

Unit 4: Fraction and Decimal Detectives

5th Grade Math

26 Class Meetings

Revised June 2026

Essential Questions

- How can we use addition and subtraction of fractions to solve real-world problems involving parts of a whole?
- Why is it important to find common denominators when adding and subtracting fractions?
- How are fractions and decimals related, and how does that relationship help us add and subtract decimals accurately?
- How does understanding place value support accurate decimal addition and subtraction?

Enduring Understandings with Unit Goals

EU 1: Fractions represent quantities that can be combined and compared.

- Understand fractions as numbers that represent parts of a whole or parts of a set.
- Add and subtract fractions with unlike denominators by using equivalent fractions.
- Use visual models (number lines, area models) to represent fraction addition and subtraction.
- Solve real-world and mathematical problems involving addition and subtraction of fractions.
- Interpret fraction sums and differences and explain reasoning using mathematical vocabulary.

EU 2: Decimals are another way to represent fractions and are based on place value.

- Understand decimals as fractions with denominators of 10, 100, and 1,000.
- Add and subtract decimals to the hundredths place using place value understanding.
- Use estimation to assess the reasonableness of decimal sums and differences.
- Explain decimal operations using models, drawings, and equations.

EU 3: Mathematical reasoning and precision help ensure accurate solutions.

- Choose efficient strategies for adding and subtracting fractions and decimals.
- Justify solutions using words, numbers, and models.
- Attend to precision by aligning place values and using appropriate units.

Standards

Common Core State Standards:

- **CCSS.Math.Content.5.NF.A.1:** Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
- **CCSS.Math.Content.5.NF.A.2:** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators.
- **CCSS.Math.Content.5.NBT.A.3:** Read, write, and compare decimals to thousandths.
- **CCSS.Math.Content.5.NBT.B.7:** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value.

Unit 4: Fraction and Decimal Detectives

5th Grade Math

26 Class Meetings

Revised June 2026

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. Adding and Subtracting Fractions

- Review fractions as parts of a whole using visual and concrete models.
- Generate equivalent fractions to create common denominators.
- Add and subtract fractions with unlike denominators.
- Solve word problems involving fraction sums and differences.
- Use estimation and benchmarks (0, $\frac{1}{2}$, 1) to check for reasonableness.

2. Adding and Subtracting Decimals

- Explore the relationship between fractions and decimals.
- Use place value charts and base-ten models to represent decimals.
- Add and subtract decimals by aligning place values.
- Solve real-world problems involving decimal operations.
- Estimate decimal sums and differences to verify accuracy.

Vocabulary and Key Terms: Fraction, numerator, denominator, equivalent fractions, common denominator, sum, difference, benchmark fraction, decimal, tenths, hundredths, thousandths, place value, estimate, reasonableness, regroup, algorithm, number line, area model

Interdisciplinary Connection:

- ELA, Science

Daily Learning Objectives with *TWPS*

Students will be able to...

- Explain what a fraction represents as part of a whole using visual models.
 - *About what fraction of the shape is shaded?*
- Represent fractions on a number line and explain their size relative to 0 and 1.
 - *Olivia and Theo are working on math homework. Olivia works for $\frac{1}{3}$ of an hour. Theo works on his for $\frac{1}{4}$ of an hour. Olivia thinks she worked on her homework for more time, Theo thinks he worked for more time. Who is correct?*
- Identify equivalent fractions using area models and fraction strips.

Unit 4: Fraction and Decimal Detectives

5th Grade Math

26 Class Meetings

Revised June 2026

- *Would you rather meet a bear that's $\frac{1}{2}$ of a yard tall, or meet a bear that's $\frac{1}{2}$ of a foot tall?*
- Generate equivalent fractions by multiplying the numerator and denominator by the same number. Write fractions in simplest form.
 - *Two skip counting patterns are shown. First pattern: 5, 17, 29, 41.... Second pattern: 22, 33, 44, 55.... When the patterns are continued, which number will appear in both patterns?*
- Add and subtract fractions with like denominators and explain my thinking using models.
 - *Put the fractions in descending order.*
- Add and subtract mixed numbers with like denominators.
 - *What comes next in the pattern? 0.2, $\frac{3}{10}$, $\frac{4}{100}$, 0.5, $\frac{6}{10}$.*
- Add fractions with unlike denominators by creating equivalent fractions.
 - *A shape pattern is made by repeating the pattern of "circle, triangle, rhombus, trapezoid". This pattern continues for 100 terms. What is the 82nd term?*
- Subtract fractions with unlike denominators using equivalent fractions.
 - *Toni and Kaylee each brought brownies for the bake sale. Here is a picture of what they brought. When they combine the brownies, Toni thinks there will be 2 full pans because Kaylee has a pan with 1 extra piece and Toni's pan is missing a piece. Kaylee disagrees and thinks they'll have less than 2 full pans. Who is right?*
- Add mixed numbers with unlike denominators.
 - *Four students make statements about the two equations shown. Which student made a correct statement?*
- Subtract mixed numbers with unlike denominators.
 - *Would you rather take a walk...Along $2\frac{7}{8}$ miles of flat trails in the woods, then $1\frac{3}{4}$ miles back along the River Trail? Or To the summit of a small mountain, $2\frac{1}{3}$ miles up and $1\frac{2}{5}$ miles down?*
- Solve real-world word problems involving fraction addition and subtraction.
 - *Which set of steps shows a correct strategy and solution for $2\frac{1}{7} + 1\frac{2}{3}$*
- Explain how decimals represent fractions with denominators of 10, 100, and 1,000.
 - *How is the decimal 0.25 related to the fraction $\frac{25}{100}$?*
- Convert fractions and decimals when the denominator is not 10, 100, or 1000 by making equivalent fractions
 - *The distance, in miles, Anna walked in the morning is plotted at point A on the number line. Anna walked $\frac{1}{3}$ miles in the afternoon. Enter the total distance, in miles, Anna walked in the morning and afternoon.*
- Compare fractions and decimals.
 - *A student is adding fractions $\frac{3}{10}$ and $\frac{4}{15}$. The steps are shown. In which step does the student first make an error?*
- Add and subtract decimals to the thousandths using place value strategies.
 - *Math mobile*
- Solve real-world problems involving decimal addition and subtraction.
 - *Carlos arranged five cards to make this number: 42631. Arrange the five cards to make a number in which the 2 has a value that is $\frac{1}{10}$ as much as it is in Carlos's number.*
- Solve real-world problems involving fraction addition and subtraction.
 - *Why is Tom incorrect? What is the solution to the correct answer, and what is the solution to what Tom wrote?*
- Solve multi step word problems involving adding and subtracting of decimals and fractions.
 - *Math Mobile*

Unit 4: Fraction and Decimal Detectives

5th Grade Math

26 Class Meetings

Revised June 2026

Instructional Strategies/Differentiated Instruction

- Whole group instruction
- Paragraph frames and sentence starters
- Teacher modeling
- Think-write-pair-share and small-group discussions
- Graphic organizers
- Accountable talk
- Homework
- Word walls with visuals
- Small group instruction
- Visual exemplars with teacher and student critiques
- Text and video chunking
- Spiraling back to guiding questions

EL Differentiation Strategies

- Word Banks and Word Walls with visuals
- TWPS (Think, write, pair, share)
- Culturally responsive teaching
- Explicit teacher modeling
- Key vocabulary
- Graphic organizers
- Strategic Grouping
- Non-verbal assessments

Assessments

FORMATIVE ASSESSMENTS:

- Do Now
- Academic Discourse
- Exit Slips
- Accountable Talk Discussions
- Completed notes
- Homework
- Performance Task -- “School Carnival” Performance Task
 - Teacher’s rubric/scoring guide

SUMMATIVE ASSESSMENTS:

- Quiz: Fractions, Decimals, Mathematical Reasoning (EU1, EU2, EU3)
- IAB
- Unit Task: “School Carnival” Performance Task (EU1, EU2 and EU3)

Unit 4: Fraction and Decimal Detectives

5th Grade Math

26 Class Meetings

Revised June 2026

Unit Task

Unit Task Name: “School Carnival” Performance Task

Description: Upon completion of the unit students will apply their understanding of adding, subtracting, multiplying, and dividing fractions and decimals to plan a school carnival. Students will become the planning committee to manage food, supplies, game materials, and the budget. They must solve real-world problems, explain their thinking, and make decisions based on their mathematical knowledge.

Evaluation: Teacher’s Scoring Guide

Unit Resources

- Google Classroom
- Pear Assessment
- Math In Focus
- Math Antics
- State Common Core Standards Transition Tasks
- Match Fishtank
- Worksheets
- Individual White boards
- Interactive notebook
- Laptops
- SBAC Prep Online