

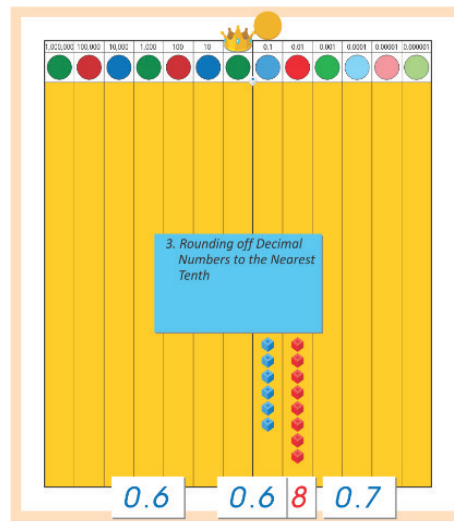
# Rounding off Decimal Numbers to the Nearest Tenth

## Materials:

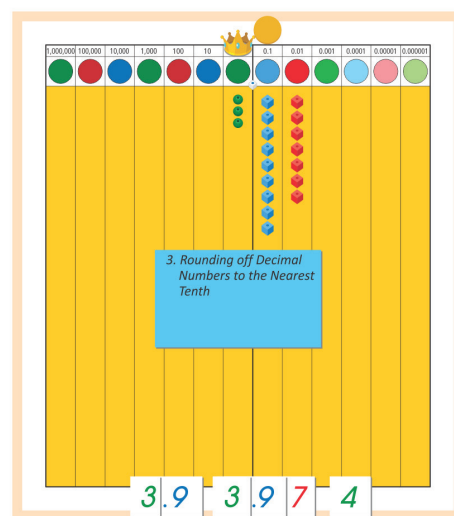
- Decimal Fraction Board
- small gold circle
- prepared problems
- paper and pencil

## Presentation:

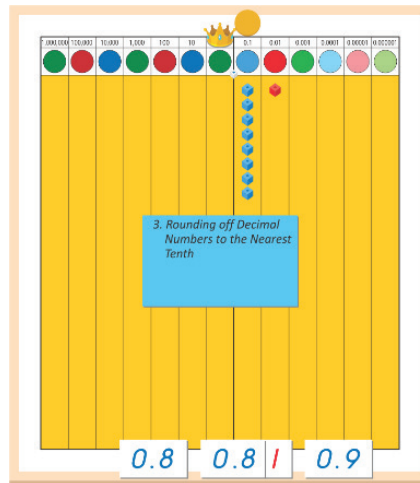
1. Form a number on the board with discs: 0.68.
2. Write the numeral on a slip of paper and place it below the board.
3. “We are going to round off this number to the nearest tenth.”
4. Place the gold circle above the tenths column, because we are rounding to the nearest tenth.
5. Examine the quantity. What is the tenth that is above 0.68? 0.7.
6. Write 0.7 on a label and place it to the right of the 0.68 label.
7. What is the nearest tenth below 0.68? 0.6.
8. Write 0.6 on a label and place it to the left of the 0.68 label.
9. Is 0.68 closer to 0.6 or to 0.7?
10. Examine the quantity in the hundredths column. There are 8 hundredths. If there were 10, there would be another tenth. (Show on board.) There is more than half of what is needed to make another tenth. That means that 0.68 is closer to 0.7 than it is to 0.6



11. Remove the quantity and place another quantity: 3.97.
12. Place the label below the board. Keep the gold circle above the tenths, because we are again rounding off to the nearest tenth.
13. Examine the quantity. What is the nearest tenth above 3.97? 4.0.
14. Write 4.0 on a label and place the label to the right of the 3.97 label.
15. What is the nearest tenth below 3.97? 3.9.
16. Write 3.9 on a label and place the label to the left of the 3.97 label.
17. This quantity is between 3.9 and 4.0. Place these labels as above.
18. Count the hundredths. There are 7 hundredths. If there were 10 hundredths, there would be another tenth. But 7 hundredths is more than half of what is needed for another tenth. This means that 3.97 is closer to 4.0 than it is to 3.9. Therefore, 3.97 becomes 4.0, rounded off the nearest tenth.



19. Remove the quantity and place the third quantity: 0.81.
20. Set up as before. Write labels for 0.8 and 0.9. Count the hundredths. There is 1 hundredth. There is not even half of 10 hundredths to make another tenth. Therefore, 0.81 is closer to 0.8 than it is to 0.9. 0.81 becomes 0.8, rounded off to the nearest tenth.



21. Place another quantity: 0.35.
  22. Custom says to round up for 5. Therefore, 0.35 rounded to the nearest tenth is 0.4.
- Rule: To round off numbers to the nearest tenth, count the number of hundredths. If there are 0, 1, 2, 3, 4 hundredths, round downwards; if there are 5, 6, 7, 8, 9 hundredths, round upwards.**
23. This exercise can be adapted for use with whole numbers also. Eventually, you can articulate the rule, which can be used with any number, whole or decimal:
- Rule: Find the digit in the hierarchy to which you are rounding. That is the key number. Look at the digit to the right of the key number. Is it 5 or more? Then change that number to 0 and change the key number to one greater than it is. If the digit to the right of the key number is 4 or less, change that number to 0 and keep the key number the same.**

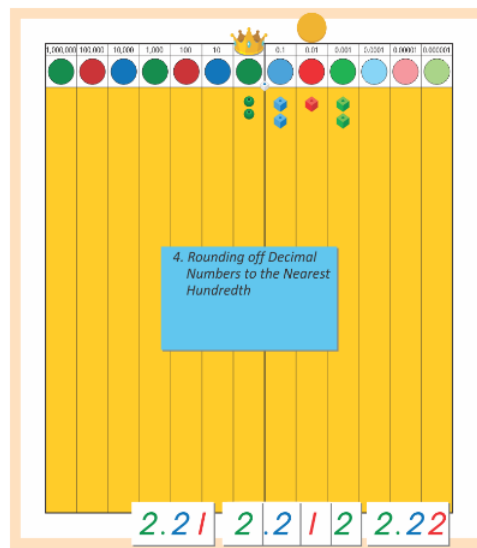
# Rounding off Decimal Numbers to the Nearest Hundredth

## Materials:

- Decimal Fraction Board
- small gold circle
- prepared problems
- paper and pencil

## Presentation:

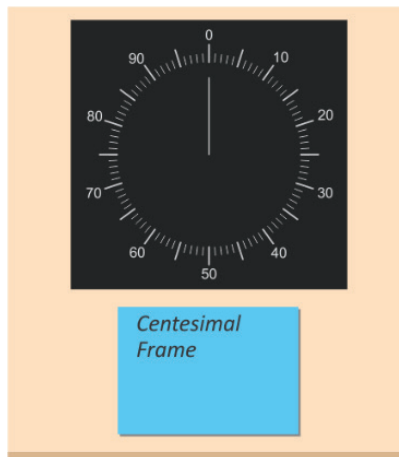
1. The steps are the same as before. This time the gold circle is placed over the hundredths. Now count the thousandths to decide whether to round up or down.
2. Example: 2.212. Place the quantity on the board.
3. Write three labels:
4. Count the thousandths. There are 2 thousandths. Since this is less than half the quantity needed to round up, round down to 2.21.



# The Changing of Ordinary Fractions to Decimal Fractions

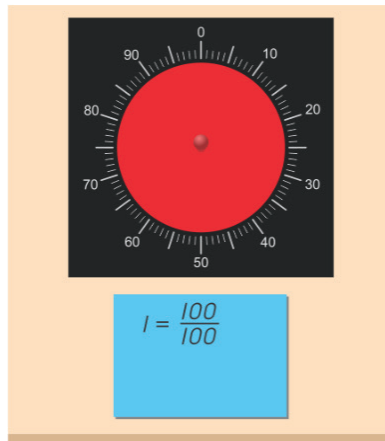
## Materials:

- Montessori Centesimal Frame (divided into 100 sections)
- blank fraction/decimal/percent chart
- 3 × 5 index cards in light blue, blue or black pen
- Fraction Circles

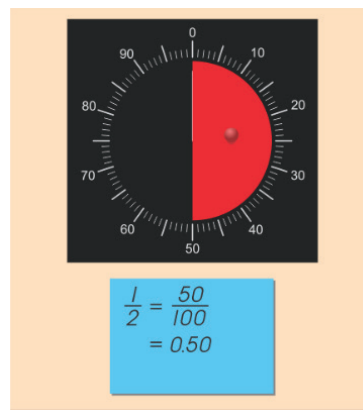


## Presentation:

1. Place all the fraction circle insets in their frames on the table.
2. Place the Centesimal Frame on the table.
3. Take the whole circle inset and place it in the Centesimal Frame. Notice that the whole circle fills the whole Centesimal Frame.
4. One whole circle is equal to 100 of the 100 parts:  $\frac{100}{100}$ . In decimals, this is 100 hundredths which is written as 1.00. Therefore, 1 whole = 1.00.
5. Write this information on cards. Place the whole circle on the table with the label below it.



6. The Centesimal circle is divided into 100 equal parts, indicated by the numbers and lines on the edge of the circle.
7. Take the one-half ( $\frac{1}{2}$ ) fraction from the inset and place it in the Centesimal Frame. Read the numbers on the Centesimal Frame.
8. One-half of the circle is equal to 50 of the 100 parts:  $\frac{50}{100}$ . In decimals, this is 50 hundredths which is written as 0.50. Therefore,  $\frac{1}{2} = 0.50$ .
9. Write this information on cards. Place the  $\frac{1}{2}$  circle on the table with the label below it.



10. The Centesimal circle is divided into 100 equal parts, indicated by the numbers and lines on the edge of the circle.
11. Take the one-fourth ( $\frac{1}{4}$ ) fraction from the inset and place it in the Centesimal Frame. Read the numbers on the Centesimal Frame.
12. One-fourth of the circle is equal to 25 of the 100 parts:  $\frac{25}{100}$ . In decimals, this is 25 hundredths which is written as 0.25. Therefore,  $\frac{1}{4} = 0.25$ .
13. Write this information on cards. Place the  $\frac{1}{4}$  circle on the table with the label below it.