

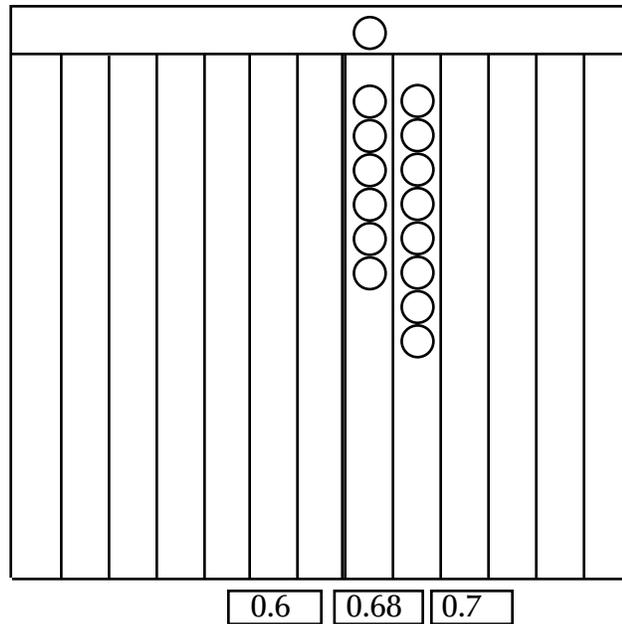
3. ROUNDING OFF DECIMAL NUMBERS TO THE NEAREST TENTH

Material:

- Decimal Board and materials
- 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.

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.

4. ROUNDING OFF DECIMAL NUMBERS TO THE NEAREST HUNDREDTH

Material:

- Decimal Board and materials
- 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:

| | | |
|------|-------|------|
| 2.21 | 2.212 | 2.22 |
|------|-------|------|
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.

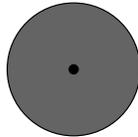
5. THE CHANGING OF ORDINARY FRACTIONS TO DECIMAL FRACTIONS

Material:

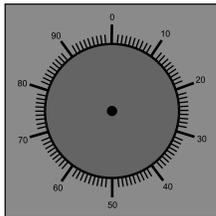
- Circular Fractional Insets
- Montessori Centesimal Circle
- Paper circle

Presentation:

1. Take the whole inset. “What is this?” One.

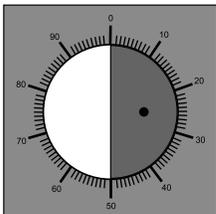
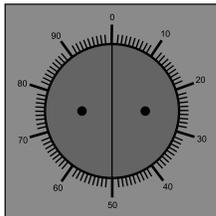


2. Place the inset within the protractor.



$$1 = \frac{100}{100}$$

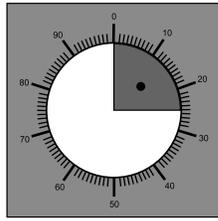
3. Take the halves. Place them in the protractor. Remove one half. Observe that the one half in the protractor covers 50 of the degrees.



$$\frac{1}{2} = \frac{50}{100} = 0.50$$

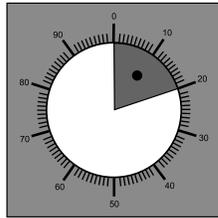
fraction decimal numeral

4. Take the fourths. Place one fourth in the protractor. It covers 25 of the degrees.



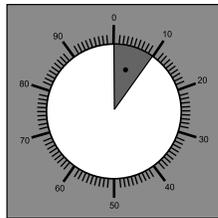
$$\frac{1}{4} = \frac{25}{100} = 0.25$$

5. Take the fifths. Place one fifth in the protractor. It covers 20 degrees.



$$\frac{1}{5} = \frac{20}{100} = 0.20$$

6. Take the tenths. Place one tenth in the protractor. It covers 10 degrees.



$$\frac{1}{10} = \frac{10}{100} = 0.10$$

7. Place the paper circle in the protractor. If the paper circle were cut into 100 parts, there would be 100 hundredths.

$$\frac{1}{100} = 0.01$$

One of the tenths cut into ten parts would produce 10 hundredths.

8. Now the value of the thirds can be found.

$$\frac{1}{3} = \frac{33}{100} \text{ (about)} = 0.33 \text{ (about)}$$

9. Now the value of the sixths can be found.

$$\frac{1}{6} = \frac{?}{100} = ?$$