- Solving Equations of the Form  $px+q=r$  and  $p(x+q)=r$  and Problems That Lead to Those Equations - Lessons 7-12
- Inequalities - Lessons 13-17
- Writing Equivalent Expressions - Lessons 18-22
- Let's Put it to Work - Lessons 23

### ClassHero Scaffolded Practice Tasks for Unit 6

- **Topic 1: Representing Situations of the Form  $px+q=r$  and  $p(x+q)=r$ - Lessons 1-6**

- ✓ **Task 6.1.1: Equality of equation**

7.EE.B.4a: Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

- ✓ **Task 6.1.2: Multi-step real world problems**

7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

- **Topic 2: Solving Equations of the Form  $px+q=r$  and  $p(x+q)=r$  and Problems That Lead to Those Equations - Lessons 7-12**

- ✓ **Task 6.2.1: Equality of equation**

7.EE.B.4a: Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

- ✓ **Task 6.1.2: Multi-step real world problems**

7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with

numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

- **Topic 3: Inequalities - Lessons 13-17**

- ✓ **Task 6.3.1: Inequality of equations**

7.EE.B.4b: Solve word problems leading to inequalities of the form  $px + q > r$  or  $px + q < r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.

- **Topic 4: Writing Equivalent Expressions - Lessons 18-22**

- ✓ **Task 6.4.1: Opposite quantities**

7.NS.A.1a: Describe situations in which opposite quantities combine to make 0.

- ✓ **Task 6.4.2: Equivalent expressions**

7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.A.2: Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

- **Topic 5: Let's Put it to Work - Lessons 23**

- ✓ **Task 6.5.1: Equivalent expressions**

7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.A.2: Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

- ✓ **Task 6.5.2: Equality of equation**

7.EE.B.4a: Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

- ✓ **Task 6.5.3: Multi-step real world problems**

7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

- ✓ **Task 6.5.4: Inequality of equations**

7.EE.B.4b: Solve word problems leading to inequalities of the form  $px + q > r$  or  $px + q < r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.

## Unit 7 - Angles, Triangles, and Prisms

**Approximate Days:** 19

**Standards Addressed:** 7.G.A, 7.G.B

**Overview:** In Unit 7, instructional time should focus on the 4 topics described in the [Grade Seven Unit 7 Angles, Triangles, and Prisms \(Illustrative Math\)](#):

- Angle Relationships - Lessons 1-5
- Drawing Polygons with Given Conditions - Lessons 6-10
- Solid Geometry - Lessons 11-16
- Let's Put it to Work - Lessons 17

### ClassHero Scaffolded Practice Tasks for Unit 7

- **Topic 1: Angle Relationships - Lessons 1-5**

- ✓ **Task 7.1.1: Angles**

7.G.B.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

- **Topic 2: Drawing Polygons with Given Conditions - Lessons 6-10**

- ✓ **Task 7.2.1: Scaling figures**

7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

- ✓ **Task 7.2.2: Drawing shapes**

7.G.A.2: Draw geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or



sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

- **Topic 3: Solid Geometry - Lessons 11-16**

- ✓ **Task 7.3.1: Decomposing 3D figures**

- 7.G.A.3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

- ✓ **Task 7.3.2: Area & Volume**

- 7.G.B.6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

- **Topic 4: Let's Put it to Work - Lessons 19**

- ✓ **Task 7.4.1: Scaling figures**

- 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

- ✓ **Task 7.4.2: Drawing shapes**

- 7.G.A.2: Draw geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

- ✓ **Task 7.4.3: Decomposing 3D figures**

- 7.G.A.3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

- ✓ **Task 7.4.4: Angles**

- 7.G.B.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

- ✓ **Task 7.4.5: Area & Volume**

- 7.G.B.6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

## Unit 8 - Probability and Sampling

**Approximate Days:** 21-23

**Standards Addressed:** 7.SP.A, 7.SP.B, 7.SP.C

**Overview:** In Unit 8, instructional time should focus on the 5 topics described in the [Grade Seven Unit 8 Probability and Sampling \(Illustrative Math\)](#):

- Probabilities of Single Step Events - Lessons 1-6
- Probabilities of Multi-step Events - Lessons 7-10
- Sampling - Lessons 11-14
- Using Samples - Lessons 15-19
- Let's Put it to Work - Lessons 20

### ClassHero Scaffolded Practice Tasks for Unit 8

- **Topic 1: Probabilities of Single Step Events - Lessons 1-6**

- ✓ **Task 8.1.1: Simple event probability**

- 7.SP.C.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around  $\frac{1}{2}$  indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

- ✓ **Task 8.1.2: Predictions with probability**

- 7.SP.C.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.

- ✓ **Task 8.1.3: Experimental probability**

- 7.SP.C.7: Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

- **Topic 2: Probabilities of Multi-step Events - Lessons 7-10**

- ✓ **Task 8.2.1: Compound events**

- 7.SP.C.8: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

- **Topic 3: Sampling - Lessons 11-14**

- ✓ **Task 8.3.1: Random Sampling**

- 7.SP.A.1: Understand that statistics can be used to gain information about a population by examining a sample of the

population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.  
 7.SP.A.2: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

✓ **Task 8.3.2: Populations**

7.SP.B.3: Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.

7.SP.B.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

● **Topic 4: Using Samples - Lessons 15-19**

✓ **Task 8.4.1: Random Sampling**

7.SP.A.1: Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.  
 7.SP.A.2: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

✓ **Task 8.4.2: Populations**

7.SP.B.3: Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.

7.SP.B.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

● **Topic 5: Let's Put it to Work - Lessons 20**

✓ **Task 8.5.1: Random Sampling**

7.SP.A.1: Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.  
 7.SP.A.2: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

✓ **Task 8.5.2: Populations**

7.SP.B.3: Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.

7.SP.B.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

✓ **Task 8.5.3: Experimental probability**

7.SP.C.7: Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

**Unit 9 - Putting it All Together**

**Approximate Days:** 0-18

**Standards Addressed:** 7.RP.A, 7.RP.B, 7.EE.B.4, 7.NS.A, 7.G.A, 7.G.B, 7.EE.A, 7.EE.B,

**Overview:** In Unit 9, instructional time should focus on the 3 topics described in the [Grade Seven Unit 9 Putting It All Together \(Illustrative Math\)](#):

- A. Running a Restaurant - Lessons 1-4
- B. Making Connections - Lessons 5-9
- C. Designing a Course - Lessons 10-13

**ClassHero Scaffolded Practice Tasks for Unit 9**

- **Topic 1: Running a Restaurant - Lessons 1-4**

- ✓ **Task 9.1.1: Proportional relationship**

- 7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

- 7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

- ✓ **Task 9.1.2: Constant of proportionality**

- 7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

- ✓ **Task 9.1.3: Proportional equations**

- 7.RP.A.2c: Represent proportional relationships by equations.

- ✓ **Task 9.1.4: Proportional graphs**

- 7.RP.A.2d: Explain what a point  $(x, y)$  on the graph of a proportional relationship means in terms of the situation, with special attention to the points  $(0, 0)$  and  $(1, r)$  where  $r$  is the unit rate.

- ✓ **Task 9.1.5: Ratio & percentage**

- 7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

- **Topic 2: Making Connections - Lessons 5-9**

- ✓ **Task 9.2.1: Area & Volume**

- 7.G.B.6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

- ✓ **Task 9.2.2: Equivalent expressions**

- 7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

- 7.EE.A.2: Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

- ✓ **Task 9.2.3: Equality of equation**

- 7.EE.B.4a: Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

- **Topic 3: Designing a Course - Lessons 10-13**

- ✓ **Task 9.3.1: Proportional relationship**

- 7.RP.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

- 7.RP.A.2a: Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

- ✓ **Task 9.3.2: Constant of proportionality**

- 7.RP.A.2b: Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

- ✓ **Task 9.3.3: Proportional equations**

- 7.RP.A.2c: Represent proportional relationships by equations.

✓ **Task 9.3.4: Proportional graphs**

*7.RP.A.2d:* Explain what a point  $(x, y)$  on the graph of a proportional relationship means in terms of the situation, with special attention to the points  $(0, 0)$  and  $(1, r)$  where  $r$  is the unit rate.

✓ **Task 9.3.5: Circles**

*7.G.B.4:* Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

## Grade Eight

The mathematical work for Grade Four is partitioned into 9 units:

1. [Rigid Transformations and Congruence](#)
2. [Dilations, Similarity, and Introducing Slope](#)
3. [Linear Relationships](#)
4. [Linear Equations and Linear Systems](#)
5. [Functions and Volume](#)
6. [Associations in Data](#)
7. [Exponents and Scientific Notation](#)
8. [Pythagorean Theorem and Irrational Numbers](#)
9. [Putting It All Together](#)

**Unit 1 - Rigid Transformations and Congruence**

**Approximate Days:** 20

**Standards Addressed:** 8.G.A

**Overview:** In Unit 1, instructional time should focus on the 5 topics described in the [Grade Eight Unit 1 Rigid Transformations and Congruence \(Illustrative Math\)](#):

- A. Rigid Transformations - Lessons 1-6
- B. Properties of Rigid Transformations - Lessons 7-10
- C. Congruence - Lessons 11-13
- D. Angles in a Triangle - Lessons 14-16
- E. Let's Put it to Work - Lessons 17

**ClassHero Scaffolded Practice Tasks for Unit 1**

- **Topic 1: Rigid Transformations - Lessons 1-6**
  - ✓ **Task 1.1.1: Transformation of points**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.1.2: Transformation of lines**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.1.3: Transformation of angles**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
- **Topic 2: Properties of Rigid Transformations - Lessons 7-10**
  - ✓ **Task 1.2.1: Transformation of points**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.2.2: Transformation of lines**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.2.3: Transformation of angles**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.2.4: Transformation of shapes**  
8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
- **Topic 3: Congruence - Lessons 11-13**
  - ✓ **Task 1.3.1: Congruent shapes**  
8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.  
8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
- **Topic 4: Angles in a Triangle - Lessons 14-16**
  - ✓ **Task 1.4.1: Angle relationships**  
8.G.A.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
- **Topic 5: Let's Put it to Work - Lessons 17**
  - ✓ **Task 1.5.1: Transformation of points**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.5.2: Transformation of lines**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.5.3: Transformation of angles**  
8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.
  - ✓ **Task 1.5.4: Congruent shapes**  
8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.  
8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a

sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

✓ **Task 1.5.6: Angle relationships**

8.G.A.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

**Unit 2 - Dilations, Similarity, and Introducing Slope**

**Approximate Days:** 15

**Standards Addressed:** 8.G.A

**Overview:** In Unit 2, instructional time should focus on the 4 topics described in the [Grade Eight Unit 2 Dilations, Similarity, and Introducing Slope \(Illustrative Math\)](#):

- A. Dilations - Lessons 1-5
- B. Similarity - Lessons 6-9
- C. Slope - Lessons 10-12
- D. Let's Put it to Work - Lessons 13

**ClassHero Scaffolded Practice Tasks for Unit 2**

• **Topic 1: Dilations - Lessons 1-5**

✓ **Task 2.1.1: Congruent shapes**

8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

✓ **Task 2.1.2: Transformation of shapes**

8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

• **Topic 2: Similarity - Lessons 6-9**

✓ **Task 2.2.1: Transformation of points**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 2.2.2: Transformation of lines**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 2.2.3: Transformation of angles**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 2.2.4: Transformation of shapes**

8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

• **Topic 3: Slope - Lessons 10-12**

✓ **Task 2.3.1: Transformation of points**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 2.3.2: Transformation of lines**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 2.1.1: Congruent shapes**

8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

• **Topic 4: Let's Put it to Work - Lessons 14**

✓ **Task 2.5.1: Transformation of points**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 2.5.2: Congruent shapes**

8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

### Unit 3 - Linear Relationships

**Approximate Days:** 16

**Standards Addressed:** 8.EE.B.5, 8.EE.B.6, 8.EE.B.7, 8.EE.B.8

**Overview:** In Unit 3, instructional time should focus on the 5 topics described in the [Grade Eight Unit 3 Linear Relationships \(Illustrative Math\)](#):

- A. Proportional Relationships - Lessons 1-4
- B. Representing Linear Relationships - Lessons 5-8
- C. Finding Slopes - Lessons 9-11
- D. Linear Equations - Lessons 12-13
- E. Let's Put it to Work- Lessons 14

#### ClassHero Scaffolded Practice Tasks for Unit 3

- **Topic 1: Proportional Relationships - Lessons 1-4**

- ✓ **Task 3.1.1: Graphing Proportional relationship**

- 8.EE.B.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

- **Topic 2: Representing Linear Relationships - Lessons 5-8**

- ✓ **Task 3.2.1: Graphing Proportional relationship**

- 8.EE.B.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

- ✓ **Task 3.2.1: Understanding slope**

- 8.EE.B.6: Use similar triangles to explain why the slope  $m$  is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation  $y = mx$  for a line through the origin and the equation  $y = mx + b$  for a line intercepting the vertical axis at  $b$ .

- **Topic 3: Linear Equations - Lessons 12-13**

- ✓ **Task 3.3.1: Understanding one variable linear equations**

- 8.EE.C.7.a: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form  $x = a$ ,  $a = a$ , or  $a = b$  results.

- ✓ **Task 3.3.2: Understanding two variable linear equations**

- 8.EE.C.8.a: Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

- 8.EE.C.8.b: Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

- **Topic 4: Let's Put it to Work- Lessons 14**

- ✓ **Task 3.4.1: Understanding one variable linear equations**

- 8.EE.C.7.a: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form  $x = a$ ,  $a = a$ , or  $a = b$  results.

- ✓ **Task 3.3.2: Understanding two variable linear equations**

- 8.EE.C.8.a: Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

- 8.EE.C.8.b: Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

### Unit 4 - Linear Equations and Linear Systems

**Approximate Days:** 18



**Standards Addressed:** 8.EE.B.7, 8.EE.B.8

**Overview:** In Unit 4, instructional time should focus on the 4 topics described in the [Grade Eight Unit 4 Linear Equations and Linear Systems \(Illustrative Math\)](#):

- A. Puzzle Problems - Lessons 1
- B. Linear Equations in One Variable - Lessons 2-9
- C. Systems of Linear Equations - Lessons 10-15
- D. Let's Put It to Work - Lessons 16

**ClassHero Scaffolded Practice Tasks for Unit 4**

- **Topic 1: Puzzle Problems - Lessons 1**

- ✓ **Task 4.1.1: Understanding one variable linear equations**

- 8.EE.C.7.a: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form  $x = a$ ,  $a = a$ , or  $a = b$  results.

- ✓ **Task 4.1.2: Solving one variable linear equations**

- 8.EE.C.7.b: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

- **Topic 2: Linear Equations in One Variable - Lessons 2-9**

- ✓ **Task 4.2.1: Understanding one variable linear equations**

- 8.EE.C.7.a: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form  $x = a$ ,  $a = a$ , or  $a = b$  results.

- ✓ **Task 4.2.2: Solving one variable linear equations**

- 8.EE.C.7.b: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

- **Topic 3: Systems of Linear Equations - Lessons 10-15**

- ✓ **Task 4.3.1: Understanding two variable linear equations**

- 8.EE.C.8.a: Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
    - 8.EE.C.8.b: Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

- ✓ **Task 4.3.1: Solving two variable linear equations**

- 8.EE.C.8.c: Solve real-world and mathematical problems leading to two linear equations in two variables.

- **Topic 4: Let's Put It to Work - Lessons 16**

- ✓ **Task 4.4.1: Solving one variable linear equations**

- 8.EE.C.7.b: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

- ✓ **Task 4.4.2: Solving two variable linear equations**

- 8.EE.C.8.c: Solve real-world and mathematical problems leading to two linear equations in two variables.

**Unit 5 - Functions and Volume**

**Approximate Days:** 22-25

**Standards Addressed:** 8.F.A, 8.G.C.9

**Overview:** In Unit 5, instructional time should focus on the 6 topics described in the [Grade Eight Unit 5 Functions and Volume \(Illustrative Math\)](#):

- A. Inputs and Outputs - Lesson 1-2
- B. Representing and Interpreting Functions - Lessons 3-7
- C. Linear Functions and Rates of Change - Lessons 8-10
- D. Cylinders and Cones - Lessons 11-16
- E. Dimensions and Spheres- Lessons 17-21
- F. Let's Put It to Work - Lesson 22

**ClassHero Scaffolded Practice Tasks for Unit 5**

- **Topic 1: Inputs and Outputs - Lesson 1-2**

- ✓ **Task 5.1.1: Understand function as a rule**

8.F.A.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

● **Topic 2: Representing and Interpreting Functions - Lessons 3-7**

✓ **Task 5.2.1: Understand function as a rule**

8.F.A.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

✓ **Task 5.2.1: Construct a function**

8.F.B.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two  $(x, y)$  values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

✓ **Task 5.2.1: Describe qualitative features of a function**

8.F.B.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

● **Topic 3: Linear Functions and Rates of Change - Lessons 8-10**

✓ **Task 5.2.1: Function as a rate of change**

8.F.A.2: Compare properties of two functions each represented in a different way.

✓ **Task 5.2.1: Function of linear equation**

8.F.A.3: Interpret the equation  $y = mx + b$  as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

● **Topic 4: Cylinders and Cones - Lessons 11-16**

✓ **Task 5.4.1: Volume of cylinders, cones, and spheres**

8.G.C.9: Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

● **Topic 5: Dimensions and Spheres- Lessons 17-21**

✓ **Task 5.4.1: Volume of cylinders, cones, and spheres**

8.G.C.9: Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

● **Topic 6: Let's Let's Put It to Work - Lesson 22**

✓ **Task 5.5.1: Understand function as a rule**

8.F.A.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

✓ **Task 5.5.2: Function as a rate of change**

8.F.A.2: Compare properties of two functions each represented in a different way.

✓ **Task 5.5.3: Function of linear equation**

8.F.A.3: Interpret the equation  $y = mx + b$  as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

✓ **Task 5.5.4: Construct a function**

8.F.B.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two  $(x, y)$  values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

✓ **Task 5.5.5: Describe qualitative features of a function**

8.F.B.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

✓ **Task 5.5.6: Volume of cylinders, cones, and spheres**

8.G.C.9: Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

**Standards Addressed:** 8.SP.A

**Overview:** In Unit 6, instructional time should focus on the 4 topics described in the [Grade Eight Unit 6 Associations in Data \(Illustrative Math\)](#):

- A. Does This Predict That?- Lessons 1-2
- B. Associations in Numerical Data - Lessons 3-8
- C. Associations in Categorical Data - Lessons 9-10
- D. Let's Put it to Work - Lessons 11

**ClassHero Scaffolded Practice Tasks for Unit 6**

- **Topic 1: Does This Predict That?- Lessons 1-2**

- ✓ **Task 6.1.1: Scatter Plots**

- 8.SP.A.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

- **Topic 2: Associations in Numerical Data - Lessons 3-8**

- ✓ **Task 6.2.1: Scatter Plots**

- 8.SP.A.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

- ✓ **Task 6.1.2: Linear equations applied to scatter plots**

- 8.SP.A.2: Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

- 8.SP.A.3: Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

- **Topic 3: Associations in Categorical Data - Lessons 9-10**

- ✓ **Task 6.3.1: Two-way tables**

- 8.SP.A.4: Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

- **Topic 4: Let's Put it to Work - Lessons 11**

- ✓ **Task 6.4.1: Scatter Plots**

- 8.SP.A.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

- ✓ **Task 6.5.2: Linear equations applied to scatter plots**

- 8.SP.A.2: Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

- 8.SP.A.3: Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

- ✓ **Task 6.5.3: Two-way tables**

- 8.SP.A.4: Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

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**Unit 7 - Exponents and Scientific Notation**

**Approximate Days:** 18

**Standards Addressed:** 8.EE.A.1, 8.EE.A.3, 8.EE.A.4

**Overview:** In Unit 7, instructional time should focus on the 4 topics described in the [Grade Eight Unit 7 Exponents and Scientific Notation \(Illustrative Math\)](#):

- A. Exponent Review - Lessons 1

- B. Exponent Rules - Lessons 2-8
- C. Scientific Notation - Lessons 9-15
- D. Let's Put it to Work - Lessons 16

**ClassHero Scaffolded Practice Tasks for Unit 7**

- **Topic 1: Exponent Review - Lessons 1**

- ✓ **Task 7.1.1: Properties of exponents**

- 8.EE.A.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions.

- **Topic 2: Exponent Rules - Lessons 2-8**

- ✓ **Task 7.2.1: Properties of exponents**

- 8.EE.A.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions.

- **Topic 3: Scientific Notation - Lessons 9-15**

- ✓ **Task 7.3.2: Scientific notation with integers**

- 8.EE.A.3: Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.

- ✓ **Task 7.3.3: Scientific notation with decimals**

- 8.EE.A.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.

- **Topic 4: Let's Put it to Work - Lessons 16**

- ✓ **Task 7.4.1: Properties of exponents**

- 8.EE.A.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions.

- ✓ **Task 7.4.2: Scientific notation with integers**

- 8.EE.A.3: Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.

- ✓ **Task 7.4.3: Scientific notation with decimals**

- 8.EE.A.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.

**Unit 8 - Pythagorean Theorem and Irrational Numbers**

**Approximate Days:** 18

**Standards Addressed:** 8.EE.A.2, 8.NS.A.2, 8.G.B.6, 8.G.B.7, 8.G.B.8

**Overview:** In Unit 8, instructional time should focus on the 5 topics described in the [Grade Eight Unit 8 Pythagorean Theorem and Irrational Numbers \(Illustrative Math\)](#):

- A. Side Lengths and Areas of Squares - Lessons 1-5
- B. The Pythagorean Theorem - Lessons 6-11
- C. Side Lengths and Volumes of Cubes - Lessons 12-13
- D. Decimal Representation of Rational and Irrational Numbers - Lessons 14-15
- E. Let's Put it to Work - Lessons 16

**ClassHero Scaffolded Practice Tasks for Unit 8**

- **Topic 1: Side Lengths and Areas of Squares - Lessons 1-5**

- ✓ **Task 8.1.1: Square & cube root**

- 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that  $\sqrt{2}$  is irrational.

- ✓ **Task 8.1.2: Compare irrational numbers**

- 8.NS.A.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.

- **Topic 2: The Pythagorean Theorem - Lessons 6-11**

- ✓ **Task 8.2.1: Understand the Pythagorean theorem**

- 8.G.B.6: Explain a proof of the Pythagorean Theorem and its converse.

- 8.G.B.7: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

- ✓ **Task 8.2.2: Apply the Pythagorean theorem**

8.G.B.7: Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

8.G.B.8: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

● **Topic 3: Side Lengths and Volumes of Cubes - Lessons 12-13**

✓ **Task 8.3.1: Square & cube root**

8.EE.A.2: Use square root and cube root symbols to represent solutions to equations. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that  $\sqrt{2}$  is irrational.

✓ **Task 8.3.2: Compare irrational numbers**

8.NS.A.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.

● **Topic 4: Decimal Representation of Rational and Irrational Numbers - Lessons 14-15**

✓ **Task 8.4.1: Understand irrational numbers**

8.NS.A.1: Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

✓ **Task 8.4.2: Square & cube root**

8.EE.A.2: Use square root and cube root symbols to represent solutions to equations. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that  $\sqrt{2}$  is irrational.

✓ **Task 8.4.2: Scientific notation with decimals**

8.EE.A.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.

● **Topic 5: Let's Put it to Work - Lessons 16**

✓ **Task 8.5.1: Understand the Pythagorean theorem**

8.G.B.6: Explain a proof of the Pythagorean Theorem and its converse.

8.G.B.7: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

✓ **Task 8.5.2: Apply the Pythagorean theorem**

8.G.B.7: Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

8.G.B.8: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

**Unit 9 - Putting It All Together**

**Approximate Days:** 0-10

**Standards Addressed:** 7.RP.A, 7.RP.B, 7.EE.B.4, 7.NS.A, 7.G.A, 7.G.B, 7.EE.A, 7.EE.B,

**Overview:** In Unit 9, instructional time should focus on the 2 topics described in the [Grade Eight Unit 9 Putting It All Together \(Illustrative Math\)](#):

A. Tessellations - Lessons 1-3

B. The Weather - Lessons 4-6

**ClassHero Scaffolded Practice Tasks for Unit 9**

● **Topic 1: Running a Restaurant - Lessons 1-4**

✓ **Task 9.1.1: Transformation of points**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 9.1.2: Transformation of lines**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 9.1.3: Transformation of angles**

8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations.

✓ **Task 9.1.4: Congruent shapes**

8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence

that exhibits the similarity between them.

✓ **Task 9.1.5: Transformation of shapes**

8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

✓ **Task 9.1.6: Angle relationships**

8.G.A.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

● **Topic 2: The Weather - Lessons 4-6**

✓ **Task 9.2.1: Construct a function**

8.F.B.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two  $(x, y)$  values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

✓ **Task 9.2.2: Scatter Plots**

8.SP.A.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

✓ **Task 9.2.3: Linear equations applied to scatter plots**

8.SP.A.2: Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

8.SP.A.3: Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

✓ **Task 9.2.4: Two-way tables**

8.SP.A.4: Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.