Store Receipt Decimals

Teacher		**Class**	Grade 6
Subject	Math	**Topic**	Adding, subtracting, multiplying and dividing decimals
Date		**Room**	
Lesson length	60 minutes	**Country**	United States

Students learn the standard ways to add, subtract, multiply, and divide decimals. They run a supply store and make a receipt that balances.

Curriculum links

- multiply and divide positive rational numbers fluently [1]
- Estimate, solve, and explain answers to real-life problems using addition, subtraction, multiplication, and division with decimals (up to the thousandths place) [2]

Learning objectives

- Students will add and subtract multi-digit decimals with the standard algorithm.
- Students will multiply multi-digit decimals with the standard algorithm fluently.
- Students will divide multi-digit decimals by making the divisor whole.

Success criteria

- I can line up points to add and subtract decimals.
- I can place the point correctly when I multiply.
- I can shift the point to divide decimals.

What students already know

Show $4.75 + $2.30 stacked correctly. Ask: Where does the point go in the answer and why? Listen for lining up points.

Key words

decimal point	small dot that separates whole ones from tenths and smaller parts [8]
dividend	number being split up in a sharing problem [9]
divisor	number you share by in a sharing problem [9]
quotient	answer you get after sharing equally [9]
estimate	a close guess made before you work exactly [2]

Materials

- Slides 2-12 with projector
- Video clip 1 (0:00–5:02)
- Worksheet Task B and Task C copies
- blank receipt forms
- pencils
- colored pencils
- price list with hundredths

Before the lesson

- Print blank receipt forms, one per student, plus price list
- Print Worksheet Task B and Task C, one per student
- Test Slide 6 Video clip 1 (0:00–5:02) with sound
- Set up Slide 2 vote and Slide 12 quiz for whole-class response

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Lesson outline

0–5 min **Starter** 5 min · Whole class

Hook with the store and surface which decimal operation needs practice.

YOU DO

1. Show Slide 4 grocery photo and read the store hook.
2. Show Slide 2 vote: Which decimal operation do you most want to practice today?
3. Tally votes and link to goal: today we will use all four decimal operations with money [1].
4. Preview the receipt task so students listen for each operation.

STUDENTS DO

1. Look at the grocery totals like $4.75 + $2.30.
2. Vote for adding and subtracting, multiplying, dividing, or confident with all four.
3. Tell a neighbor what makes decimals tricky.

Say: You run the school supply store — make a receipt for two notebooks, a discount, and four pencils that adds up perfectly. Vote for the move you want to practice most. By the end, your receipt will add, subtract, multiply, and divide correctly.

Ask: Why do grocery totals like $4.75 + $2.30 need the point in exactly the right place? (The point keeps dollars, dimes, and pennies in the right places, so change is exact.) · What will your store receipt have to show? (An add total, a subtract discount, a multiply for multiples of one item, and a divide to split a pack.)

Check understanding: Hands-up vote count plus thumbs up for task. If split, note the top two tricky moves to stress later.

Support: Show $4.75 + $2.30 already lined up and read as 4 dollars 75 cents plus 2 dollars 30 cents. **Stretch:** Ask what $4.755 would mean next to $4.75 to preview thousandths place [2].

Use: Slides 2, 4

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5–15 min **Teach Add and Subtract** 10 min · Whole class

Model lining up points and filling zeros for adding and subtracting.

YOU DO

1. Show Slides 3, 5 and 7 and model lining up decimal points in a vertical list [8].
2. Think aloud the mystery shift: points were not lined up, so tenths and hundredths got mixed.
3. Model 4.275 + 2.36 by filling the gap with zero so places match [8].
4. Students start Worksheet Task B for 3 minutes while teacher circulates.

STUDENTS DO

1. Study the lined-up vertical work on the board.
2. Copy the fill-zero step and point placement.
3. Try Worksheet Task B: Practice adding and subtracting by lining up place value.

Say: For adding and subtracting, line up the points, then add or subtract each place. Fill empty spots with zero so every number has the same places. Start at the right in the smallest place and carry as needed.

Worked example: 4.275 + 2.36: Line up points [8]. Write 2.36 as 2.360. Thousandths 5+0=5. Hundredths 7+6=13, write 3 carry 1. Tenths 2+3+1=6. Ones 4+2=6. Point lines up. Answer 6.635. Check: we combined same-size pieces, tenths with tenths and hundredths with hundredths [4].

Ask: Why do we fill 2.36 as 2.360 before adding? (To give each number the same places so hundredths add to hundredths [4].) · Where does the point go in the answer? (Straight down in line with the other points [8].)

Check understanding: Mini whiteboards up showing lined-up 5.8 - 1.347. If points are not lined up, remodel with place-value boxes.

Support: Give a place-value chart labeled ones, tenths, hundredths, thousandths so students place one digit per box before adding [8]. **Stretch:** Solve 3.6 + 0.485 + 12.05 without a chart, lining up all three points.

Use: Slides 3, 5, 7 and Worksheet Task B

15–30 min **Teach Multiply and Divide** 15 min · Whole class

Model whole-number multiplication with point placement and shifting to divide.

YOU DO

1. Play Video clip 1 on Slide 6 and tell students to spot lining up, counting places, and shifting.
2. Model 4.25 x 1.6 as whole numbers, then count places for the product [3].
3. Model 8.64 ÷ 2.4 by shifting to make the divisor an integer [9].
4. Students try Worksheet Task C for 4 minutes while teacher checks point placement.

STUDENTS DO

1. Watch the video and note one multiply rule and one divide rule.
2. Copy the place-count 2+1=3 and the shift x10 for division.
3. Try Worksheet Task C: Practice multiplying and dividing decimals accurately.

Say: To multiply, ignore the points and multiply like whole numbers. Then count digits to the right in each factor, add them, and count that many places from the right [5]. To divide, shift the point to make the bottom number whole, and shift the top number the same places. That makes an easier equal problem [9].

Worked example: 4.25 x 1.6: 425 x 16 = 6800. Count 2 places + 1 place = 3 places in product [3]. Count 3 from right: 6.800 = 6.8. 8.64 ÷ 2.4: divisor 2.4 is the number it is divided by [9]. Multiply both by 10 to make divisor whole: 86.4 ÷ 24. 24 goes 3 times, remainder, bring down to get 3.6. Check by asking how many copies of 0.5 fit in 7.5 gives 15 [4].

Ask: For 4.25 x 1.6, how do you know the answer has 3 decimal places? (Two places in 4.25 plus one place in 1.6 equals three places in the product [3].) · Why do we change 8.64 ÷ 2.4 to 86.4 ÷ 24? (To find an equal fraction with a whole-number bottom, which is easier to divide [9].) · Adding a zero to 3.45 does not make it 34.5, so what does? (Multiplying by 10 moves the point right: 3.45 x 10 = 34.5.)

Check understanding: Hinge on whiteboards: show point placement for 2.34 x 1.2. If many miss, recount places aloud and estimate 2 x 1 = 2 [2].

Support: Let students first estimate with whole numbers, like 4 x 2 = 8, to predict where the point should land [2]. **Stretch:** Explain the 4-place count for 1.235 x 2.4 and where the point lands.

Use: Slide 6, Video clip 1 (0:00–5:02), Slide 10 and Worksheet Task C

30–50 min **Main Activity** 20 min · Pairs

Use all four operations to build an exact store receipt.

YOU DO

1. Hand out blank receipt forms, pencils, and colored pencils and show Slide 9 task.
2. Give the price list: notebook $2.49, pen $3.75, eraser $0.65, pencil $1.15, pack $7.50.
3. Require four lines: add $5.48 + $2.75, subtract $9.60 - $3.85, multiply 4.25 x 1.6 style, divide 8.64 ÷ 2.4 style with money.
4. Circulate, check lined-up work and whole divisor, and stamp exact receipts.

STUDENTS DO

1. In pairs, estimate each line, then solve: $5.48 + $2.75 and $9.60 - $3.85, plus 4 x $1.15 and $7.50 ÷ 3.
2. Show vertical work with points lined up, zeros filled, place-count, and whole divisor.
3. Display the receipt and compare estimate to exact to catch a misplaced point.

Say: With your partner, estimate first, then work exactly. Line up points for add and subtract, count places for multiply, and make the divisor whole to divide. Your receipt must balance to the cent. Color the total box when your estimate and exact work agree.

Ask: How do you prove your $5.48 + $2.75 total is right? (Points lined up, zeros filled, estimate near $8, exact $8.23.) · How do you prove your divide line is right? (Divisor made whole, dividend shifted same places, quotient point lines up [9].)

Check understanding: Pairs hold up receipt lines; teacher scans for lined-up points, filled zeros [8], and whole divisor [9]. Fix one error as a class if needed.

Support: Provide a price list with only hundredths and a worked receipt where gaps are filled with zero to line up places [8]. **Stretch:** Add a price per pound, like $2.485 for 2 pounds, and multiply to the thousandths place.

Use: Slide 9

50–60 min **Plenary** 10 min · Whole class

Explain the division shift and check fluency with all four moves.

YOU DO

1. Pose Slide 11: Why must we make the divisor a whole number before we divide decimals?
2. Run think, pair, share for one sentence plus example like 0.8 ÷ 0.4 = 8 ÷ 4 = 2.
3. Run Slide 12 quick quiz for the four operations.
4. Close by linking each quiz answer back to the success lines.

STUDENTS DO

1. Think, pair, share the why-divisor-whole reason with an example.
2. Answer the four quiz questions on whiteboards.
3. Self-check against I can lines and name one rule to remember.

Say: Turn, talk, then share one clear reason. Making the bottom number whole gives an equal problem that is easier to do with long division. Then show me fluency on the four-question quiz.

Ask: Why must we make the divisor a whole number before we divide? (It makes an equal calculation that is easier to divide with whole-number long division [9].) · What is 3.2 x 1.5 and how do you know the point is right? (4.8, because 1 + 1 = 2 places, and estimate 3 x 2 = 6 is close.)

Check understanding: Whiteboard quiz answers for all four; reteach the missed move with one more lined-up or shift example if below 80%.

Support: Post dividend, divisor, quotient labels and the shift already done, like 36 ÷ 12 for 3.6 ÷ 1.2 [9]. **Stretch:** Ask what changes for 48.4 ÷ 3.2 if you multiply both numbers by 10 versus by 100.

Use: Slides 11–12

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Common mistakes

Mistake	How to spot it	How to fix it
Lining up right edges instead of points for addition, mixing tenths and hundredths	Digits look shifted and thousandths column has mixed places	Rewrite in vertical list with points in line and fill gaps with zero so same-size pieces combine [4][8]
Placing the product point by guessing instead of counting places	Answer 10 or 100 times too big, estimate far from exact	Recount digits to the right in each factor and add them for product places, then estimate to check [3][5]
Dividing without making the divisor whole	Long division starts with a decimal divisor and point is misplaced	Rewrite as an equal fraction with a whole-number bottom by shifting both numbers the same places [9]

Support

- Provide a price list with only hundredths and a worked receipt where gaps are filled with zero to line up places

Stretch

- Add a price per pound, like $2.485 for 2 pounds, and multiply to the thousandths place

For the LSE or teaching assistant

Stay with receipt pairs during Main Activity. Prompt estimate first, check points lined up and divisor whole, use place-value chart for add and subtract.

Check for understanding

Question	Answer
What is 2.34 + 1.2?	3.54
What is 3.2 x 1.5?	4.8
What is 7.5 ÷ 0.5?	15

Homework

Make one home receipt with one add, one subtract, one multiply, and one divide, all shown lined up.

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