

Unit 4: Divide Fractions and Convert Customary Units

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

UNIT RATIONALE

In this unit, students will extend their conceptual understanding of fractions to include division. Students will learn that a fraction can be interpreted as division. Students will use a visual model to find the quotient and build their understanding. This will give students the foundation to write story problems in context and draw models to represent the problem. Throughout this unit, students will continue to explore the relationship between multiplication and division.

Students will be solving real-world problems by dividing unit fractions by whole numbers and by dividing whole numbers by unit fractions. As students write word problems and solve real world problems, they will need to be precise in the language they use to indicate that the problems is solved by division. Students will also use number lines to represent the division of a whole number by a unit fraction. Students will determine which quantities represent the dividend and divisor in the division problem and interpret the quotient in the given context. Finally, students will extend their understanding to convert customary conversions in mixed units or with the fractions of the larger unit by using division. These skills will help students as they focus on multistep problems.

ESSENTIAL QUESTIONS

How do mathematicians divide fractions?

How do mathematicians convert customary units?

STANDARDS

NEW JERSEY STUDENT LEARNING STANDARDS: CONTENT AREA

MATH.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, e.g., by using visual fraction models or equations to represent the problem.

MATH.5.NF.B.7.a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

MATH.5.NF.B.7.b	Interpret division of a whole number by a unit fraction, and compute such quotients.
MATH.5.NF.B.7.c	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.
MATH.5.M.A.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
MATH.5.DL.B.5	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.

NEW JERSEY STUDENT LEARNING STANDARDS: CAREER READINESS, LIFE LITERACIES AND KEY SKILLS

TECH.9.4.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
TECH.9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.

NEW JERSEY STUDENT LEARNING STANDARDS: COMPUTER SCIENCE AND DESIGN THINKING

CS.3-5.8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
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PRE-ASSESSMENTS

Module 10: Understand Division with Whole Numbers and Unit Fractions, "Are You Ready?" (pg 238)

Module 11: Divide with Whole Numbers and Unit Fractions, " Are You Ready?" (pg 266)

Module 12: Concert Customary Measurement," Are You Ready?"(pg 294)

INSTRUCTIONAL PLAN

MODULE 10

Module 10 Understand Division with Whole Numbers and Unit Fractions

LESSON 10.1

Student Learning Intentions (SLI) WALT: (We are learning to...)	10.1 We are learning to interpret a fraction as division.
Student Learning Strategies	<ul style="list-style-type: none">• Use a Visual Model and Multiplication• Make a Visual Model
Success Criteria	I can interpret fractions as representing division of whole numbers.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 240, pg 241) Check Understanding (pg 241) Exit Ticket (TM pg 242)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 239B) Mini-Lesson: Spark Your Learning (pg 239), Build Your Understanding (pg 240-241) Guided Practice: Check Understanding (pg 241) Independent Practice: On Your Own (pg 242) and Exit Ticket (TM pg 242) Teacher Resources Into Math Teacher Edition Module 10 & Online Resources
Suggested Modifications	Plan For Differentiated Instruction (TM pg 239C)

MA.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, e.g., by using visual fraction models or equations to represent the problem.

LESSON 10.2

Student Learning Intentions (SLI) WALT: (We are learning to...)	10.2 We are learning to represent and find the size of equal parts.
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Student Learning Strategies	<ul style="list-style-type: none"> • Use a Visual Model • Use Reasoning and an Equation
Success Criteria	I can divide a unit fraction by a whole number using a visual fraction model.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 243) Check Understanding (pg 245) Exit Ticket (TM pg 246)
Activities and Resources	<p>Warm-Up: Activate Prior Knowledge (pg 243B) Mini-Lesson: Spark Your Learning (pg 243) Build Your Understanding (pg 244) Step It Out (pg 245) Guided Practice: Check Understanding (pg 245) Independent Practice: On Your Own (pg 246) Exit Ticket (TM pg 246)</p> <p>Teacher Resources Into Math Teacher Edition Module 10 & Online Resources</p>
Suggested Modifications	Plan for Differentiated Instruction (TM pg 243C)

MATH.5.NF.B.7.a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

LESSON 10.3

Student Learning Intentions (SLI) WALT: (We are learning to...)	10.3 We are learning to use representations of division of unit fractions by whole numbers
Student Learning Strategies	
Success Criteria	<ul style="list-style-type: none"> • I can divide a unit fraction by a whole number using a visual fraction model. • I can create a story context and use a visual model to interpret the division of a unit fraction by a whole number.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 247,248 & 249)

	<p>Check Understanding (pg 250) Exit Ticket (TM pg 252)</p>
Activities and Resources	<p>Warm-Up: Activate Prior Knowledge (TM pg 247B) Mini-Lesson: Spark Your Understanding (pg 247), Build Understanding (pg 248 - 249), Step It Out (pg 250) Guided Practice: Check Understanding (pg 250) Independent Practice: On Your Own (pg 251-252) and Exit Ticket (TM pg 252)</p> <p>Teacher Resources Into Math Teacher Edition Module 10 & Online Resources</p>
Suggested Modifications	<p>Plan for Differentiated Instruction (TM pg 247C)</p>

MATH.5.NF.B.7.a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

LESSON 10.4

Student Learning Intentions (SLI) WALT: (We are learning to...)	<p>10.4 We are learning to represent and find the number of equal parts.</p>
Student Learning Strategies	<ul style="list-style-type: none"> • Use a Visual Model • Count Pieces
Success Criteria	<p>I can divide a whole number by a unit fraction using a visual fraction model.</p>
Formative Assessment (drives instructional decisions)	<p>Turn and Talk (pg 253, 254) Check Understanding (pg 255) Exit Ticket (TM pg 256)</p>
Activities and Resources	<p>Warm-Up: Activate Prior Knowledge (TM pg 253B) Mini-Lesson: Spark Understanding (pg 253) Build Understanding (pg 254) Step It Out (pg 255) Guided Practice: Check Understanding (pg 255)</p>

	<p>Independent Practice: On Your Own (pg 256)</p> <p>Teacher Resources Into Math Teacher Edition Module 10 & Online Resources</p>
Suggested Modifications	Plan for Differentiated Instruction (TM pg 253C)

MATH.5.NF.B.7.b

Interpret division of a whole number by a unit fraction, and compute such quotients.

LESSON 10.5

Student Learning Intentions (SLI) WALT: (We are learning to...)	10.5 We are learning to use presentations of division of whole numbers by unit fractions.
Student Learning Strategies	<ul style="list-style-type: none"> • Write a Word Problem and Use a Visual Model • Solve a Division Problem
Success Criteria	<p>I can create a story and use a visual fraction model to interpret the division a whole number by a unit fraction.</p> <p>I can interpret divide a whole number by a unit fraction.</p>
Formative Assessment (drives instructional decisions)	<p>Turn and Talk (pg 257, 258, 259)</p> <p>Check Understanding (pg 260)</p> <p>Exit Ticket (TM pg 262)</p>
Activities and Resources	<p>Warm-Up: Activate Prior Knowledge (TM pg 257)</p> <p>Mini-Lesson: Spark Your Learning (pg 257), Build Understanding (pg 258-259) Step It Out (pg 260)</p> <p>Guided Practice: Check Understanding (pg 260)</p> <p>Independent Practice: On Your Own (pg 261 - 262) and Exit Ticket (TM pg 262)</p> <p>Teacher Resources Into Math Teacher Edition Module 10 & Online Resources</p>
Suggested Modifications	Plan for Differentiated Instruction (TM pg 257C)

MATH.5.NF.B.7.b

Interpret division of a whole number by a unit fraction, and compute such quotients.

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and

equations to represent the problem.

MODULE 11

Module 11 Relate Multiplication and Division of Fractions

LESSON 11.1

Student Learning Intentions (SLI) WALT: (We are learning to...)	11.1 We will learn to relate multiplication and division of fractions.
Student Learning Strategies	<ul style="list-style-type: none">• Use the Visual Model• Count Equal Parts
Success Criteria	<ul style="list-style-type: none">• I can divide a whole number by a unit fraction using a related multiplication equation.• I can divide a unit fraction by a whole number using a related multiplication equation.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 267, 268) Check Understanding (pg 269) Exit Ticket (TM pg 270)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 267) Mini-Lesson: Spark Your Learning (pg 267), Build Understanding (pg 268), Step it Out (pg 269) Guided Practice: Check Understanding (pg 269) Independent Practice: On Your Own (pg 270) and Exit Ticket (TM pg 270) Teacher Resources Into Math Teacher Edition Module 11 & Online Resources
Suggested Modifications	Plan for Differentiation (TM pg 267C)

MATH.5.NF.B.7.a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

MATH.5.NF.B.7.b

Interpret division of a whole number by a unit fraction, and compute such quotients.

LESSON 11.2

Student Learning Intentions (SLI) WALT: (We are learning to...)	11.2 We are learning to divide whole numbers by unit fractions.
Student Learning Strategies	<ul style="list-style-type: none">• Number Line• Equation Check
Success Criteria	I can represent division of a whole number by a unit fraction using visual fraction models and equations.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 271 & 272) Check Understanding (pg 272) Text Ticket (TM pg 274)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 271B) Mini-Lesson: Step It Out (pg 271) Guided Practice: Check Understanding (pg 272) Independent Practice: On Your Own (pg 273-274) and Exit Ticket (TM pg 274) Teacher Resources Into Math Teacher Edition Module 11 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg 271C)

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

LESSON 11.3

Student Learning Intentions (SLI) WALT: (We are learning to...)	11.3 We are learning to interpret and solve division of a whole number by a unit fraction
Student Learning Strategies	<ul style="list-style-type: none">• Visual Model• Equation check
Success Criteria	I can create a story for a given equation I can use a visual fraction model to represent the

	quotient
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 275, 276) Check Understanding (pg 276) Exit Ticket (TM pg 278)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 275B) Mini-Lesson: Step It Out (pg 275 - 276) Guided Practice: Check Understanding (pg 276) Independent Practice: On Your Own (pg 277 & 278) and Exit Ticket (TM pg 278) Teacher Resources Into Math Teacher Edition Module 11 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM 275C)

MATH.5.NF.B.7.b

Interpret division of a whole number by a unit fraction, and compute such quotients.

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

LESSON 11.4

Student Learning Intentions (SLI) WALT: (We are learning to...)	11.4 We are learning to divide unit fractions by whole numbers.
Student Learning Strategies	<ul style="list-style-type: none"> • Visual Model • Dividend and Divisor Check
Success Criteria	I can represent division of a unit fraction by a whole number using visual models and equations.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 279, 280) Check Understanding (pg 281) Exit Ticket (TM pg 282)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 279B) Mini-Lesson: Step It Out (pg 279, 280) Guided Practice: Check Understanding (pg 281)

	Independent Practice: On Your Own (pg 281, 282) and Exit Ticket (TM pg 282) Teacher Resources Into Math Teacher Edition Module 11 & Online Resources
Suggested Modifications	Plan For Differentiated Instruction (TM pg 279C)

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

LESSON 11.5

Student Learning Intentions (SLI) WALT: (We are learning to...)	11.5 We are learning to interpret and solve division of a unit fraction by a whole number.
Student Learning Strategies	<ul style="list-style-type: none"> • Visual Model • Compare Math Story to Equation
Success Criteria	I can create a math story for a given equation. I can use a visual fraction model to represent the quotient.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 283,284) Check Understanding (pg 284) Exit Ticket (pg 286)
Activities and Resources	<p>Warm-Up: Activate Prior Knowledge (TM pg 283B) Mini-Lesson: Step It Out (pg 283-284) Guided Practice: Check Understanding (pg 284) Independent Practice: On Your Own (pg 286-286) and Exit Ticket (TM pg 286)</p> <p>Teacher Resources Into Math Teacher Edition Module 11 & Online Resources</p>
Suggested Modifications	Plan for Differentiated Instruction (TM pg 283C)

MATH.5.NF.B.7.a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers

and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

LESSON 11.6

Student Learning Intentions (SLI) WALT: (We are learning to...)	11.6 We are learning to solve division problems using visual models and equations.
Student Learning Strategies	<ul style="list-style-type: none">• Check Understanding• Check Multiplication Equation
Success Criteria	I can solve problems involving the division of fractions and whole numbers.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 287 & 288) Check Understanding (pg 288) Exit Ticket (TM pg 290)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 287B) Mini-Lesson: Step It Out (pg 287 - 288) Guided Practice: Check Understanding (pg 288) Independent Practice: On Your Own (pg 289 - 290) and Exit Ticket (TM pg 290) Teacher Resources Into Math Teacher Edition Module 11 & Online Resources
Suggested Modifications	Plan For Differentiated Instruction (TM pg 287C)

MATH.5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

MODULE 12

Module 12: Customary Measurement

LESSON 12.2

Student Learning Intentions (SLI) WALT: (We are learning to...)	12.2 We are learning to solve multistep customary measurement problems.
Student Learning Strategies	<ul style="list-style-type: none"> • Questioning • Think,Pair, Share
Success Criteria	I can solve multistep problems that include customary measurement conversions.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 301, 302) Check Understanding (pg 303) Exit Ticket (TM pg 304)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM 301B) Mini-Lesson: Step It Out (pg 301-302) Guided Practice: Check Understanding (pg 303) Independent Practice: On Your Own (pg 303 -304 and Exit Ticket (TM pg 304) Teacher Resources Into Math Teacher Edition Module 12 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg 301C)

MA.5.MD.A.1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

LESSON 12.1

Student Learning Intentions (SLI) WALT: (We are learning to...)	12.1 We are learning to convert customary measurements.
Student Learning Strategies	<ul style="list-style-type: none"> • Use Multiplication to Convert • Use a Visual Model
Success Criteria	I can compare and convert customary units of measurement

Formative Assessment (drives instructional decisions)	Turn and Talk (pg 295, 296, 297) Check Understanding (pg 298) Exit Ticket (TM pg 300)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 295B) Mini-Lesson: Spark Your Learning (pg 295) Build Understanding (pg 296) Step It Out (pg 297-298) Guided Practice: Check Understanding (pg 298) Independent Practice: On Your Own (pg 299 - 300) and Exit Ticket (TM pg 300)
Suggested Modifications	Plan For Differentiated Instruction (TM pg 295C)

MA.5.MD.A.1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

LESSON 12.3

Student Learning Intentions (SLI) WALT: (We are learning to...)	12.3 We are learning to represent and interpret measurement data in Line Plots.
Student Learning Strategies	<ul style="list-style-type: none"> • Re-read the Problem • Use a Line Plot
Success Criteria	I can make a line plot to display data in fractional measurements. I can use a line plot to solve problems.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 305, 306) Check Understanding (pg 307) Exit Ticket (TM pg 308)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 305B) Mini-Lesson: Step It Out (pg 305-306) Guided Practice: Check Understanding (pg 307) Independent Practice: On Your Own (pg 307-308) and Exit Ticket (TM pg 308) Teacher Resources Into Math Teacher Edition

	Module 12 & Online Resources
Suggested Modifications	Plan For Differentiated Instruction (TM pg 305C)

MA.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.

LESSON 12.4

Student Learning Intentions (SLI) WALT: (We are learning to...)	12.4 We are learning to convert time and find elapsed time.
Student Learning Strategies	<ul style="list-style-type: none"> • Active Listening • Questioning
Success Criteria	I can solve elapsed time problems by converting units of time.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg 309, 310) Check Understanding (pg 310) Exit Ticket (TM pg 312)
Activities and Resources	Warm-Up: Activate Prior Knowledge (TM pg 309B) Mini-Lesson: Step It Out (pg 309-310) Guided Practice: Check Understanding (pg 310) Independent Practice: On Your Own (pg 311-312) and Exit Ticket (TM pg 312) Teacher Resources Into Math Teacher Edition Module 12 & Online Resources
Suggested Modifications	Plan For Differentiated Instruction (TM pg 309C)

MA.5.MD.A.1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

REFLECTIONS

INTERDISCIPLINARY CONNECTIONS: NEW JERSEY STUDENT LEARNING STANDARDS FOR ELA, SOCIAL STUDIES, SCIENCE AND/OR MATHEMATICS

LA.RF.5.4.A

Read grade-level text with purpose and understanding.

LA.W.5.9.B

Apply grade 5 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).

LA.L.5.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).