MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

MISSISSIPPI

EXEMPLAR Units & Lessons

MATHEMATICS

Grade 4

Grant funded by:
W.K. KELLOGG FOUNDATION

Lesson 1: Opening Ceremony

Focus Standard(s):4.NF.6

Additional Standard(s): 4.NF.5

Standards for Mathematical Practice: SMP.4, SMP.5, SMP.7

Estimated Time: 45 minutes

Resources and Materials:

- Base Ten Blocks
- Sheet Protectors
- Dry Erase Markers
- Notecard
- Handout 1.1: Pass the Torch
- Handout 1.2: Place Value Mat
- Document Camera or Interactive Base Ten Blocks: https://www.mathlearningcenter.org/web-apps/number-pieces/
- Olympic Promo: https://www.youtube.com/watch?v=_bX1-gLMNuY
- Olympic Results: https://www.olympic.org/olympic-results

Lesson Target(s):

- Students will use base ten blocks to model decimal numbers to the tenths place and hundredths place.
- Students will understand the relationship between the tenths place and hundredths place.

Guiding Question(s):

- What is the relationship between numbers on the place value chart?
- How are numbers to the right of the decimal read and represented?

Vocabulary	
Academic Vocabulary: ● cubes ● decimal ● equivalent ● flats ● fraction ● hundredth ● rods ● tenth ● units	**Instructional Strategies for Academic Vocabulary:** ☐ 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 use a place value chart and base ten blocks to develop an understanding of decimal fractions and equivalency.

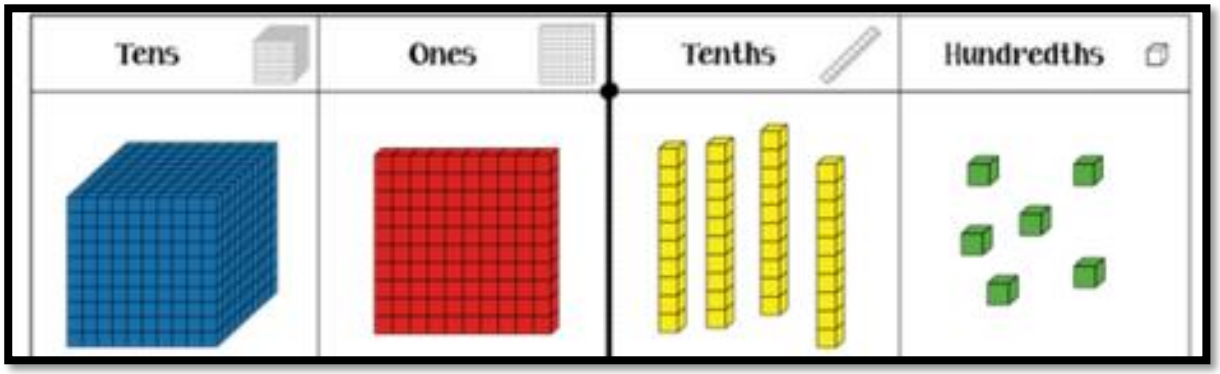
Note: Prior to this lesson, students should be placed into heterogenous ability groups and given a country to represent. These countries will compete throughout the unit to win gold, silver, and bronze medals. (Suggested countries: France, Germany, Italy, Denmark, Belgium, Austria, Ireland.) Display a world map so students can get an understanding of where their country is in relation to the United States.

Anticipatory Set/Introduction to the Lesson: Olympics Promo
Explain to students that this unit will focus on working with decimals and their importance in the real-world. Ask students to watch the video closely and think about how it relates to decimals (SMP.4).

Show Olympics Promo clip.

Ask students to think about ways that decimals can be used in the Olympic games. Give them one minute to think. Provide one student in the country (group) with a copy of **Handout 1.1: Pass the Torch**. Instruct students to write one of their ideas on the torch and then pass it to the next person to write one of their ideas, and so on. Set the timer for 3 minutes. Once the time is up, allow students to share some of their ideas aloud. Explain to students that further study will be done on the Olympic games as the unit progresses.

Activity 1: Tenths and Hundredths with Base Tens
Divide the students into pairs. Instruct one student from each partner group to obtain the base ten blocks and **Handout 1.2: Place Value Mat**, a sheet protector, and a dry erase marker.
Explain to the class that base ten blocks will now represent different values on the place value mat as the work with decimals begins. Model the use of the new values on the place value mat, indicating that cubes are now tens, flats are ones, rods are tenths, and units are hundredths. Allow the students time to discuss these terms with their partner and discuss the relationship between the blocks.



Project 4 rods and 6 units. (This may be done on an overhead or using Interactive Base Ten Blocks) Explain to students that this number is read as forty-six hundredths. There are four tenths and six hundredths. Show the students how to write the number in standard form as 0.46.

T: This number is forty-six hundredths. What's the number?
S: Forty-six hundredths.
T: How many tenths?
S: Four
T: How many hundredths?
S: Six
T: Write the number on your place value mat and read it aloud once more.
S: Forty-six hundredths

Ask students to display 5 rods and 2 units on their place value mat. Project this on the overhead as well.

T: How many tenths?
S: Five
T: How many hundredths?
S: Two
T: Let's read this number together
All: Fifty-two hundredths

Continue this routine with the following numbers:

1. 0.29
2. 0.18
3. 0.05

Next, provide the following numbers to students, stating them orally and having students create a base ten representation as well as write the numbers in standard form on their place value mat (SMP.5).

1. 0.79
2. 0.25
3. 0.63

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

- Using the following sentence frame, state each number and have students repeat. This number is_____. It has _____ones, _____tenths and _____hundredths. This number is_____.

Extensions for students with high interest or working above grade level:

- Jot down a few numbers with values in the tens, hundreds, and thousands place. See if students can accurately read these numbers aloud.

Project 1 flat, 4 rods, and 6 units using base ten blocks. Explain to students that this number is read as one and forty-six hundredths, pointing out that the decimal will be read as the word "and." Show the students how to write the number in standard form as 1.46.

T: This number is one and forty-six hundredths. What's the number?
S: One and forty-six hundredths.
T: How many ones?
S: 1
T: How many tenths?
S: 4
T: How many hundredths?
S: 6
T: Write the number on your place value mat and read it aloud once more.
S: One and forty-six hundredths

Ask students to display 3 flats, 5 rods, and 2 units on their place value mat. Project this on the overhead as well.

T: How many ones?
S: Three
T: How many tenths?
S: Five
T: How many hundredths?
S: Two
T: Let's read this number together
All: Three and fifty-two hundredths

Continue this routine with the following numbers:

1. 5.29
2. 7.18

3. 2.05

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

- Using the following sentence frame, state each number and have students repeat. This number is_____. It has _____ones, _____tenths and _____hundredths. This number is_____.
- Call students to a teacher lead small group for extra assistance.

Extensions for students with high interest or working above grade level:

- Jot down a few numbers with values in the tens, hundreds, and thousands place. See if students can accurately read these numbers aloud.
- Allow students extra time to use manipulatives or visuals to come up with new ways to complete problems.

Activity 2: Equivalent Decimals

Project ten units on the overhead.

T: How would you write this number in standard form on the place value chart? How would you read this number?

Allow students to participate in a Think-Pair-Share.

Possible prompting questions for scaffolding:

- Is it possible for me to write 0.10 in the hundredths place on our place value chart? Why not?
- What would we do if we had ten cubes in the ones place?
- What happens each time we reach ten in any place value?

Allow students time to struggle with this concept until they can articulate that 0.10 is the same as 0.1. Lead a discussion, using base ten blocks as a model, about how the two are of equal values (SMP.7).

Write 0.30 on the board. Ask students to display the visual and written representation on their place value mat. Be prepared for some students to showcase 3 tenths and for others to showcase 30 hundredths.

Possible Prompting Questions for Scaffolding:

- How would you read this number?
- I see you displayed 30 hundredths, is there another way to show this?

Lead a classroom discussion about why 0.30 and 0.3 have the same values referring to the previous discussion about the relationship between each place value.

Provide the following additional numbers for students, stating them orally and having students create a base ten representation as well as write the numbers in standard form on their place value mat.

1. 1.30
2. 0.20
3. 0.70

✓ Actively monitor students as they model and regroup units into rods to simplify decimals. Use a checklist to mark students who may need additional support with this concept.

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

- Orally restate the values and numbers on the place value mats and ask students to repeat.

Extensions for students with high interest or working above grade level:

- Encourage students to write the expanded notation of their models below each place value.

Instruct students to organize areas and return manipulatives into plastic bags or containers, etc.

Reflection and Closing:

- ✓ Provide students with a notecard. Tell them to fold the card in half. Instruct the students to write 5 tenths in standard form on one half of the card and draw the base ten representation of this on the other half of the card. Gather the cards and place them in three piles.
  2 correct
  1 correct
  0 correct

Using a class role, highlight all of the students who scored 100% in green, those who scored 50% in yellow, and those who score 0% in red. This information will be needed for the next day.

Homework

T: Ask students to find out how far Jeff Henderson jumped in the men's long jump competition in the 2016 Summer Olympics and which medal he won.

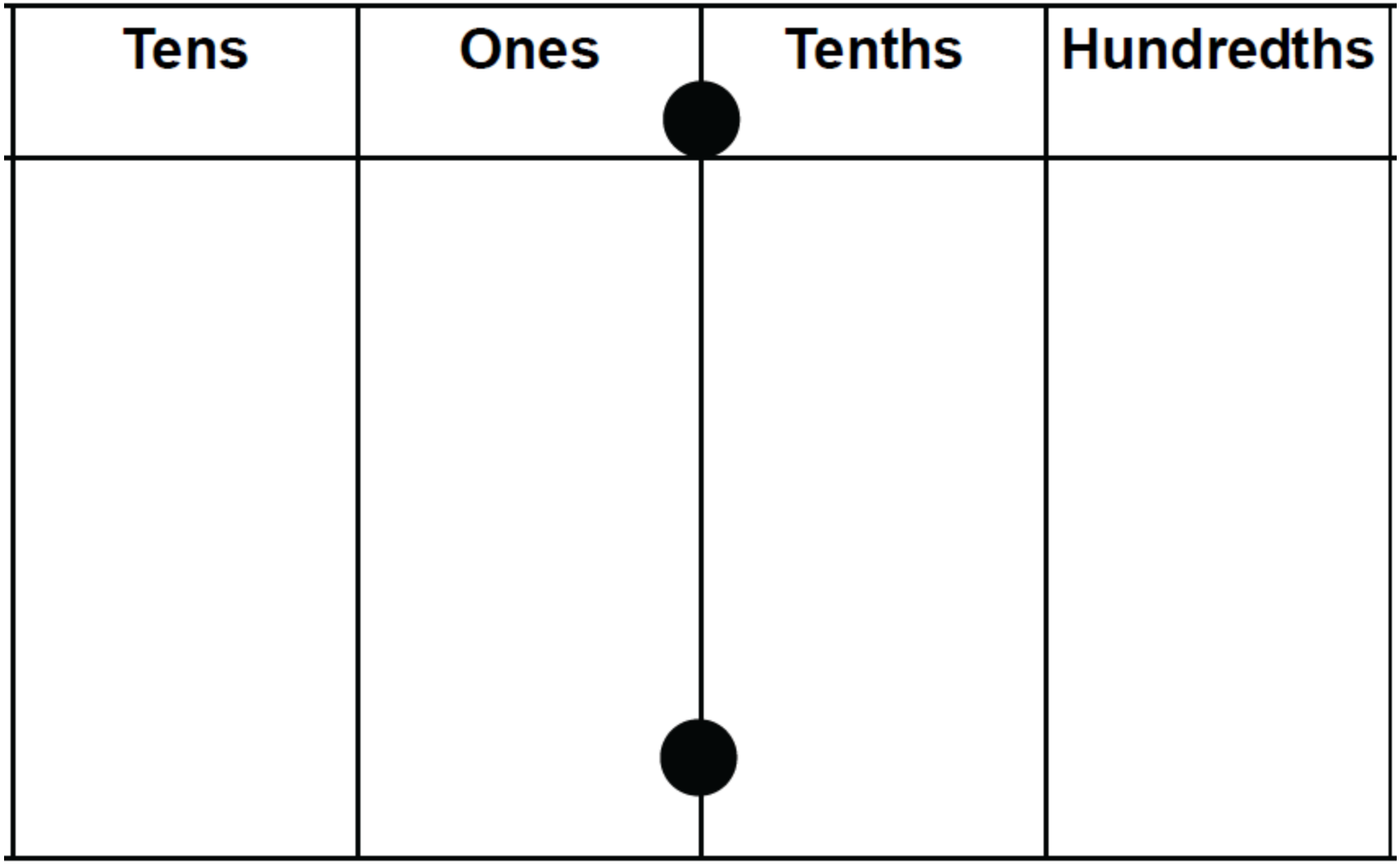
(8.38 meters)

Results for various events and Olympics can be found at Olympic Results.

Handout 1.1: Pass the Torch

How are decimals used in the Olympic Games?

Handout 1.2: Place Value Mat



For training or questions regarding this unit, please contact:

exemplarunit@mdek12.org