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Lesson Plan

Lesson: Rounding Decimals
Length: 45 minutes
Age or Grade Level Intended: 4

Academic Standard(s):

4.1.9 Round two-place decimals to tenths or to the nearest whole number.

Performance Objective(s):

Given a price in dollars and cents, the students will correctly round to the nearest tenth 5 out of 6 times correctly.

Given several objects with prices in dollars and cents, the students will correctly round to the nearest tenth when observed.

Assessment:

I will have the students play the roles of buyer and vendor, paying for their purchases by rounding to the nearest tenth (dime). I will observe them to get a general idea of their level of understanding.

Students will complete a worksheet with 6 rounding questions.

Advance Preparation by Teacher:

- Obtain play money (dimes and dollar bills only) for each student
- Prepare objects for the play store (3 times the number of students in the class. Examples: small book, marker, flag)
- Prepare price tags for objects in the play store (most prices under $1; numerals 1–9 equally represented in the hundredths place of the price)
- Small card ("cheat sheet") for student with learning disability in reading comprehension
- Prepare copies of worksheet

Procedure:

Introduction/Motivation:

Tell the following story.

> When I was in elementary school, I liked to sleep in on Saturdays. When my dad thought I had slept late enough, he would come into my room and

clap his hands once. If the time was anywhere between 9:05 and 10:00, he would say, “It’s 10 o’clock. Time to get up!” If it was between 10:05 and 11:00, he would say it was 11 o’clock. I realized later that he was using the idea of rounding in a way that made me feel that I had to get up.

Today we will review rounding and practice rounding decimals to the nearest tenth. Unlike my father, sometimes we will round down, and sometimes we will round up.

Step-by-Step Plan:

1. Tell the students they will take their previous knowledge of rounding to *the nearest whole numbers* and apply it to rounding to *the tenths place*.
2. Review rounding by writing the following numbers on the board: 46.27.
3. “We need to round 46.27 to the nearest tens place. How many tens do we have? (4) How many ones? (6) Rounding to tens, we’ll have a number of tens, and how many in the ones place? (Zero) How do we decide whether the rounded number will have 4 tens or 5 tens? (The digit in the ones place is between 5 and 9) What is 46 rounded to the nearest ten? (50)” **(Bloom: Knowledge)**
4. Draw an arrow pointing from 46 to 50.
5. Repeat steps 3 and 4 but rounding to the nearest ones place (nearest whole number). “We need to round 46.27 to the nearest ones place. How many ones do we have? (6) How many tenths? (2) Rounding to ones, we’ll have some number of ones, and how many in the tenths place? (None) How do we decide whether the rounded number will have 6 ones or 7 ones? (The digit in the tenths place is between 1 and 4) What is 46.27 rounded to the nearest ones place? (46)” **(Bloom: Knowledge)**
6. Draw an arrow pointing from 46.27 to 46.
7. Repeat steps 3 and 4 but rounding to the nearest tenths place (nearest dime). “We need to round 46.27 to the nearest tenths place. How many hundredths do we have? (7) How many tenths? (2) Rounding to tenths, we’ll have some number of tenths, and how many in the hundredths place? (None) How do we decide whether the rounded number will have 2 tenths or 3 tenths? (The digit in the hundredths place is between 5 and 9) What is 46.27 rounded to the nearest tenth? (46.30)” **(Bloom: Knowledge)**
8. Draw an arrow pointed from 46.27 to 46.30.
9. Explain that we rounded this same number in 3 different ways.
10. To practice rounding numbers to the tenths place, tell students they will use play money to “buy” objects from the dime store, which only accepts money that has been rounded to the nearest tenth—that is, to the nearest dime. The store only accepts dimes and dollar bills.
11. Explain one example. Show a book with the price tag $1.15. Ask a student how to pay for this item with dollars and dimes only. (1 dollar, 1 dime)
12. Divide students into buyers and vendors. (They will switch places after 5 minutes.)
13. Distribute play money to all students.
14. Instruct vendors to remain seated.

15. Place objects with price tags on the desks of the vendors.
16. Instruct buyers to spend the next 5 minutes buying objects from vendors' desks (one object at a time, so no adding is involved). **(Gardner: Bodily/kinesthetic)**
17. After 5 minutes, ask the students to return the objects to desks and switch roles.
18. After 5 minutes, ask all students to sit down.
19. Ask, "Were you able to figure out how much to pay? Were there any disagreements?"
20. Explain that they will have another chance to shop, but this time they will be allowed to buy more than one item at a time. Suggest they bring a paper and pencil.
21. Explain that they should add up the prices of the items they want to buy. If the total has 4 or less in the hundredths (cents) position, the vendor must lower the price to the nearest tenth. If the purchase amounts to a price with 5 or more in the hundredths (cents), the vendor will round up to the nearest tenth (dime).
22. Demonstrate an example with the following prices: 54 cents, 38 cents. First add them up (92 cents) and then ask how to round to the nearest tenth (90).
23. Repeat steps 15–19 making sure students buy multiple items so that they have to add first and then round up or down.
24. Ask students to return to their seats and return the objects and play money.
25. Discuss their reaction when the final price was rounded up or down.
26. Distribute the worksheet with 6 rounding questions and instruct students to complete it. (**Gardner: verbal/linguistic, logical/mathematical)**
27. Collect the worksheets.
28. Ask, "Do you wish all stores were like our dime stores? Why or why not?" **(Bloom: Evaluation)**

Closure:

Revisit the figure $46.27 on the board. Ask, "Imagine there is a nickel store. How would you round this amount in that kind of store?" (46.25) **(Bloom: Application)** In fact, some people are trying to change all stores into nickel stores. Introduce a brief video clip on the debate about whether to retire the penny. **(Gardner: Visual/spatial)**

- **60 Minutes Program**: Last two minutes — http://www.cbsnews.com/video/watch/?id=3814132n&tag=related;photovideo

or

- **Colbert Nation**: From 1:48 to 2:22 — http://www.colbertnation.com/the-colbert-report-videos/165056/april-09-2008/jeff-gore

Remind the students that understand rounding decimals will help them address everyday situations.

Adaptations/Enrichment:

Student with Learning disability in reading comprehension

Partner the LD student with another student. Instruct the partner to read the prices to the LD student when necessary. Also, so that the LD student does not have to mentally store numbers, give him or her a small card summarizing the rounding rules. See below

4**0** 4**1** 4**2** 4**3** 4**4** } 40	4**5** 4**6** 4**7** 4**8** 4**9** } 50 5**0**

Student with ADHD

The hands-on aspect of the activity should be a plus for the student with ADHD. To reduce stimuli, partner the ADHD student with another student, and have them do the activity at a separate table, facing away from the others. Give them enough objects so they will not run out of choices.

Student with Gifts and Talents in Creativity

Have the student create a small poster notifying dime store shoppers of acceptable currency.

Ask the student to do additional mental work while shopping. Some of these will prepare the student for enrichment activities based on the video in the closure. For example: Can you do the addition in your head? Did you mostly round up or down? What would a half-penny store look like? What happens if you round the numbers first and then add them? What material is the play money made of?

Self-Reflection

Write out the questions that you will use to evaluate yourself.

Did the activities take the amount of time I expected them to take? Did I ask enough higher order Bloom questions? What would I change for next time? Should I have used the closure video as a hook instead of as closure? Did I meet the needs of my exceptional students? Did they feel singled out?

Sources

http://www.indianastandardsresources.org/files/math/math_4_1_9.pdf