Lesson 6: Comparing Decimals

Purpose of Lesson: You will find equivalent decimals, and compare decimals.

Candy Canes! $.10 each, 5 for $.50.

Most children know that they can buy one candy cane for 10 pennies or one dime. Let's look at the decimal **equivalent**, or same amount or value.

Ten pennies equals ten hundredths of a dollar = **.10**
One dime equals one tenth of a dollar = **.1**
So you know that **.10 =.1** and **.50 = .5** (five dimes equals fifty pennies).

The zero in the hundredths place in these examples is an **unnecessary zero,** which is a zero that does not change the value of the decimal.

You might sometimes see a decimal written as **0.10**. In this example, the zero to the left of the one is also an **unnecessary zero.** It can even be written as **0.100** and have the same value! (one hundred thousandths = ten hundredths = one tenth)

Let's look at some **equivalent decimals.**

0.2 = 0.20 = .2	0.25 = 0.250 = .25	0.8 = 0.80 = .8
024.1 = 24.1 = 24.10	06.25 = 6.250	003.3 = 3.300

Here's the rule:

- Zeros to the left of a decimal number are unnecessary zeros.
- Zeros to the right of a decimal number are unnecessary zeros.
  That is, they **do not change the value of the decimal.**

But be careful ! Some zeros are **necessary zeros** because they keep the digits in the proper place. The zero in .02 (two hundredths) is necessary to keep the value of the 2.

Think about the zeros in the number **040.050**. You could read it forty and fifty thousandths, but the value of the decimal is forty and five hundredths. Cross out the unnecessary zeros, and you get **40.05**.

The zero to the left of the **4** is unnecessary.
The zero to the right of the **5** is unnecessary.
The zero to the left of the **5** is **necessary** because it keeps the **5** in the hundredths place.

Take Lesson 6 Quiz 1

Using your knowledge of zeros, which is larger, **0.70** or **0.07**? If you said 0.70 (70 hundredths or 7 tenths), you are right! If we think about money, we know that $.70 is larger than $.07.

It is sometimes written as .70 > .07 or .07 < .70

> **Means is larger than** ***(the symbol always points to the smaller number)***
< **Means is smaller than**

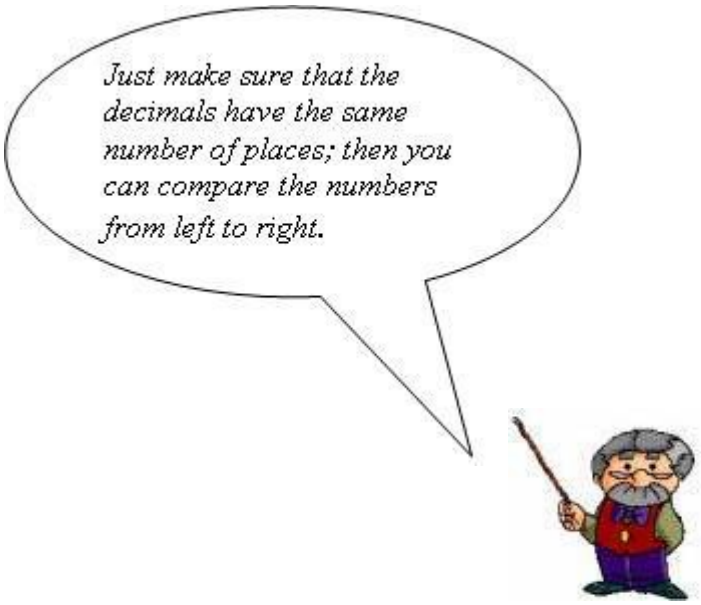
If the place value is the same, we look for the larger digit. .03 > .02 or .02 < .03

If the place value is not the same, get rid of the unnecessary zeros, and then look at your decimal from the right to left to determine which is larger.

You can also put **back** zeros so that each decimal has the same number of places.

For example, to compare **0.4** to **.49**, we can remove the zero on the left, and put back a zero on the right of the **4**.

.40 is less than .49 **.40 < .49**



Take Lesson 6 Quiz 2

Let's arrange these decimals from smallest to largest: 0.8, 0.08, 0.088, 0.808

Step 1: Put back zeros so that each decimal has the same number of places.

0.800, 0.080, 0.088, 0.808

Step 2: Compare and arrange the decimals in order from smallest to largest.

0.080, 0.088, 0.800, 0.808 (or 0.08, 0.088, 0.8, 0.808)

Take Lesson 6 Quiz 3