

Englewood Public School District
Mathematics
Grade 4
Second Marking Period

Unit - Fractions

Overview: During this unit, students will learn about fractions, mixed numbers and decimals.

Time Frame: Chapter 6 – 22 days; Chapter 7 - 16 days
(Pacing includes 1 day for Chapter Opener pages if needed.)

Enduring Understandings:

Fractions and mixed numbers are used to name wholes and parts of a whole.

Fractions and mixed numbers can be added and subtracted.

Decimals are another way to show amounts that are parts of a whole.

A decimal has a decimal point to the right of the ones place and digits to the right of the decimal point.

Essential Questions:

How are adding and subtracting fractions similar and different than adding and subtracting whole numbers?

How are decimals and fractions alike and how are they different?

Standards	Topics and Objectives	Activities	Resources	Assessments
Chapter 6 (Skip 6.1, 6.2, 6.6, and 6.8)				
Note: Chapter 6 contains addition and subtraction of fractions with unlike denominators. Grade 4 standards require students to add and subtract fractions with like denominators. Supplemental materials are needed to teach addition and subtraction of fractions with	Topics	<u>4.NF.A.1 Explaining Fraction Equivalence with Pictures</u>	SE-4A: 220-223; 230-249; 255-258 Workbook 4A: 141-154; 157-160	Unit 2 Benchmark Assessment: <ul style="list-style-type: none"> Exact Path
	Naming wholes and parts of a whole using fractions and mixed numbers, and adding and subtracting fractions with like denominators.	<u>4.NF.A.1 Fractions and Rectangles</u>	Common Core Focus Lesson Appendix	Formative Assessments: <ul style="list-style-type: none"> Do Now Exit Ticket Math Journal Entries (CRP4)
	Twenty-First Century Themes and Skills include:	<u>4.NF.B.3a Comparing Sums of Unit Fractions</u>	Think Central: Online access to all Math in Focus materials listed above and	<ul style="list-style-type: none"> Math notebook (NJSLSA.W2.)
	<ul style="list-style-type: none"> <u>Creativity and</u> 	<u>4.NF.B.3b making 22</u>		

<p>like denominators.</p> <p>Supplemental material is also needed for standard 4.NF.A.2.</p> <p>4.NF.A.1. Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p>4.NF.A.2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p> <p>4.NF.B.3. Understand a fraction $\frac{a}{b}$ with $a > 1$ as a</p>	<p><u>Innovation</u></p> <ul style="list-style-type: none"> <u>Critical Thinking and Problem Solving</u> <u>Communication and Collaboration</u> <p>Objectives</p> <p>The students will be able to:</p> <ul style="list-style-type: none"> Find equivalent fractions. Add like fractions. Subtract like fractions. Write a mixed number for a model. Draw models to represent mixed numbers. Write an improper fraction for a model. Express mixed numbers as improper fractions. Use multiplication and division to rename improper fractions and mixed numbers. Add fractions with like denominators to get a mixed number. Subtract fractions from whole numbers. 	<p><u>Seventenths in Different Ways</u></p> <p><u>4.NF.B.3c Cynthia's Perfect Punch</u></p> <p><u>4.NF.B.3c Peaches</u></p> <p><u>4.MD.B.4 Button Diameters</u></p> <p><u>4.NF.B.4 Extending Multiplication From Whole Numbers to Fractions</u></p> <p><u>4.NF.B.4c Sugar in six cans of soda</u></p> <p>Math Playground http://www.mathplayground.com/</p> <p>Math Coach – Fact Fluency http://schoolwires.henry.k12.ga.us/Page/21865</p> <p>Math Wire – Basic Facts Link http://mathwire.com/numbersense/bfactslinks.html</p> <p>Math Fact Practice http://www.playkidsgames.com/games/mathfact/mathFact.htm</p>	<p>Virtual Manipulatives</p> <p>Professional Resources: The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD.</p> <p>Lesson and Component Walkthrough: www.hmhelearning.com</p> <p>Technology Resources</p> <ul style="list-style-type: none"> Math in Focus eBooks Math in Focus Teacher Resources CD <p>Arizona Flip Book – Gr 4 http://www.tusd1.org/resources/curriculum/math/4flipbookedited.pdf</p> <p>North Carolina Dept of Ed. Wikispaces: http://maccss.ncdpi.wikispaces.net/Elementary</p> <p>Standards Solution Lessons:</p> <ul style="list-style-type: none"> PARCC Lesson 7- Type I- Selected Response-Sort by Category PARCC Lesson 11 – PBA Pre-Assessment Number and Operations - Fractions 	<ul style="list-style-type: none"> Calendar skills Observations Discussions: in groups, have students explain different ways of solving problems (CRP4) Multiple choice / short answer assessments <p>Summative Assessments:</p> <p>Math in Focus Assessments</p> <p>Chapter Review/Test – pp 272-273</p> <p>Assessments 4 – pp. 50-52</p> <p>ExamView Assessment Suite – Test and Practice Generator</p> <p>Alternative Assessment: Learning centers: each learning center focuses on a different type of problem</p>
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sum of fractions $\frac{1}{b}$.

a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.

Examples:

$$\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8};$$

$$\frac{3}{8} = \frac{1}{8} + \frac{2}{8}; \quad 2 \frac{1}{8} = 1 +$$

$$1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}.$$

c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by

Critical Thinking and Problem Solving p.268-269:

Put on Your Thinking Cap!

5 activities for teaching fractions (Fraction pizzas, Fraction question of the day, Fraction clothespins, Fraction circle, Station):

<http://www.rundesroom.com/2016/07/5-activities-for-teaching-fractions.html>
(CRP2, CRP8)

Children's books:

<https://www.the-best-childrens-books.org/math-for-kids.html>

More additional texts:

www.newsela.com
www.readworks.org
www.commonlit.org

- **PARCC Lesson 15** - Performance-Based Assessment Number and Operations – Fractions
- **PARCC Lesson 16** – Practice PARCC Type I Number and Operations - Fractions
- **PARCC Lesson 18** - Performance-Based Assessment Number and Operations in Fractions
- **CCSS Lesson Plan:** Enough or Not Enough? Dividing Whole Numbers by Fractions
- **CCSS Lesson Plan:** Wholes and Fractions: Visualizing Products

4th grade worksheets:

<https://www.k5learning.com/free-math-worksheets/fourth-grade-4>

(CRP2, CRP4, CRP8, 8.1.5.A.1)

4th grade worksheets, games, lessons, activities, online exercises:

<https://www.education.com/resources/fourth-grade/>

(CRP2, CRP4, CRP8, 8.1.5.A.1)

4th grade videos, games interactive, assessments, lessons, homework and

using visual fraction models and equations to represent the problem.

4.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

a. Understand a fraction a/b

as a multiple of $1/b$. *For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.*

b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)*

c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

audio (select from drop down menu):

https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment
(CRP2, CRP4, CRP8, 8.1.5.A.1)

4th grade Common Core worksheets:

<https://www.ixl.com/math/grade-4>
(CRP2, CRP4, CRP8, 8.1.5.A.1)

Khan Academy – videos, lessons, assessments
www.khanacademy.org
(8.1.5.A.1)

For example, if each person at a party will eat $\frac{3}{8}$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. (see Table 2).

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. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including

rounding.

Mathematical Practices
MP.1, MP.2, MP.3, MP.4,
MP.6

Chapter 7

(skip 7.4)

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. *For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.*

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.

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

Topics

Understanding decimals as an extension of place-value notation.

Twenty-First Century Themes and Skills include:

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Objectives

The students will be able to:

- Read and write tenths in decimal and fractional form.
- Represent and interpret tenths models.
- Read and write hundredths in decimal and fraction form.
- Represent and interpret hundredths models.
- Compare and order decimals.

Students will discuss why place value is needed in everyday life, including future careers. (9.2.4.A.4)

4.MD.A.1 Who is the tallest?

4.OA.C.5 Double Plus One

4.NF.C.5 Adding Tenths and Hundredths

4.NF.C.6 Dimes and Pennies

4.NF.C.6 Expanded Fractions and Decimals

4.NF.C.7 Using Place Value

Math Playground
<http://www.mathplayground.com/>

Math Coach – Fact

SE-4B: 4-34; 42-52

Workbook 4B: 1-12; 17-20

Common Core Focus Lesson Appendix

Think Central: Online access to all Math in Focus materials listed above and Virtual Manipulatives

Professional Resources:
The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD.

Lesson and Component Walkthrough:
www.hmhelearning.com

Technology Resources

- Math in Focus eBooks
- Math in Focus Teacher Resources CD

Arizona Flip Book – Gr 4
<http://www.tusd1.org/resource>

Formative Assessments:

- Do Now
- Exit Ticket
- Math Journal Entries (CRP4)
- Math notebook (NJSLA.W2.)
- Calendar skills
- Observations
- Discussions: in groups, have students explain different ways of solving problems (CRP4)
- Multiple choice / short answer assessments

Summative Assessments:

Math in Focus Assessments

Chapter Review/Test – pp 51-52

Assessments 4 – pp. 62-63

unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).*

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. *For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

4.NF.A.1. Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate

- Complete number patterns.
- Express a fraction as a decimal and a decimal as a fraction.

Fluency
<http://schoolwires.henry.k12.ga.us/Page/21865>

Math Wire – Basic Facts Link
<http://mathwire.com/numbersense/bfactslinks.html>

Math Fact Practice
<http://www.playkidsgames.com/games/mathfact/mathFact.htm>

Critical Thinking and Problem Solving p.48-49:
 Put on Your Thinking Cap!

Children’s books:
<https://www.the-best-childrens-books.org/math-for-kids.html>

More additional texts:
www.newsela.com
www.readworks.org
www.commonlit.org

[es/curriculum/math/4flipbookedited.pdf](https://curriculum/math/4flipbookedited.pdf)

North Carolina Dept of Ed. Wikispaces:
<http://maccss.ncdpi.wikispaces.net/Elementary>

Standards Solution Lessons:

PARCC Lesson 9- Type I-
 Selected-Response-Menu
 Style Items

4th grade worksheets:
<https://www.k5learning.com/free-math-worksheets/fourth-grade-4>
 (CRP2, CRP4, CRP8,
 8.1.5.A.1)

4th grade worksheets, games, lessons, activities, online exercises:
<https://www.education.com/resources/fourth-grade/>
 (CRP2, CRP4, CRP8,
 8.1.5.A.1)

4th grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu):
https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment

ExamView Assessment Suite – Test and Practice Generator

Alternative Assessments:
 Learning centers: each learning center focuses on a different type of problem

equivalent fractions.

4.NF.B.3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.

- a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

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.

For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.)

4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as*

(CRP2, CRP4, CRP8, 8.1.5.A.1)

4th grade Common Core worksheets:

<https://www.ixl.com/math/grade-4>

(CRP2, CRP4, CRP8)

Khan Academy – videos, lessons, assessments
www.khanacademy.org

62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

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.

Mathematical Practices

MP.1, MP.2, MP.3, MP.4,
MP.6, MP.7

Key Vocabulary:

Chapter 6:

numerator, denominator, equivalent fraction, mixed number, simplest form, improper fraction

Chapter 7:

Tenth, decimal form, decimal point, expanded form, hundredth, placeholder zero, more than, less than, greater than, least, greatest, order, equivalent fraction

NJ Learning Standards Vocabulary:

4.NF.A.1 & 2

Extend understanding of fraction equivalence and ordering.

partition(ed), fraction, unit fraction, equivalent, expression, multiple, reason, denominator, numerator, comparison/compare, $<$, $>$, $=$, benchmark fraction

4.NF.B.3 & 4

Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.

operations, addition/joining, subtraction/separating, fraction, unit fraction, equivalent, multiple, reason, denominator, numerator, decomposing, mixed number,(properties)-rules about how numbers work, multiply, multiple

4.NF.C.5,6 & 7

Understand decimal notation for fractions, and compare decimal fractions. fraction, numerator, denominator, equivalent, reasoning, decimals, tenths, hundreds, multiplication, comparisons/compare, $<$, $>$, $=$

4.OA.A.1, 2 & 3

Use the four operations with whole numbers to solve problems.

multiplication/multiply, division/divide, dividend, divisor, addition/add, subtraction/subtract, equations, unknown, remainders, reasonableness, mental computation, estimation, rounding

4.OA.C.5

Generate and analyze patterns.

pattern (number or shape), pattern rule

4.NBT.A.1 & 2

Generalize place value understanding for multi-digit whole numbers.

place value, greater than, less than, equal to, $<$, $>$, $=$, comparisons/compare, round

4.MD.A.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

measure, metric, customary

Accommodations and Modifications:

Students with special needs: Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

ELL/ESL students: Students will be supported according to the recommendations for “can do’s” as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Students at risk of school failure: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Gifted and Talented Students: Students excelling in mastery of standards will be challenged with complex, high level challenges.

English Language Learners:	Special Education:	At-Risk:	Gifted and Talented:
<ul style="list-style-type: none"> • Teaching modeling • Peer modeling • Word walls • Give directions in small steps and in as few words as possible • Provide visual aids • Group similar problems together • Repeat directions when necessary • Provide a vocabulary list with definitions 	<ul style="list-style-type: none"> • Utilize modifications & accommodations delineated in the students' IEP • Work with paraprofessional • Work with a partner • Shorten assignments to focus on mastery or key concepts • Maintain adequate space between desks • Keep workspaces clear of unrelated materials • Provide fewer problems to attain passing grades • Tape a number line to the student's desk • Create a math journal that they can use during class, on assignments and (if teacher allows) on assessments • Provide extra time to complete a task when needed • Provide definitions of different graphs / charts with illustrations • Allow tests to be taken in a separate room • Allow students to use a calculator when appropriate • Divide test into small sections of similar questions or problems 	<ul style="list-style-type: none"> • Use visual demonstrations, illustrations and models • Give directions / instructions verbally and in simple written format • Peer support • Increased one – on – one time • Teachers may modify instructions by modeling what the student is expected to do • Instructions may be printed out in large print and hung up for the students to see during the time of the lesson • Review behavior expectations and make adjustments • Create a math journal that they can use during class, on assignments and (if teacher allows) on assessments • Allow students to complete an independent project as an alternative test 	<ul style="list-style-type: none"> • Inquiry based instruction • Independent study • Higher order thinking skills • Adjusting the pace of the lessons • Real world scenarios • Student driven instruction • Allow students to complete an independent project as an alternative test

NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

RI.4.4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*

RI.4.5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text

RI.4.7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears

NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content

NJSLSA.L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking

SL.4.3. Identify the reasons and evidence a speaker provides to support particular points.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Integration of Technology Standards NJSLS:

8.1.5.A.1: Select and use the appropriate digital tools and resources to accomplish a variety of tasks including problem solving

21st Century Standards

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills

CRP4: Communicate clearly and effectively and with reason

CRP6: Demonstrate creativity and innovation

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them

Major **Supporting** **Additional** (Identified by PARCC Model Content Frameworks)