



Core Focus

- Adding and subtracting decimal fractions
- Constructing and interpreting a bar graph, dot plot, and stem-and-leaf plot

Decimal Fractions

- Students extend their skills to adding decimal fractions building on what they already know about adding like quantities to like quantities, regardless of the numbers they add.
- Students are encouraged to use mental strategies to add decimal fractions without and then with regrouping.
- Students are encouraged to use a number line to show how they could add given numbers.

2nd **Step In** Adding Decimal Fractions (with Regrouping)

William recorded the time that it took to swim three laps of the pool. What do you notice about each lap time?
About how long did it take to swim the first two laps?
Did it take more or less than one minute? How do you know?

Lap Times 50 Meters	
Lap 1	35.04 seconds
Lap 2	36.58 seconds
Lap 3	37.9 seconds

 I looked at the number of whole seconds to make my estimate. I know there are 60 seconds in one minute, so I know it took more than one minute.

How would you figure out the exact amount of time that it took to swim the first two laps?
Some friends shared their strategies.

$35 + 36 = 71$ $0.04 + 0.5 = 0.54$ $0.04 + 0.08 = 0.12$ $71 + 0.54 + 0.12 = 71.62$	$35.04 + 36.58$ $= 35 \frac{4}{100} + 36 \frac{58}{100}$ $= 71 \frac{62}{100}$	$\begin{array}{r} 35.04 \\ + 36.58 \\ \hline 71.62 \end{array}$
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Describe the steps that each person followed. Which strategy do you prefer? Why?

In this lesson, students use place value to add tenths to tenths, hundredths to hundredths, and tenths to hundredths.

- Students also extend their skills to subtracting decimal fractions. The different types of examples are considered: tenths from tenth, hundredths from hundredths, tenths from hundredths, or vice versa, and extended to thousandths.
- The standard algorithm is introduced as an extension of the procedure used with whole numbers. The lessons progress from decomposing ones to decomposing tenths before regrouping is required in multiple places.
- The written procedure for subtracting decimal fractions “lining up the decimal places” ensures students are subtracting like quantities (tenths with tenths, hundredths with hundredths, etc.).

Ideas for Home

- Create a set of cards showing the digits 0–9, then shuffle and place them facedown. Take turns with your child to draw three cards and use the digits in order of selection to write a decimal fraction in the form 0._____. Compare the two decimal fractions to see which is greater and ask how they know.
- Using the same digit cards, take five and create a decimal fraction addition sentence that is as close to 10 as possible (over or under). E.g. with the digits 1, 2, 5, 6, and 9, an addition sentence could be $9.6 + 0.521 = 11.21$. Take turns with your child to see who can get the closest.

Glossary

- ▶ **Algorithms** are rules used for completing tasks or for solving problems.
- ▶ **Decimal fractions** are fractions in which the denominator is 10, 100, or 1,000, etc. but are always written using decimal points.
- ▶ A **decimal point** indicates which digit is in the ones place. It is positioned immediately to the right of the ones digit.

2.8
Step In **Subtracting Decimal Fractions (with Regrouping)**

This table shows the height of some dinosaurs.
About how much taller is Ultrasaurus than Diplodocus?

How would you figure out the exact difference in height?

Oliver used the standard algorithm for subtraction.
What steps did he follow?

The height of Diplodocus is 7.3 meters. Why did Oliver write 7.30 meters? Did he need to record the zero?

Why did he cross out the 6 ones?

Dinosaur	Height (m)
Argentinosaurus	21.4
Diplodocus	7.3
Spinosaurus	2.4
Ultrasaurus	16.27

T o t h

1 6 . 2 7

- 7 . 3 0

8 . 9 7

He traded 1 one for 10 tenths.

16 ones, 2 tenths, and 7 hundredths has the same value as 15 ones, 12 tenths, and 7 hundredths.



In this lesson, students use the standard algorithm to subtract decimal fractions with regrouping.

Data

- The final three lessons of this module investigate different ways to organize and record information in a graphical format.
- Collecting data and displaying it in graphs is a way to visually address questions like: *How many? How much? What kind?* Students learn ways to organize data and to display it in charts and graphs. Lessons in this module focus on creating and interpreting bar graphs, dot plots, and stem-and-leaf plots.

2.12
Step In **Creating and Interpreting Stem-and-Leaf Plots (Decimal Fractions)**

Professional sports teams often track the distance that their players run during each game.

Felix plays football. This stem-and-leaf plot shows the total distance that he ran in each of the first 10 games.

Look carefully at the key. What does it tell you about the stem-and-leaf plot?

Distance (Miles)	
Stem	Leaf
0	3
1	7
2	3 5 7 9
3	0 6 9
4	1

Key
| 7 | means 1.7

The numbers in the stem show whole miles. The numbers in the leaves show tenths of a mile. So, 1|7 means 1.7 miles.



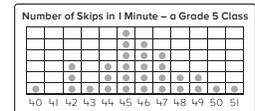
In this lesson, students work with stem-and-leaf plots where data is organized by separating place values with a vertical line.

Ideas for Home

- Use sports performance results of two favorite athletes or teams to make comparisons between scores.
- Notice when data is displayed in stem-and-leaf plots or dot plots in the newspaper, on online sites or in magazines. Interpret the graph together and ask questions that can be answered by looking at the graph.
- Notice if electronic games your child plays collect performance data and interpret it together.
- Shopping for food or ordering in a restaurant is a natural time to practice addition with decimal fractions. Ask your child to mentally add the price of two items. Ask what strategy they use.

Glossary

- ▶ A **dot plot** is used to show data. It is made by placing dots above a number line. On this dot plot, each dot represents one student.



- ▶ A **stem-and-leaf** plot is a graph where data is organized by separating place values with a vertical line. For example: 13, 18, and 23 are shown as below.

Stem	Leaf
1	3 8
2	3