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**EXEMPLAR**  
Units *&* Lessons  
MATHEMATICS

**Grade 4**

Grant funded by:



## Lesson 3: Plotting with Pride

**Focus Standard(s):** 4.NF.6; 4.NF.7

**Additional Standard(s):** 4.NF.5

**Standards for Mathematical Practice:** SMP.2, SMP.3, SMP.4, SMP.5, SMP.7

**Estimated Time:** 45 minutes

**Resources and Materials:**

- Printer's Tape
- Dry erase markers
- Paper
- Sheet Protectors
- Math Journals
- Handout 3.1: Plotting Points
- Handout 3.2: Number Line Assessment
- Handout 3.3: Olympic Rings Graphic Organizer

**Lesson Target(s):**

- Students will locate a decimal on a number line.
- Students will be able to label a number line appropriately

**Guiding Question(s):**

- How do you know where to plot a decimal number on a number line?
- How does a number line help us understand the value of a number?

## Vocabulary

### Academic Vocabulary:

- Decimal fractions
- Hundredths
- Plotting
- Tenths

### Instructional Strategies for Academic Vocabulary:

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words

**Note:** Vocabulary instruction should be embedded into the lesson each day using the strategies suggested above.

### Symbol

### Type of Text and Interpretation of Symbol



Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level

✓

Assessment (Pre-assessment, Formative, Self, or Summative)

## Instructional Plan

### Understanding Lesson Purpose and Student Outcomes:

Students will learn to plot decimals on a number line.

### Anticipatory Set/Introduction to the Lesson:

T: Today, we will learn how to find decimal numbers on a number line. But first, let's review what we have already learned about decimals (SMP.5).

Pass out cards from **Handout 3.1: Plotting Points**. Have students complete **Handout 2.4: Decimal Display** with their number. Choose one student to share their results with the class. Tell students they will continue to use this card throughout the lesson to determine its placement on a number line.

**For students who are EL, have disabilities, or perform well below grade level:**

- For students who struggled on the previous day's exit ticket, ask them to gather for a quick mini-lesson around the anchor chart.

**Activity 1: Plotting Points: Tenths**

On the whiteboard or overhead, draw a number line, labeling 0 and 1 between the arrows at each end. Thoroughly explain various ways to label number lines to showcase number placement.

Possible prompting questions (SMP.7):

- How many sections will there be between 0 and 1 if you are dividing the line into tenths?
- Which tenth will be closest to 0?
- What will the other tenths numbers be, in order?
- What tenth number will be closest to 1?
- Will all tenths fit between 0 and 1? (SMP.3)

Allow students to reproduce the number line in their math journals as a reference.

Provide students with a sheet protector, a blank piece of paper, and dry erase marker. Have students draw a number line on the paper and divide the line into tenths (SMP.4). Tell them they are not to label the number line. Have students place the number line into the sheet protectors.

Write 0.2 on the board. Have students orally read the number. Keep a checklist close by to mark if any students are struggling. Be sure to ask students to state the number out loud. Conduct a Think-Aloud to place the number on the number line.

T: I need to know which two whole numbers 0.2 lies between. I know that 0.2 is greater than 0, but it is also less than 1. (Label the chart.) Now, I have 8 more marks to label. These marks have the line divided into tenths. The first line must be 0.1 that makes the next line 0.2. Here is where I find 0.2. Ask students how to represent 0.2 as a fraction.

Ask students to finish labeling the number line. Tell students you want to plot 0.8, work together as a class to locate this position, discussing that it also falls between 0 and 1, and writing it as a fraction.

- ✓ Have students plot a point at 0.3, write the number as a fraction, and hold their number line in the air to be quickly checked. Place a - on the classroom checklist for students who need additional support.

Tell students to erase the labels from their number line. Write 3.2 on the board. Provide students with time to conduct a Think-Pair-Share to determine where this number may fall on the number line. Listen carefully to each group and select a student(s) to share their thinking process aloud. While they speak, label a new number line on the board. Once this point is plotted, ask students to work with a partner to label 3.8. Review this with the class.

Have students erase the labels.

- ✓ Write 1.9 on the board. Ask students to plot this point and label their number line appropriately. Use the checklist to track student progress.

**Note:** If students are continuing to struggle with this concept, continue working on plotting tenths before moving to the hundredths.

### **Activity 2: Plotting Points: Hundredths**

Write the number 0.34 on the board. Ask students to spend a few moments trying to determine where this point should be plotted on their tenths number line. Ask students which two numbers 0.34 falls between on the tenths number line (0.3 and 0.4) and lead a discussion about which value it should be closer to. If students struggle with this concept, draw a new number line and label the ends as 0.3 and 0.4, remind students that 0.3 is the same as 0.30 and 0.4 is the same as 0.40. Relate these numbers to whole numbers or money to help students see that 0.34 falls slightly closer to 0.3.

Plot 0.82 on the number line with the students. Then have partners work together to plot 0.77 on the number line.

- ✓ Write 0.94 on the board. Ask students to plot this point and label their number line appropriately. Use the checklist to track student progress.

Tell students to erase the labels from their number line. Write 3.27 on the board. Provide students with time to conduct a Think-Pair-Share to determine where this number may fall on the number line. Listen carefully to each group and select a student(s) to share their thinking process aloud. While they speak, label a new number line on the board. Once this point is plotted, ask students to work with a partner to label 3.17. Review this with the class.

- ✓ Write 5.21 on the board. Ask students to plot this point and label their number line appropriately. Use the checklist to track student progress.

**Activity 2: Decimals on a Number Line**

Working with their country, allow students to create a giant number line using painter's tape on the floor. Have them divide the number line into tenths and label with sticky notes. Then allow students to work together to place their Plotting Points cards on the appropriate locations on the line.

**Reflection and Closing:**

- ✓ Provide students with **Handout 3.3: Olympic Rings** and complete the graphic organizer with their Decimal Dots card (SMP.2).

**Homework**

Provide students with **Handout 3.2: Number Line Assessment** to complete.

## Handout 3.1: Plotting Points

|      |      |
|------|------|
| 2.23 | 0.8  |
| 0.91 | 2.34 |

2.12

1.87

0.79

0.65

0.5

0.2



1.31

0.88

0.03

2.19

0.22

0.47

0.58

0.69

0.7

0.82

0.94

1.24

0.36

0.1

0.99

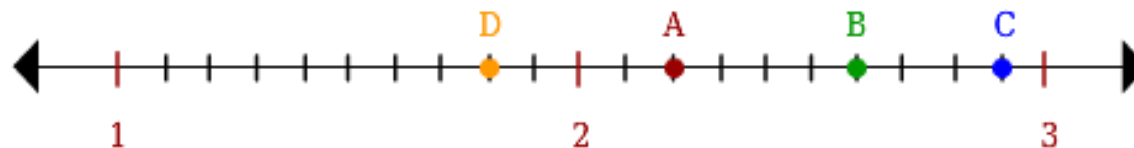
1.0

0.07

0.58

**Handout 3.2: Number Line Assessment**

Name: \_\_\_\_\_ Date: \_\_\_\_\_



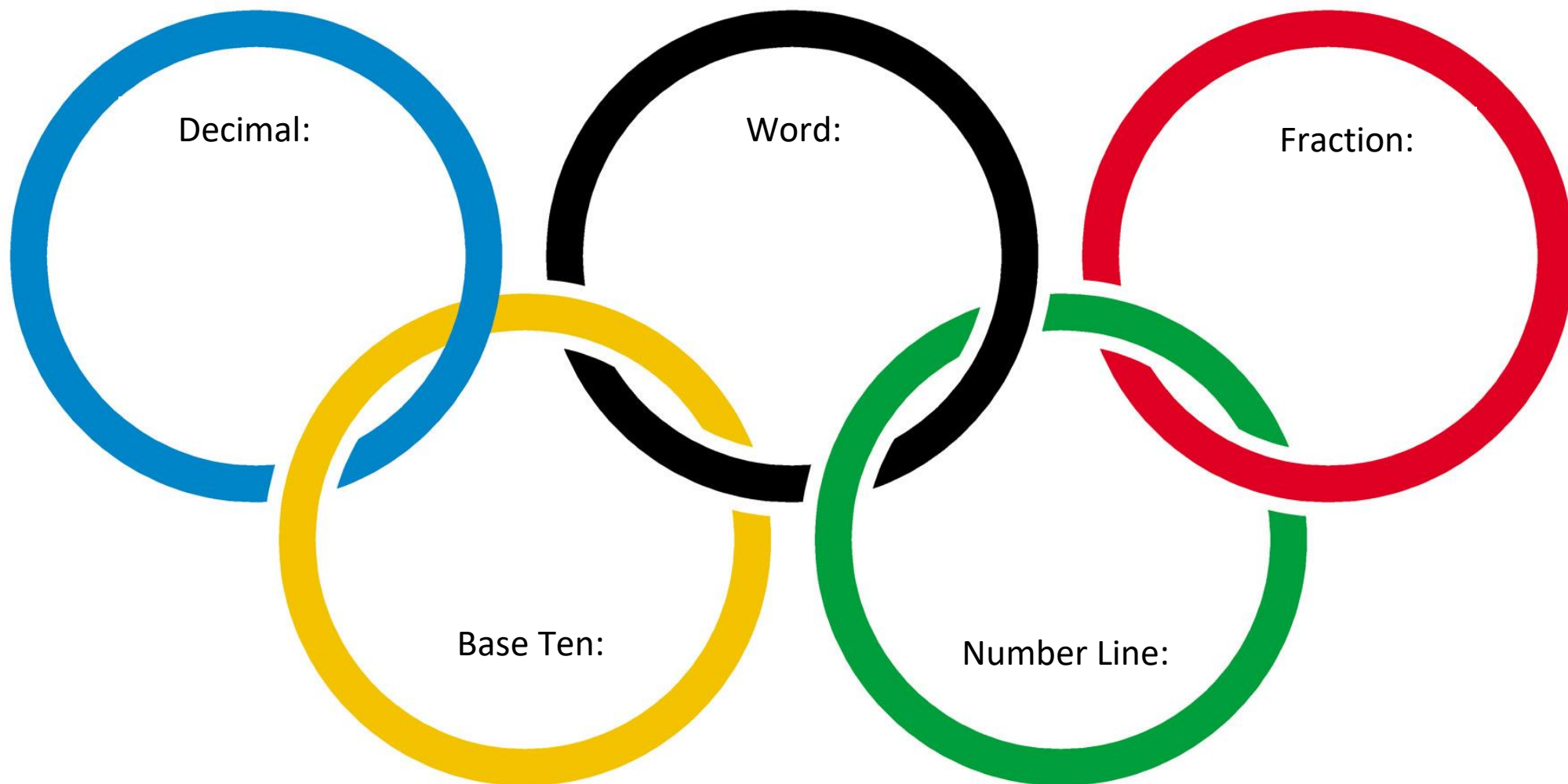
What is the value of A? \_\_\_\_\_

What is the value of B? \_\_\_\_\_

What is the value of C? \_\_\_\_\_

What is the value of D? \_\_\_\_\_

Handout 3.3: Olympic Ring Graphic Organizer



For training or questions regarding this unit,  
please contact:

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