



Overview

Students will follow a guided discovery lesson to develop and test rules for rounding whole numbers and decimal fractions. They will then use the information to solve a real-world problem.

Grade Levels: 4–6




Concepts

- Rounding
- Place Value
- Problem solving



Materials

-  TI-15 Explorer™ calculators
- Student activity sheet
- Using the TI-15 (page included in Teacher Notes)



Assessment

Throughout the activities, questions are included for formative assessment. Student work samples should be used as a check for understanding. Have the students use the TI-15 to show their calculations.



Introduction

Ask students to give you examples of rounded numbers. Write down all of the responses. Have the students describe the list of numbers given. How are the numbers alike? How are they different? What makes them rounded numbers?

Presenting the Problem

For this activity, all students should complete the *First Things First* activity page to develop an understanding of how numbers are rounded. Continue to the Rounding Numbers activity page. See Using the TI-15 on page 17 to help students determine round numbers.

1. Have the students key in any three-digit number and press **Enter**. Have the students press **Fix** and the red **10.** under **Fix**. (You may wish to demonstrate the procedure for the students.) Select several students to read the number displayed on their TI-15s. Write those numbers on a chart.
2. Have students press **Fix** and the red **100.**. Have several students read the new answer displayed. Record their answers. Show how to clear **Fix** by pressing **Fix** and the decimal point (**.**).
3. Explain the procedures on the *First Things First* activity page. Have students work alone or with a partner to complete the activity.
4. After students have completed Table 1, have them share the conjecture made and how they verified the conjecture. If their conjecture is flawed, provide a number that will show the error. Discuss the various conjectures with the whole class. Do not validate any conjectures at this point.
5. After students have completed Table 2, discuss the conjectures made. Determine if their conjectures remained the same or were modified in some way.
6. Have students discuss their answers after they have completed Table 3 and the group questions. Help students understand the differences in rounding whole numbers and rounding decimals. While numbers have zeros in the right column, depending on the place to which the number was rounded. Decimals could have zeros, but will more likely have digits other than zero.
7. Once the *First Things First* activity is completed, have the students read the *Rounding Numbers* problem page. Make sure they understand the final product and the required presentation.

If needed, review the use of **Fix** on the TI-15 for rounding numbers.



Evaluating the Results

Have students discuss their solutions after the presentations have been made. Have them determine if the calculations are reasonable, and answer the question in the problem.

Have students evaluate the different ways groups went about solving the problem.

Have students evaluate how using the TI-15 helped them solve the problem.



SOLUTIONS



Name _____

Date _____

In Round Numbers: First Things First



Focus: Rounding whole numbers and decimals

The Problem: What do rounded numbers look like?

Working the Problem

Enter each number in the TI-15 and round it to the tens place, then to the hundreds place. Record your results in the tables.

1. Press 539 . Record the result in Table 1. Press . Record the result in Table 1.

Press 653 . Record the result the TI-15 shows in Table 1.

Press . Record what the TI-15 shows. Clear the rounding feature by pressing .

Answers will vary.

2. Choose another 3-digit number and record it in the table. Enter it in the calculator and press . Record the result in the table. Press . Record what the TI-15 shows. Clear the rounding feature.

Choose several more 3-digit numbers and repeat the procedure to round for the tens place and the hundreds place.

Make conjectures about the results that you will get when you press

or . Test your conjectures with different 3-digit numbers.

Answers will vary.



Table 1

Number	Fix 10.	Fix 100.
539	Answer: 540	Answer: 500
653	Answer: 650	Answer: 700
Sample answers:		
457	460	500
172	170	200
261	260	300

3. Press 3482 **Enter**. What do you think the TI-15 will show when you press **Fix** **10.**? **Fix** **100.**? **Fix** **1000.**? Try them and record your results in Table 2. Clear the rounding feature by pressing **Fix** **.**.

Answers will vary.

4. Choose several 4-digit numbers and use the different **Fix** rounding keys. Predict what will happen, and then press **Fix** and a rounding key. Make sure you clear the rounding feature before trying a different number.

Table 2

Number	Fix 10.	Fix 100.	Fix 1000.
3482	Answer: 3480	Answer: 3500	Answer: 3000
Sample answers:			
1234	1230	1200	1000
5092	5090	5100	5000
6810	6810	6800	7000



5. Press 6.487 and then press . What do you think the TI-15 will show when you press ? ? ? Try them and record all of the rounded numbers on Table 3. Clear the rounding feature by pressing .

6. Choose several more numbers with 3 decimal places and predict what will happen when you use the rounding keys shown in Table 3. Make sure you clear the rounding feature before trying a different number.

Table 3

Number			
6.487	Answer: 6.5	Answer: 6.49	Answer: 6.487
Sample answers:			
3.581	3.6	3.58	3.581
7.052	7.1	7.05	7.052

7. With your group, answer these questions. Be prepared to share your answers with the class.

- *If a number is rounded to the tens place where do you expect to find zeros?*

Answer: In the ones place

- *If a number is rounded to the hundreds place where do you expect to find zeros? How do you know?*

Answer: In the tens and ones places. Explanations will vary.

- *If a number is rounded to the tenths place where are the zeros?*

Answer: In the hundredths and thousandths places. Explanations will vary.



- *If a number is rounded to the hundredths place where are the zeros?
How do you know?*
Answer: In the thousandths places. Explanations will vary.
- *How does the TI-15 round numbers? How do you know?*

In Round Numbers: Part 2

The Problem: How much money do the players in the Tuesday Morning Bridge Club earn?

In the second part of the activity, students will calculate the number of points and the amount of money won by each bridge player. They will then round the numbers.



Using the TI-15 Rounding Numbers

To set up the problems for the activity:

Fix 10.

Fix
539

539 Enter

Fix
539 = 540.

Fix 100.

Fix
539 = 500.

Fix .

Fix
539 = 539