

Unit Title: Multiplying and Dividing Fractions and Decimals Word Problems

Grade Level: 6th grade

Subject Area: Math

Duration/Length/Number of class periods: 8 lessons

Description: Students will solve a variety of realistic word problems that involve multiplying and dividing fraction and decimal word problems.

Established Goals (National, State, Local):

Benchmark: 6.1.3.4 (Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers.)

What Enduring Understandings are desired?

- Solving math problems is a daily part of life, both currently and in the future.
- There are a variety of strategies that can be used to solve math problems, with a range of efficiency.
- The context of the problem can be used to check the reasonableness of the solution.

What Essential Questions will be considered?

- How do I know where to begin when solving a problem?
- How do I decide what strategy will work best in a given problem situation?
- What do I do when I get stuck?
- How do I know when a result is reasonable?
- What are examples of using math to solve a problem in everyday life?

Students will know / be able to:

- Students will know the difference between product and quotient.
- Students will read the word problem more than once and underline important information.
- Students will select from a variety of strategies to solve the problem, ideally using at least 2 different strategies.
- Students will check to make sure their solution makes sense.

Description	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	ISTE Standards
<p>Day 1: Introduce Importance of Solving Math Problems/Strategies Begin with a discussion of situations math has been used in everyday life. (Example video that could be shown.) Use Padlet or Schoology Discussion for students to share examples from their lives. Tell students they can continue to add to the list throughout the entire unit so they should be on the lookout for noticing math being used in their everyday lives.</p> <p>Then give students a problem to solve in groups. (Example Problem). After students have worked together for a bit, have students use Desmos to show how their group solved the problem. Then the teacher can project the students' work on the board for a class discussion. Focus the class discussion of the strategies that students used to solve this problem. Have students brainstorm other strategies they have used. Make a list that is posted in the classroom and/or digitally.</p>			x		x	x	7c
<p>Day 2: Explaining Problem Solving Steps Intro: Have students complete this sheet. Have a quick discussion about the importance of reading directions carefully.</p> <p>Explain how it is also helpful to know the following four words: sum, difference, product, quotient. Show this video.</p> <p>Explain how there are Problem Solving Steps that people can use so they are more likely to reach a correct solution. (Remind students about yesterday's problem and about how it can cause problems). Share this with students and compare the list of strategies created yesterday to the list provided.</p> <p>These chants can be introduced to students and repeated for the remaining days of the units.</p> <p>Pick one of the real-life problems brainstormed yesterday to model as a class with the Problem Solving Steps being used.</p> <p>Have students practice using the Problem Solving Steps by doing this Desmos. Stress that the goal is to practice by using 2 different strategies for each problem. The teacher can share great strategies noticed with the entire class.</p>			x		x	x	1C
<p>Day 3: Focus on Solving Realistic Problems Involving Decimals Intro: Ask how many students would like to have something that melts all the snow off their driveways/sidewalks so they don't have to shovel any more. Explain how the company Uponor creates heating coils they could put under the driveway so people</p>	x			x	x		1D

<p>no longer need to shovel. Explain a little about the company/Job shadow experience (Ex. Uponsor worked on US Bank Stadium). Tell students that today they are going to have the chance to pretend to be Managers working at Uponsor. They will be required to complete a variety of tasks. They will complete this Decktoy that contains the tasks. Ideally, have a prize/reward ready to give students that complete all tasks and earn their “Paycheck” (Pretend Check/Award, Candy that looks like money, Recognition Card, etc.) This could be assigned as a formative assignment.</p>						
<p>Day 4: Focus on Solving Realistic Problems Involving Fractions Intro: Ideally bring in pizza, cake, pie, brownies, or something similar. Explain how you had pizza for dinner last night and now have $\frac{1}{2}$ pizza leftover. You plan to eat $\frac{1}{4}$ of the leftover pizza for lunch today. Ask students what fraction of the entire pizza you will be eating for lunch. (Don’t give students the answer at this time.) Tell students they will now be using Desmos to help them visualize the above problem by solving similar problems. Closure: At the end of the lesson return to the problem at the beginning of class and discuss whether students answered the question correctly at the beginning of class. This could be assigned as a formative assignment.</p>	x		x	x		1C
<p>Day 5: Mixing Up Fractions and Decimals Intro: After reviewing the list of real-life examples of math students have generated (from Day 1), have a discussion about whether the students would like to choose which problem they have to solve instead of just being forced to solve the problems that come up. Tell students today they will get the chance to choose which problem they would rather solve. For example, they can choose between solving a problem about pizza or they could pick to solve a problem about pumpkin pie. Here is a Decktoy with a variety of problems for students to complete. This could be assigned as a formative assignment.</p>	x		x	x		1C
<p>Day 6: Student Choice on Possible Activities to Practice Solving Problems Tell students they can pick from any of the activities below to practice solving problems to increase their confidence and proficiency in solving a variety of problems. Options:</p> <ul style="list-style-type: none"> • Scavenger Hunt (Posted around Classroom) <ul style="list-style-type: none"> ○ QR Codes (Includes both problems and answers) ○ Recording Sheet for Students • Quizizz (note: same problems as Scavenger Hunt) (Select go in order) • A Google form with a variety of problems 	x		x	x		1C

<ul style="list-style-type: none"> ○ Teacher Version ○ Student version ● Khan Academy Problems <p>This could be assigned as a formative assignment.</p>						
<p>Day 7: Practice Assessment/Review Students can complete the Practice Assessment. As more review, ideally throughout the unit the teacher can be turning the real-life situations that were first generated on day 1 into realistic word problems. This could be combined with any word problems students created throughout the unit. The questions could be entered into a Schoology Question bank and students could be answering the questions after finishing the Practice Assessment.</p>	x			x		1C
<p>Day 8: Unit Assessment</p>		x				

<p>Materials, tools and resources:</p> <ul style="list-style-type: none"> ● Students will need calculators. ● Students will need an iPad or Other Device. Apps they will need: Chrome or Safari and Google Sheets.
<p>Unit Plan Author (name, school and optional email address or hyperlink to teacher's web page): Kari Skildum Washington Technology Magnet School kari.skildum@spps.org</p>
<p>Additional credit given to:</p> <ul style="list-style-type: none"> ● Day 4: The Desmos was adapted from an activity created by Jennifer Vadnais ● Day 8: The Quizizz was created by Megan Tracy.