PRACTICE TASK: Hit the Target

Adapted from Indiana Math

STANDARDS FOR MATHEMATICAL CONTENT

MCC5.NBT.3 Read, write, and compare decimals to thousandths.

a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 x 100 + 4 x 10 + 7 x 1 + 3 x (1/10) + 9 x (1/100) + 2 x (1/1000).

b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

STANDARDS FOR MATHEMATICAL PRACTICE

1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**

BACKGROUND KNOWLEDGE

Students should be able to estimate sums and differences, using mental math. They should have a clear understanding of the value of decimal numbers, and their relative relationship to one.

ESSENTIAL QUESTIONS

- How can estimation help me get closer to 1?
- How can I keep from going over 1?

MATERIALS

- Decimals master
- Card stock
- Calculators

GROUPING

Groups of 3 or 4

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Students will participate in a game using mental strategies to add decimal numbers.

Comments

Students will draw cards with decimal numbers and use mental math to see who can get closest to the whole number 1 without going over. Explain to students that they should draw cards from the stack and add the numbers mentally; stopping when they think the total is close to one. Have them check their work with a calculator to determine which one is closest to one without going over. They may need to subtract to determine the closest answer. Each time a student is closest to the target, he/she earns a point. They may total their points at the end of a session to determine an overall winner, or they may continue the game for several sessions. Each student should write in their math journal about the strategy they used for determining the number closest to one.

Task Directions

Model with the Class, using think-alouds.

1. Tell students they will be using mental strategies to "Hit the Target".
2. Explain to student that they will be trying to hit the target of 1 by mentally adding decimal numbers to get as close to 1 as possible without going over.
3. Demonstrate with the whole class by calling out 2 decimal numbers and having them mentally add the numbers. Use the numbers 0.12 and 0.78.
4. Have them decide whether to ask for another number, or to stop.
5. If they ask for another number give them 0.04, then 0.23.
6. Show students the totals after each addition and ask them to explain how they could determine they were close enough to 1.

Group Task

1. Divide the class into groups of 3 or 4 students.
2. Have one student in each group act as leader. Direct this student to use the calculator to check answers.
3. Have each student in the group draw 2 cards and add them mentally.
4. Let each student decide whether to draw additional cards or stop.
5. When all students have stopped, have the leader use a calculator to determine which student is closest to 1.
6. Each time a student is closest to the target, he or she earns a point.
7. Have students change roles at the end of each round.

FORMATIVE ASSESSMENT QUESITONS

- How did you decide when you were close enough to 1?
- What method did you use to estimate your answer?
- Is it easier to estimate tenths or hundredths? Why?
- Did anyone use a different strategy?
- How did you use subtraction to help you?

DIFFERENTIATION

Extension

- Change the target number to a whole number other than 1.
- Use a decimal number greater than 1

Intervention

- For students who need additional practice in building better estimation skills, begin the game with only tenths cards. Then add hundredths and thousandths gradually.

Decimals Cards
(Copy on Card Stock)

0.006	**0.25**	**0.09**	**0.008**	**0.036**
0.008	**0.075**	**0.005**	**0.085**	**0.12**
0.043	**0.029**	**0.32**	**0.019**	**0.082**
0.006	**0.046**	**0.46**	**0.075**	**0.001**
0.04	**0.063**	**0.053**	**0.07**	**0.073**
0.19	**0.003**	**0.058**	**0.048**	**0.8**