






**Grade 5 Mathematics**  
**Unit 6: Add and Subtract Fractions with Unlike Denominators**

September  
2022

Marking Period	Unit Title	Recommended Instructional Days
2 & 3	Add and Subtract Fractions with Unlike Denominators	16 - 20 days
<b>Domain</b>		
<p><i>Strand:</i></p> <p> <b>5.NF.A.1</b> Add and 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. For example, <math>\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}</math>. (In general, <math>\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}</math>.)</p> <p> <b>5.NF.A.2</b> Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result <math>\frac{2}{5} + \frac{1}{2} = \frac{3}{7}</math>, by observing that <math>\frac{3}{7} &lt; \frac{1}{2}</math>.</p> <p><b>Key:</b></p> <p>  <b>Major Cluster</b>  <b>Supporting Cluster</b>  <b>Additional Cluster</b> </p>		
<p><b>Progress Indicator:</b> ♦ Tests ♦ Homework / Classwork ♦ Projects ♦ Formative assessments ♦ Summative assessments</p>		
<b>Mathematical Practices:</b>		
<ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively.</li> <li>3. Construct viable arguments and critique the reason of others.</li> <li>4. Model with mathematics.</li> <li>5. Use appropriate tools strategically.</li> </ol>		

**Grade 5 Mathematics**  
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September  
2022

6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSL-CLKS within Unit**

**Essential Questions:**

- Lesson 6.1** How can you use models to add fractions that have different denominators?
- Lesson 6.2** How can you use models to subtract fractions that have different denominators?
- Lesson 6.3** How can you make reasonable estimates of fraction sums and differences?
- Lesson 6.4** How can you add and subtract fractions with unlike denominators?
- Lesson 6.5** How can you use a common denominator to add and subtract fractions with unlike denominators?
- Lesson 6.6** How can you add and subtract mixed numbers with unlike denominators?
- Lesson 6.7** How can you use renaming to find the difference of two mixed numbers?
- Lesson 6.8** How can you use addition and subtraction to describe a pattern or create a sequence with fractions?
- Lesson 6.9** How can the strategy, *work backward*, help you solve a problem with fractions that involves addition and subtraction?
- Lesson 6.10** How can properties help you add fractions with unlike denominators?

**Essential Understandings:**

- Lesson 6.1** Use models to add fractions with unlike denominators.
- Lesson 6.2** Use models to subtract fractions with unlike denominators.
- Lesson 6.3** Make reasonable estimates of fraction sums and differences.
- Lesson 6.4** Find a common denominator or a least common denominator to write equivalent fractions.
- Lesson 6.5** Use equivalent fractions to add and subtract fractions.
- Lesson 6.6** Add and subtract mixed numbers with unlike denominators.
- Lesson 6.7** Rename to find the difference of two mixed numbers.
- Lesson 6.8** Identify, describe, and create numeric patterns with fractions.
- Lesson 6.9** Solve problems using the strategy, *work backward*.
- Lesson 6.10** Add fractions and mixed numbers with unlike denominators using the properties.

**Grade 5 Mathematics**  
**Unit 6: Add and Subtract Fractions with Unlike Denominators**

September  
2022

**Vocabulary:**

- Common Denominator
- Common Multiple
- Equivalent Fractions
- Mixed Number
- Simplest Form

**Suggested Activity Description(s):**

Show what you know, Problem of the Day, Fluency Builders, Personal Math Trainer, Math on the Spot Videos, Real World Videos, Vocabulary Preview Activity, Reteach and Enrichment Activities, Interactive Student Edition Textbook, RtI Activities, Grab and Go Differentiated Centers, Journal Writing, Advanced Learners Activities, Assessments, Standards Focus Packets for the related NJSLs, Success for English Learners Activities, Performance Task

**Interdisciplinary Connections:**

**STEM Activity:** In Chapter 6, students extend their understanding of adding and subtracting fractions with unlike denominators by adding and subtracting fractions with unlike denominators that are not powers of 10. These same topics are used often in the development of various science concepts and process skills. Help students make the connection between math, science, and engineering through the S.T.E.M. activities and activity worksheets found at [www.thinkcentral.com](http://www.thinkcentral.com).

In Chapter 6, students connect math, science, and engineering with the S.T.E.M. Activity Resources on the Move and the accompanying worksheets (pages 143 and 144). Through this S.T.E.M. Activity, students will connect to the GO Math! Chapter 6 concepts and skills with various statistics about oil production, including converting percents to simplified fractions. It is recommended that this S.T.E.M. Activity be used after Lesson 6.5.

**Science:**

1. The small and large intestines are long tubes in your body that help to break down food so your body can absorb the nutrients. A typical small intestine is  $6\frac{7}{10}$  meters long. A typical large intestine is meters  $1\frac{1}{2}$  long. The large intestine is shorter, but is a wider tube. What is the estimated difference in the lengths of the large and small intestines?

2. The water cycle is the process by which water circulates through the atmosphere. As the sun shines down on a lake, the heat from the sun causes some water to evaporate. The water vapor in the atmosphere then changes to a liquid when the temperature in the clouds becomes too cold. When the clouds can no longer hold any more condensation, precipitation begins. The water vapor now changes to rain, hail, sleet, or snow. Jeremy has a rain gauge outside to measure the amount of rain. After a two-day period, there were  $6\frac{3}{4}$  inches of rain. After two sunny days, there were  $4\frac{3}{8}$  inches of rain left in the rain gauge. How much of the rainwater had evaporated?

3. Sea turtles are large, air-breathing reptiles that spend most of their life in warm tropical waters. All seven species of sea turtles are on the endangered species list. The leatherback turtle shell grows to an average length of 6 feet. The flatback turtle shell grows to an average length of  $3\frac{1}{4}$  feet. What is the difference between the average length of a leatherback turtle shell and the average length of a flatback turtle shell?

4. Present the following problem. Dan has three dogs. He feeds them these amounts of dog food each day:  $1\frac{1}{4}$  cups,  $2\frac{1}{3}$  cups, and  $3\frac{1}{2}$  cups. Ben has two dogs. He feeds them  $3\frac{1}{4}$  cups and  $4\frac{1}{2}$  cups of dog food per day. Who uses more dog food? How much more? Have students research the recommended amounts of dog food per day, based on a dog's age and weight, and use their research results to create problems such as the one above. Have students exchange problems and solve them.

**Social Studies:**

1. During colonial times, many towns in New England had schools that were located in the center of town. In 1647, the Massachusetts Bay Colony passed a law saying that towns with at least 50 families must have a school. Other New England Colonies passed similar laws. As a result, the New England Colonies had more schools than any of the other English colonies. A typical New England school had one room and one teacher. Students walked to school from their homes in the surrounding area. Suppose two children had to walk to a school. One child had to walk  $3\frac{7}{8}$  miles and the other had to walk  $2\frac{1}{5}$  miles. About how much farther did the first child have to walk?

2. During the Revolutionary War, the colonists gained their independence from England in  $8\frac{5}{12}$  years. The Civil War was a battle between the Northern and Southern states. The Civil War lasted  $3\frac{3}{4}$  years. How long did both wars last altogether?

3. The United States government owns land in every state. The amount of land that is owned varies from state to state. Some government-owned land is used for military bases and national parks. The government owns  $45\frac{3}{10}$  percent of California's land, but owns only  $\frac{2}{5}$  percent of Connecticut's land. What is the difference in the percentages of government owned land in California and Connecticut?

4. Use the following activity to connect fractions to history. The table shows ancient Romans' Latin names for some common fractions.

Fraction	$\frac{1}{12}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{2}$
Latin Name	uncia	sextans	quadrans	triens	semis

Have students solve this problem. Antavius plowed a triens of his field in the morning and another quadrans of the field in the afternoon. How many uncia does he have left to plow?

**Grade 5 Mathematics**  
**Unit 6: Add and Subtract Fractions with Unlike Denominators**

September  
2022

<b>Language Arts:</b> 1. Vocabulary Builder Activity, Go Math pg. 350 2. Vocabulary Game, Go Math pgs. 350 A-C 3. The Write Way, Go Math pg. 350 D 4. Grab and Go Reader - Table Soccer, Anyone?  <b>Spot Light On:</b> <i>Use random response strategies.</i>	
Social and Emotional Learning: <i>Competencies</i>	Social and Emotional Learning: <i>Sub-Competencies</i>
SEL Competencies: <ul style="list-style-type: none"> <li>• Self- awareness</li> <li>• Social Awareness</li> <li>• Self- Management</li> <li>• Relationship Skills</li> <li>• Responsible Decision-Making</li> </ul>	<ul style="list-style-type: none"> <li>• Recognizing the importance of self-confidence in handling daily tasks and challenges.</li> <li>• Demonstrate an awareness of the expectations for social interactions in a variety of ways.</li> <li>• Demonstrate an understanding of the need for mutual respect when viewpoints differ.</li> <li>• Identify and apply ways to persevere through alternative methods to achieve goals.</li> <li>• Utilize positive communication and social skills to interact effectively with others.</li> <li>• Develop, implement, and model effective problem solving and critical thinking skills.</li> </ul>
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>	Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>
<b><u>Formative Assessments:</u></b> • Teacher Observations • Exit Tickets • Quizzes • Self Assessments • Math Journals • Homework/Classwork • Teacher created assessments	<b><u>Benchmarks &amp; Summative Assessments:</u></b> Chapter/Unit Assessments • Standardized Tests • District Assessments • Project-based Assessments

**Grade 5 Mathematics**  
**Unit 6: Add and Subtract Fractions with Unlike Denominators**

September  
2022

Differentiated Student Access to Content: Teaching and Learning <u>Resources/Materials</u>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
Go Math Workbook, IXL, Personal Math Trainer, Math on the Spot Videos, My HRW, Khan Academy, Illustrative Mathematics, Learn360, TeacherTube, BrainPOP, Freckle, LearnZillion, MobyMax, 60 minutes of weekly ST Math, Edulastic, Achieve the Core, Desmos	Reteaching worksheets, Skill building workbook, Math manipulatives, Leveled practice worksheets	Dictionary for native language, Video tutorial in native language, Success for English Learners worksheets, Go Math Leveled Strategies for English Learners, Go Math Linguistic Support	ST Math Challenge Objectives, G&T tasks, Enrichment worksheets, Art of Problem Solving, Leveled assessments, Go Math Teaching for Depth
Supplemental Resources			
<b>Technology:</b> • Chromebooks • Online math manipulatives <b>Other:</b> • Google Classroom, Google Meets, Schoology, Interactive Workbooks • Illustrative Mathematics • insidemathematics.org • National Library of Virtual Manipulatives			
Differentiated Student Access to Content: Recommended <u>Strategies &amp; Techniques</u>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics.	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment	Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities,

**Grade 5 Mathematics**  
**Unit 6: Add and Subtract Fractions with Unlike Denominators**

September  
2022

	format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	and/or rubric.	and connect students to related content.
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NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	Disciplinary Concept(s): Creativity and Innovation	
	Core Ideas:	Curiosity and willingness to try new ideas (intellectual risk taking) contributes to the development of creativity and innovation.
	Performance Expectation/s:	9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity.
	Career Readiness, Life Literacies, & Key Skills Practices	
	Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.	

New Jersey Legislative Statutes and Administrative Code  
 (place an "X" before each law/statute if/when present within the curriculum map)

Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>	Holocaust Law: <i>N.J.S.A. 18A:35-28</i>	LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	<b>X</b>	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	<b>X</b>	Standards in Action: <i>Climate Change</i>
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