Introduction
Unit Title: Dealing with Decimals
Grade Level: 5th grade math
Target Group: mainstream class with integrated ELLs
Source of Written Reading Materials:
  • Math Connects Grade 5 (2009); MacMillan/McGraw-Hill (p. 30-37)
Source of Lessons:
Learning Goals:
  • SWBAT convert decimals between base ten blocks, word, expanded, standard and oral form to the thousandths place.
  • SWBAT compare decimals.
Lesson 1
Lesson One Performance Indicators

- Lesson One:
  - **Content Objectives:**
    - Orally and numerically represent fractions that name tenths, hundredths and thousandths.
    - Convert fractions with a denominator of 10, 100 and 1000 to decimals.
    - Interpret decimals given base-ten representations.
  - **Language Objectives:**
    - Write a decimal given an oral description.
    - Orally name a decimal using decimal vocabulary.
    - Orally identify place values.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening: write a decimal given oral description</td>
<td>Numerically write a decimal after hearing it once.</td>
<td>Numerically write a decimal after hearing it 3 times.</td>
<td>Numerically write a decimal in a place value chart after hearing it 3 times.</td>
<td>Match a written decimal with a spoken decimal.</td>
<td>Mark whether a written and spoken decimal match.</td>
</tr>
<tr>
<td>Speaking: orally name a decimal using decimal vocabulary.</td>
<td>Name a decimal via number and decimal place value (e.g: four hundred and one thousandths)</td>
<td>Work with a partner to name a decimal via number and decimal place value (e.g: four hundred and one thousandths)</td>
<td>Orally name a decimal following a two-step checklist: 1. Say the number you see. 2. Name the last place value.</td>
<td>Orally name a decimal following a two-step checklist and place value chart: 1. Say the number you see. 2. Name the last place value.</td>
<td>Repeat a spoken decimal accentuating the “th” at the end of the word.</td>
</tr>
<tr>
<td>Speaking: Orally identify place value.</td>
<td>Name each place value given an underlined digit in a decimal.</td>
<td>Orally identify the place value of a digit given a place value word bank.</td>
<td>Name each place value given an underlined digit in a decimal and a place value chart.</td>
<td>Orally identify the place value of an underlined digit of a number in a place value chart.</td>
<td>Repeat a place value following along in a place value chart accentuating the “th.”</td>
</tr>
<tr>
<td>Function</td>
<td>Situation</td>
<td>Expression</td>
<td>Words</td>
<td>Grammar</td>
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<tr>
<td>Orally and numerically</td>
<td>Fractions that name tenth, hundredth and</td>
<td>This fraction represents \textit{five hundredths}.</td>
<td>Fraction, tenths, hundredths, thousandths, represent, numerator, denominator</td>
<td>Present tense</td>
<td></td>
</tr>
<tr>
<td>represent</td>
<td>thousandths</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convert</td>
<td>Fractions with a denominator of 10, 100 and</td>
<td>The fraction \textit{2/10} is</td>
<td>Numerator, denominator, decimal, fraction, tenth, hundredth, thousandth, decimal point, convert, equivalent, equal, same</td>
<td>Present tense</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000 to decimals</td>
<td>equivalent to the decimal \textit{.2}.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Interpret</td>
<td>Decimals given base-ten representations</td>
<td>\textit{A rod} represents the \textit{tenth} place.</td>
<td>Base ten blocks, rod, unit, square, cube, place value, digit, equivalent, tenth, hundredth, thousandth, colored in, shaded in</td>
<td>Present tense</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>There are \textit{89} units colored/shaded in.</td>
<td></td>
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</tbody>
</table>
# SIOP® Lesson Plan Template 3

**Topic:** Dealing With Decimals  
**Class:** Math, Grade 5  
**Date:** 0/0/00

<table>
<thead>
<tr>
<th>Content Objectives:</th>
<th>Language Objectives:</th>
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</thead>
<tbody>
<tr>
<td>Interpret decimals given base-ten representations.</td>
<td>Write a decimal given an oral description.</td>
</tr>
<tr>
<td>Orally and numerically represent fractions that name tenths, hundredths and thousandths.</td>
<td>Orally name a decimal using decimal vocabulary.</td>
</tr>
<tr>
<td>Convert fractions with a denominator of 10, 100 and 1000 to decimals.</td>
<td>Orally identify place values.</td>
</tr>
</tbody>
</table>

### Key Vocabulary:
- represent
- tenth
- hundredth
- thousandth
- numerator
- denominator
- Fraction
- decimal
- point
- convert
- equivalent
- equal
- same
- rod
- cube
- grid
- shaded in
- whole
- part

### Materials (including supplementary and adapted):
- large hundreds grid and tens chart; penny and dime manipulatives; penny and dime board displays; pre-tests, independent work sheets, partner work sheets;

### Higher Order Questions:
When do we use fractions/decimals in the real world?  
Why are fractions and decimals like brothers?  
Which represents more: a tenth or a thousandth? Explain.

### Time:  
- **3 min**
  - **Building Background**
    - Pretest with a Partner (time to speak in L1, activate background knowledge)  
    - Review content/language objectives
  - Our content objectives today are:
    - We will represent decimals with base-ten representations.  
    - We will say fractions.  
    - We will convert fractions to decimals.  
    - Our language objectives today are:
      - We will listen to and write decimals.  
      - We will say decimals.  
      - We will identify place values.
    - Do you have a brother or sister? What is the same about you two? What is different about you two? (Ss will speak with a partner in L1 or L2, depending on level)  
    - Fractions and decimals are like brothers. They both represent a part of a whole, but they look different. Today, we will learn how decimals and fractions are related.

### Activities
- **12 min**
  - **Links to Experience:**
    - Pass out 1 penny and 1 dime manipulative to each student. Have coin manipulatives on board with tens grid. (realia, visuals)
    - What have I handed you? (money, coins)
    - How many dimes does it take to make a whole dollar? (ten)
    - How many pennies does it take to make a dime? (ten)

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<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
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<tbody>
<tr>
<td>My chart represents a whole dollar. Each rod represents a dime. Ten rods makes a whole. Ten dimes makes a dollar. Define, discuss vocabulary: represent: to show, demonstrate whole: the total shaded in: darkened, colored</td>
<td>4 min</td>
</tr>
<tr>
<td>Follow same routine with hundreds grid and penny, and thousands cube. Sentence Frame: This fraction represents ______. Have students complete #1-6 on partner work sheet. (time to speak in L1, elicit student talk)</td>
<td>5 min</td>
</tr>
<tr>
<td>Links to Learning:</td>
<td>3 min</td>
</tr>
<tr>
<td>Introduce place value chart. Emphasize &quot;th&quot; at end of all decimal words. To name a decimal: 1. Say the number you see. 2. Name the last place value filled up. To write a decimal: 1. Write the number you hear. 2. Put the last digit in the place value you hear. Model and review both strategies with class examples, checks for understanding.</td>
<td>3 min</td>
</tr>
<tr>
<td>Listen and Learn: Have students pair off and label one partner A and the other B. Partner A says a decimal, partner B must write it in a place value chart. Partner A writes a decimal on plain paper, partner B must say the decimal. Then, switch. (elicit student talk, time to speak in L1, practice skill in L2)</td>
<td>3 min</td>
</tr>
<tr>
<td>HOT Discussion: (Ss will discuss in small groups, then review whole class) The closer to the decimal, the more it means. (&lt;\text{Would you rather share a cake with ten people or one hundred people? A tenth is bigger than a hundredth.} ) (&lt;\text{Which means more: A hundredth or a thousandth? How do you know? Numbers closer to a decimal point are worth more.} ) To convert a fraction (with denominator of 10, 100 or 1000) to a decimal: 1. Write the numerator.</td>
<td>6 min</td>
</tr>
</tbody>
</table>
2. The denominator is the last place value.

Model and practice with a few examples.

Group Rotations:
Cycle One: Meet with Levels 2 and 1: stagger sections 1 and 2 between levels to assess oral and listening skills. Rest of class completes sections 3 and 4 independently.

Cycle Two: Meet with levels 3, 4 and 5: stagger sections 1 and 2 between levels to assess oral and listening skills. Rest of class completes sections 3 and 4 independently.

These rotations allow individual time with teacher, oral support, elicit student talk, etc)

Review objectives for closure by asking students to identify activities to help us reach each objective.

**Key Vocabulary:**
Show me the Decimal!

Level 1

Section 1: Write the name of the underlined place value on the line.

- 346  
- .72  
- .401  

<table>
<thead>
<tr>
<th>Tenths</th>
<th>Hundredths</th>
<th>Thousandths</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
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<tr>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Section 2:

Listen to the teacher say a number.

Write “yes” if the fraction and the decimal match what she says.

Write “no” if the fraction and decimal do not match what she says.

1. \[\frac{11}{100} .11 \]  

2. \[\frac{5}{1000} .005 \]  

3. \[\frac{2}{10} .2 \]
Show me the Decimal!

Level 2

Section 1: Write the name of the underlined place value on the line.

- 346
- .72
- .401

<table>
<thead>
<tr>
<th>Tenths</th>
<th>Hundredths</th>
<th>Thousandths</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Section 2: Listen to the teacher say a number. Find the decimal and fraction that are the same as what she says. Mark that decimal with the shape the teacher shows you.

4. \(\frac{11}{100}, .11\) 
5. \(\frac{5}{1000}, .005\) 
6. \(\frac{2}{10}, .2\)
Show me the Decimal!

Level 3

Section 1: Write the name of the underlined place value on the line.

- 346 __________________________
- .72 __________________________
- .401 __________________________

Section 2: Listen to the teacher say a number. Fill in the place value chart to write the decimal. Write the fraction on the line.

<table>
<thead>
<tr>
<th>Tenths</th>
<th>Hundredths</th>
<th>Thousandths</th>
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<tbody>
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<td>•</td>
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</tbody>
</table>

4. __________________________
5. __________________________
6. __________________________
Section 3: Convert the fraction into a decimal. Write the decimal on the line.

4. \( \frac{50}{100} \) = \\
5. \( \frac{6}{1000} \) = \\
6. \( \frac{7}{10} \) = \\

Section 4: Write the decimal and fraction represented by the base ten blocks.

7. F: _____ D: _____

8. F: _____ D: _____

9. F: _____ D: _____

All students complete section 3-4 as shown.
Show me the Decimal!
Levels 4, 5

Section 1: Write the name of the underlined place value on the line.

- .346 ________________________
- .72 _________________________
- .401 _________________________

Section 2: Listen to the teacher say a number. Write the number as a fraction next to the letter F. Write the number as a decimal next to the letter D.

1. F: _________ D: ___________

2. F: _________ D: ___________

3. F: _________ D: ___________
Section 3: Convert the fraction into a decimal. Write the decimal on the line.

4. \[\frac{50}{100} = \_\_\_\_\_\_\]

5. \[\frac{6}{1000} = \_\_\_\_\_\_\]

6. \[\frac{7}{10} = \_\_\_\_\_\_\]

Section 4: Write the decimal and fraction represented by the base ten blocks.

1. \[\text{F: } \_\_\_\_\_\_\_\_\_ \text{ D: } \_\_\_\_\_\_\_\_\_\]

2. \[\text{F: } \_\_\_\_\_\_\_\_\_ \text{ D: } \_\_\_\_\_\_\_\_\_\]

3. \[\text{F: } \_\_\_\_\_\_\_\_\_ \text{ D: } \_\_\_\_\_\_\_\_\_\]
Partner Work Sheet

Write the fraction.

1. __________

2. __________

3. __________

4. __________

5. __________

6. __________
Lesson 2
Lesson Two Performance Indicators

- **Lesson Two:**
  - **Content Objectives:**
    - Identify the place value and value of a digit.
    - Write a decimal in expanded form.
    - Write a decimal in (short) word form.
    - Write a number in standard form given (short) word form or expanded form.
  - **Language Objectives:**
    - Explain the differentiate between 'place value' and 'value.'
    - Read a decimal in word form and write it numerically.
    - Orally explain the differences between standard, expanded and (short) word form of a number.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaking: Explain the differentiate between 'place value' and 'value.'</td>
<td>Using math vocabulary, contrast 'place value' and 'value' of a digit.</td>
<td>Given a math vocabulary word bank, contrast 'place value' and 'value' of a digit.</td>
<td>Given a math vocabulary word bank, contrast 'place value' and 'value' of a digit using the sentence frame &quot;The [value] tells us _______ of the digit. It is represented by _______&quot;</td>
<td>Given the sentence frame &quot;The [value] tells us _______ of the digit. It is represented by _______.&quot; and phrases to fill in the blank, create and say sentences that contrast value and place value.</td>
<td>Repeat sentences that contrast 'place value' and 'value' of a digit using the sentence frame &quot;The [value] tells us _______ of the digit.&quot;</td>
</tr>
<tr>
<td>Reading/Writing: Read a decimal in word form and write it numerically.</td>
<td>Given a decimal number in word form and write the number in standard form.</td>
<td>Given a decimal number in word form and a word place value chart, write the number in standard form.</td>
<td>Given a decimal number in word form and a word place value chart, numerically write the number in a place value chart.</td>
<td>Given a decimal in word form and a word bank, circle the word &quot;and&quot; to identify the decimal's location, underline number words and box place value terms. Write the number in a place value chart.</td>
<td>Given a decimal in word form and a word place value chart, circle the word &quot;and&quot; to identify the decimal's location, underline number words and box place value terms.</td>
</tr>
<tr>
<td>Speaking: Orally explain the differences between standard, expanded and (short) word form of a number.</td>
<td>Describe standard, expanded and (short) word form of a number. Contrast the way that they are written.</td>
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<tr>
<td>Given an example of each to refer to, describe standard, expanded and (short) word form using the sentence frame: &quot;____ form represents a number by <strong><strong>.&quot; Contrast the way they are written using the sentence frame: &quot;</strong></strong> form is ____ but ____ form is ____.&quot;</td>
<td>Given an example of each and a word bank to refer to, describe standard, expanded and (short) word form using the sentence frame: &quot;____ form represents a number by <strong><strong>.&quot; Contrast the way they are written using the sentence frame: &quot;</strong></strong> form is ____ but ____ form is ____.&quot;</td>
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</tr>
<tr>
<td>Given an example of each and a word bank to refer to, describe standard, expanded and (short) word form following the sentence frame: &quot;____ form is ____ but ____ form is ____.&quot;</td>
<td>Repeat sentences contrasting standard, expanded and (short) word form following the sentence frame: &quot;____ form is ____ but ____ form is ____.&quot;</td>
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</tr>
<tr>
<td>Function</td>
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<tr>
<td>Identify</td>
<td>the place value and value of a digit</td>
<td>&quot;The [value] tells us _______ of the digit.&quot;  &quot;The [value] is represented by [numbers].&quot;</td>
<td>Place value, value, digit, worth, tenth, hundredth, thousandth, ones, tens, hundreds, thousands</td>
<td>Present tense</td>
<td></td>
</tr>
<tr>
<td>Write</td>
<td>A decimal in expanded form.</td>
<td>&quot;Expanded form stretches a number out like a ______&quot;</td>
<td>Equation, plus, equals, place value, digit, expand, stretch</td>
<td>Present tense, simile</td>
<td></td>
</tr>
<tr>
<td>Write</td>
<td>A decimal in (short) word form.</td>
<td>&quot;This number represents ______.&quot;</td>
<td>Tenth, hundredth, thousandth, tens, ones, hundreds, thousands, represents, digit, number</td>
<td>Present tense</td>
<td></td>
</tr>
<tr>
<td>Write</td>
<td>A number in standard form given (short) word form or expanded form.</td>
<td>&quot;This number represents ______.&quot;</td>
<td>Convert, Tenth, hundredth, thousandth, tens, ones, hundreds, thousands, represents, digit, number, standard, expanded, word, short</td>
<td>Present tense</td>
<td></td>
</tr>
</tbody>
</table>
**SIOP® Lesson Plan Template 3**

**Topic:** Dealing with Decimals  
**Class:** Grade 5  
**Date:** 00/00/00

**Content Objectives:**  
- Identify the place value and value of a digit.  
- Write a decimal in expanded form.  
- Write a decimal in (short) word form.  
- Write a number in standard form given (short) word form or expanded form.

**Language Objectives:**  
- Explain the difference between 'place value' and 'value.'  
- Read a decimal in word form and write it numerically.  
- Orally explain the differences between standard, expanded and (short) word form of a number.

**Key Vocabulary:**  
place value, value, digit, number, worth, equation, convert, standard form, expanded form, word form

**Materials (including supplementary and adapted):**  
noise maker, ten chart, hundred grid, thousand cube, class worksheet, teacher table and independent worksheets

**Higher Order Questions:**  
When might we see a number written in standard form? Expanded form? Word form? Which number form do you feel is the most useful? Why? How would you explain the difference between standard, expanded and word form?

**Time:**  
<table>
<thead>
<tr>
<th>Building Background</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5 min</strong></td>
<td></td>
</tr>
<tr>
<td>&quot;Math Memories&quot; Review Worksheet: Students will write decimals given base ten representations and fractions and underline given place values in a number.</td>
<td></td>
</tr>
</tbody>
</table>
Students will self correct their work with a colored pencil as it is reviewed on the board by the teacher (using manipulatives and charts from yesterday's lesson)  
- What base ten blocks represent tenths? Hundredths? Thousandths? (rod/chart, grid/square, cube)  
- What does 'convert' mean? (to change into a different form)  
- How do we convert a fraction into a decimal? (1: Write the numerator. 2: The denominator is the last place value) |
| **4 min**            |            |
| **Links to Experience:** |  
Place Value v. Value:  
Place value: TW model identifying a place value in numbers via an underlined digit on board, creating a word bank.  
- What is place value? (take student responses and write key descriptors on board)  
Place Value: a WORD that tells us WHERE a digit is in a number (tens, tenths, ones, etc)  
Value: TW model identifying value in numbers via an underlined digit on the board, focusing on how the answer is a number. Multiply the digit by the place value to find |

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the value (i.e.: the value of the digit 2 in 428 is 2×10=20 since the 2 is in the tens place)

>What is the value of a digit? "While place value is a WORD that tells us WHERE a digit is, value is a NUMBER that tells us HOW MUCH a digit is worth"

define worth: how much it represents

3 min  
TW model identifying value in numbers via an underlined digit on the board, focusing on how the answer is a number.

<Is a "2" worth more in the tens place or the tenths place? How do you know? (2 is worth more in the tens place because it is a whole number. In the tenths place it is worth less than one whole because it is a decimal.)

<What is the difference between value and place value?  
"The _____ tells us the _____ of the digit. It is represented by a _____"  
(The place value tells us the location of the digit. It is represented by a word. The value tells us the worth of the digit. It is represented by a number.)

In pairs, SW use sentence frames to orally define and contrast place value and value.

TW circulate the room, checking on ELL students especially.

4 min  
SW complete section 1 on their class worksheet with a partner and review after 3 minutes. (time to discuss in L1, opportunity for discourse)

**Links to Learning:**
There are many ways to represent a number. We know about base ten blocks, fractions and decimals. Today, we will learn 3 more ways to represent a number.

- standard form
- expanded form
- word form

STANDARD FORM: de forma estander, normal
Standard form represents a number with normal numbers. We usually represent numbers this way.
TW say numbers and student volunteers will write them on board in standard form.

EXPANDED FORM: de forma expandida
Expanded form stretches out a number like a noise-maker. (Show noise-maker in 'standard' closed form and in stretched out 'expanded form'). The value of each digit is added together in an equation.

define equation: a number sentence with an equals sign;
"Equation and equal both begin with 'equ' because they mean similar things. Equation uses an equal sign to show two equal parts."

To write expanded form:
1) Write the value of the first digit.
2) Add the value of the next digit.
3) Continue this until you use all of the digits.
*Check your answer: Add your equation up--> does your answer match the number you started with?

7 min  

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### SIOP® Lesson Plan Template 3

<table>
<thead>
<tr>
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</table>
| 10 min| "This number represents _______" sentence frame (practice with partner)  
<How can I convert a number from expanded form to standard form? (time to speak in L1 with partner) (Add up the equation)  
SW complete section 2 on their class worksheet with a partner and review after 3 minutes.  
WORD FORM: (encourage ELL students to write in short word form to practice using place value terms while not getting hung up on number vocabulary)  
Word form represents a number with words. Say the number that you see. Write the place value terms you say in word form. (focus on students saying 'and' for the decimal instead of 'point'- eg 5 and 2 tenths, not 5 point 2.)  
Led by students, TW create a word bank on the board of place value terms needed to write in word form.  
TW model using word bank to say number and write in word form. TW model writing in short word form, and word form for those able to spell number vocabulary.  
TW model sentence frame "This number represents _______"  
<How can I convert a number from word form to standard form? (SW discuss with a partner [time to speak in L1])  
Read the words. Put a decimal above the word "and." Underline the place value terms. Write the whole number that you read. Write the decimal that you read. Check that your digits are in the right place value.  
TW model, then SW complete section 3 on class worksheet to review conversions between standard, expanded and word form. (time to speak in L1, opportunity for discussion) TW keep sentence frames and examples posted on board for reference, and review after 4 minutes.  
GROUP ROTATIONS (ELL levels 1/2, ELL levels 3/4, ELL level 5 and mainstream)  
Teacher Table: On back of class worksheet, TW lead students convert numbers in word form to standard form displaying steps discussed on a whiteboard. TW also help students orally differentiate between place value and value, and between standard, expanded and word form using sentence frames:  
"_______ form is ______, but _______ form is ______."  
"The [value] tells us ______ of the digit. It is represented by ______."  
Independent Work: SW convert numbers between standard, word, expanded forms and decimals. SW identify the place value and value of underlined digits. |
| 6 min |                                                                                                                                                                                                           |
| 15 min|                                                                                                                                                                                                           |
😊 Class Work 😊

➡️ Section 1:

What is the **place value** of the underlined digit?

5.34 _______  65.04 _______  157.93 _______

What is the **value** of the underlined digit?

5.34 _______  65.04 _______  157.93 _______

➡️ Section 2:

Write the number in **expanded** form.

Example: 523 = 500 + 20 + 3

412 = _______

63.1 = _______

5.72 = _______

Write the number in **standard** form.

500 + 60 + 4 + .2 = _______

70 + .5 + .04 = _______

400 + 3 + .3 = _______

➡️ Section 3:

Write the number in **standard** form.

5 hundred and 9 tenths = _______

13 and 43 hundredths = _______

Write the number in **word** form.

4.53 = _______

16.2 _______
Math Memories 😊

What is the place value of the underlined digit?

5.90  98.04  155.95

Write the decimal.

Teacher Table

Convert the number to word form.

4.53

53.2

.30

Which does not belong?

| 5 and 39 hundredths | 5.39 | 5 + 0.3 + 0.09 | 5 and 39 tenths |
Lesson 3
Lesson Three Performance Indicators

- **Lesson Three:**
  - **Content Objectives:**
    - Compare decimals.
  - **Language Objectives:**
    - Define/provide examples of least/less and most/more.
    - Explain steps used to compare numbers in writing.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaking: Define and provide</td>
<td>Orally define least/less and most/more/greatest in mathematical terms. Provide one numerical example.</td>
<td>Orally define least/less and most/more/greatest in mathematical terms. Provide one numerical example using sentence frame &quot;____ is greater/less than ____.&quot;</td>
<td>Orally identify numbers in an example as more/most/greatest, less/least. Provide one original numerical example using sentence frame &quot;____ is greater/less than ____.&quot;</td>
<td>Complete a word sort with terms more/most/big/greatest, less/least/little. Provide one original numerical example given two numbers using sentence frame &quot;____ is greater/less than ____.&quot;</td>
<td>Complete a word sort with terms more/most/big/greatest, less/least/little. Use flashcards to structure sentence following frame &quot;____ is greater/less than ____.&quot;</td>
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<tr>
<td>examples of least/less and</td>
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<td>most/more.</td>
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<tr>
<td>Speaking: Explain steps used</td>
<td>Orally list all three steps in order used to compare decimals.</td>
<td>Orally list all three steps in order used to compare decimals by walking through an example.</td>
<td>Orally list all three steps in order used to compare decimals given a word bank.</td>
<td>Order all three steps used to compare decimals given sentence strips with steps.</td>
<td>Walk teacher through an example of comparing decimals following three key phrases: line up, underline, compare.</td>
</tr>
<tr>
<td>to compare numbers.</td>
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<tr>
<td>Function</td>
<td>Situation</td>
<td>Expression</td>
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</tbody>
</table>
| Compare  | Decimals  | `<Three hundredths>` is less than `<five hundredths>`.  
`<Two tenths>` is greater than `<one tenth>`. | More, less, greater than, less than, least, greatest, most, symbol | Present tense |
SIOP® Lesson Plan Template 3

<table>
<thead>
<tr>
<th>Topic: Comparing Decimals</th>
<th>Class: Fifth grade math</th>
<th>Date: 00/00/00</th>
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**Content Objectives:**
SWBAT compare decimals as greater and lesser.

**Language Objectives:**
SWBAT define and provide examples of least/less and most/more.
SWBAT explain steps used to compare numbers.

**Key Vocabulary:**
More, less, greater than, less than, least, greatest, most, symbol, compare

**Materials (including supplementary and adapted):**
Toy dollars, dimes and pennies (divided in advance)
Prewritten sentence frames on sentence strips

**Higher Order Questions:**
When do we compare decimals in the real world?
Which is more: seven hundredths or seven tenths? How do you know?

**Time:**

<table>
<thead>
<tr>
<th>Activities</th>
</tr>
</thead>
</table>
**Building Background**
DO NOW: buddy review worsheet with five questions reviewing standard, expanded and word form conversions, value/place value. Review worksheet whole class with emphasis on previously used sentence frames and vocabulary.

Today we will:
compare decimals as greater and lesser.
Our language objectives are:
define and provide examples of least/less and most/more
explain steps used to compare numbers

**Links to Experience:**
Salary Game: Each student will receive a fake occupation paired with a combination of toy dollars, dimes and pennies. Dollars represent ones places, dimes the tenths place, and pennies the hundredths place. SW must write the decimal that they are 'paid.' SW compare their salaries with their small group for one minute. TW ask whole class who thinks they have the most, and record student responses on board.

Vocab: (post words on board, sort math vocab into two groups with picture of many squares for most and few squares for less)
salary: money paid for your work
more/most/greatest: biggest number/quantity (reference toy money for visual example)
less/least: smallest number/quantity

**Links to Learning:**
<How can we tell which student has the most?>

(Developed by John Seidlitz. Used with permission.) © 2008 Pearson Education, Inc.
"We will compare decimals to see who has the most."

Compare: to find what is different or the same about two things; (in math: to find the greatest and least between two things)

"We can compare how tall, how light or dark or even how grumpy two things are! In math, we compare numbers to find which is the greatest and which is the least. Right now, we are comparing money."

Compare decimals:
1. LINE UP the decimal points (TW model by listing the decimals on the board in a vertical list w/ decimal points lined up)
2. UNDERLINE the digits in the greatest place (TW underline the front digits in each)
3. COMPARE the digits: which is the greatest or the least?

TW highlight the key terms associated with each step, and determine which 'salary' was the greatest. TW place the salaries on a large numberline to demonstrate least and greatest on the board.

Introduce and model Sentence Frame:
<Three hundredths> is less than <five hundredths>.

<Two tenths> is greater than <one tenth>.

TW review examples where the greatest place has the same digit and next place must be compared. TW review examples where numbers have differing digits (eg: .87 and 12.3) and discuss adding zeroes after lining up the decimal points. TW leave an example of each of these on the board for reference.

TW ask which student believes he/she had the least salary. TW record on board, and students, in small groups, will follow the three steps to compare the numbers and identify the least. TW circulate to check for understanding.

"Every time we compare decimals, we will follow these steps. On your worksheets, I expect to see you lining up the decimal points even if you think you don't need to."

"Now we know how to compare decimals. We know how to find the least and greatest. In math, there are symbols we can use to show least and greatest.

< >: "Between the numbers, we draw < or >. Think of these symbols like a little mouth (show a chomping 'mouth' with hand). The mouth always wants to eat the greatest number because it is very hungry."

TW model following the 3 compare decimals steps, and then drawing symbol between. TW connect previous sentence frames to symbols (eg: .67 > .23 is sixty-seven hundredths is greater than twenty three hundredths).

"Compare these two decimals: .17, .17; Which symbol should I put between them?"

SW discuss for one minute. TW call for answers, and record any word similar to "same, equal" on board.
"You are right. These numbers are the same amount. They are equal. If two numbers are equal, we draw an equal sign between them."

SW complete section 1 of their worksheet with a buddy.

SW rotate in groups to see teacher at back table and review language objectives (Section 2 of worksheet). When they are not with teacher, SW complete Section 3 of their worksheet independently.

Closing: Review objectives of the lesson.

**Key Vocabulary:**
DO NOW!

1. Convert to standard form.
   \[16 + .8 + .09 = \] ________________
   \[\text{One and six tenths} = \] ________________

2. Convert to expanded form.
   \[2.51 = \] ________________

3. Convert to word form.
   \[4.65 = \] ________________

4. What is the value of the digit 5 in 46.53? ________________

5. Underline the digit in the tenths place.
   Box the digit in the hundredths place.
   Circle the digit in the ones place.
   \[2.34\]

WHO HAS THE LEAST?

Line up the decimals. Underline the greatest place. Compare the digits.
Section 1: Work with a buddy. Compare the numbers. Draw the correct symbol between the numbers.

.42  [Blank]  .24  

2.45  [Blank]  2.91  

9.88  [Blank]  9.90  

6.02  [Blank]  6.1  

.58  [Blank]  1.01  

96.3  [Blank]  96.3  

Line up the decimal points!
Section 3: Work independently. Compare the numbers. Draw the correct symbol between the numbers.

71.5 \_ 72.9

11 \_ 9.99

9.02 \_ 6.99

.02 \_ 2.00

7.6 \_ 7.81

9.32 \_ 8.82

3.1 \_ 3.15

5.34 \_ 4.35

Line up the decimal points!
### SHELTERED STRATEGIES

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<th>Lesson 2</th>
<th>Lesson 3</th>
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<td>✓</td>
<td>✓</td>
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<td>I.B. Develop Vocabulary</td>
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<tr>
<td>I.C. Use extensive Visuals, Realia, Manipulatives, &amp; Gestures</td>
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<td>I.D. Model (Instructions, Processes)</td>
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<td>I.E. Create Opps. To Negotiate Meaning/Check Understanding</td>
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<td>II. Make Text Comprehensible</td>
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<tr>
<td>II.A. Intentional Use of Graphic Organizers</td>
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<td>II.B. Modify Written Text</td>
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<td>III. Make Talk Comprehensible</td>
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<td>III.A. Pace Teacher’s Speech</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>III.B. Use of Listening Guides</td>
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<td>III.C. Use of Word Walls</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>III.D. Frame Main Ideas</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>III.E. Check for Understanding</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>IV. Engage: Opportunities for Output</td>
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<td>IV.A. Use Teacher Questioning and Response Strategies</td>
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<td>✓</td>
<td>✓</td>
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<td>IV.B. Practice Instructional Conversations</td>
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<td>V. Engage at Appropriate Language Proficiency Levels</td>
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<tr>
<td>V.A. Use questions appropriate for language proficiency levels in conversations, activities, and assessments</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>VI. Give Students Voice</td>
<td></td>
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<tr>
<td>VI.A. Challenge students to produce extended talk</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>VI.B. Model Language for Oral and Written Production</td>
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<tr>
<td>VI.C Use Group/Pr. Work to Elicit Student Talk; Students as Researchers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>
Original Lessons
Objective
Represent fractions that name tenths, hundredths, and thousandths as decimals.

Review Vocabulary
Decimal, fraction

Resources
Materials: transparency, 10-by-10 grid, WorkMat 4: Place-Value Chart
Manipulatives: coins
Literature Connection: Math Man by Teri Daniels
Teacher Technology
TeacherWorks • Interactive Classroom • Concepts in Motion

Lessons in Math Background
Using decimals in context is not new to students. For example, students have used decimals when solving problems involving dollars and cents. In Grade 4, students learned to express rational numbers as fractions and as decimals. (Note that the term rational is used to classify numbers that can be expressed as a ratio of two integers, but it will not be introduced to students until later grades.) At this level, models (grids) are used to help students visualize fractions with denominators of 10, 100, and 1,000 as decimal equivalent.

Daily Routine
Use these suggestions before beginning the lesson.

5-Minute Check
(Reviews Lesson 1-3)

Solve. Use the four-step plan.
Curt has 8 coins in his pocket. The value of the coins is 78¢. What coins does he have in his pocket? 2 quarters, 2 dimes, 1 nickel, 3 pennies.

Problem of the Day
Binta has 4 dimes, 2 quarters, and 3 nickels. She spends 50¢. How much does she have now? $0.35

Review Math Vocabulary
Write the review vocabulary words and their definitions on the board.

Have students show an example of a fraction as a decimal. Then have them use the vocabulary we learned and their definitions in a sentence to describe the example.

Visual Vocabulary Cards
Use Visual Vocabulary Card 6 to reinforce the vocabulary reviewed in this lesson.
The Define/Example/Ask routine is written on the back of each card.
1. Introduce

**Activity Choice 1 - Hands-On**
- Distribute play money to students. How many pennies are in one dollar? 100
- A penny is what fractional part of one dollar? \(\frac{1}{100}\)
- How can you use a decimal to write one penny as a fractional part of a dollar? \(0.01\)
- A dime is what fractional part of one dollar? \(\frac{1}{10}\) or \(0.10\)
- How can you use a decimal to write one dime as a fractional part of a dollar? \(0.10\)

**Activity Choice 2 - Literature**
Introduce the lesson with *Math Man* by Teri Daniels. For a related math activity, see p. TR36.

2. Teach

**Scaffolding Questions**
Show a tenths grid on an overhead and shade 3 equal parts of the grid.
- How many columns are shaded? 3
- What fraction does this model show? \(\frac{3}{10}\)
- What decimal does this model show? \(0.3\)

Show a hundredths grid on an overhead and shade 23 equal parts of the grid.
- How many squares are shaded? 23
- What fraction does this model show? \(\frac{23}{100}\)
- What decimal does this model show? \(0.23\)

**GET READY to Learn**
Have students open their books and read the information in Get Ready to Learn. Review decimal and fraction.
As a class, work through Examples 1 and 2.

The Four-Step Teaching Plan shows you how to introduce, teach, practice, and assess each lesson. Each lesson ends with a creative strategy for closing the lesson.
Fractions that name tenths, hundredths, and thousandths have 1 digit, 2 digits, and 3 digits to the right of the decimal point.

**EXAMPLE**  Fractions as Decimals

1. Write \( \frac{35}{100} \) as a decimal.

   \( \frac{35}{100} \) is 35 hundredths. Since the fraction names hundredths, there should be two digits to the right of the decimal point.

   So, \( \frac{35}{100} = 0.35 \).

**Real-World EXAMPLE**  Fractions as Decimals

2. INSECTS A bee hummingbird weighs only about \( \frac{56}{1,000} \) of an ounce.

   Represent this fraction as a decimal.

   The fraction names thousandths, so there should be 3 digits to the right of the decimal point.

   So, \( \frac{56}{1,000} = 0.056 \).

**CHECK What You Know**

Use a model to write each fraction as a decimal. See Examples 1, 2 (p. 29)

1. \( \frac{4}{10} \)
2. \( \frac{2}{10} \)
3. \( \frac{58}{100} \)
4. \( \frac{74}{100} \)
5. \( \frac{6}{100} \)
6. \( \frac{5}{100} \)
7. \( \frac{795}{1,000} \)
8. \( \frac{9}{1,000} \)

In a class survey, \( \frac{60}{100} \) students said that they have a pet. Write this result as a decimal.

10. **Talk About It** Describe a rule for writing fractions like \( \frac{8}{100} \) and \( \frac{32}{1,000} \) as decimals.

Lesson 1-4 Represent Decimals
Use a model to write each fraction as a decimal. See Examples 1, 2 (p. 29)

11. \( \frac{3}{10} \)  
12. \( \frac{9}{10} \)  
13. \( \frac{86}{100} \)  
14. \( \frac{99}{100} \)  
15. \( \frac{107}{1,000} \)  
16. \( \frac{387}{1,000} \)  
17. \( \frac{51}{1,000} \)  
18. \( \frac{80}{1,000} \)  
19. \( \frac{60}{100} \)  
20. \( \frac{22}{1,000} \)  
21. \( \frac{4}{100} \)  
22. \( \frac{1}{1,000} \)  

23. Mrs. Carroll bought \( \frac{8}{10} \) pound of turkey. Write this fraction as a decimal.

24. A runner decreased his time by \( \frac{5}{100} \) of a second. Express this decrease as a decimal.

25. About \( \frac{7}{10} \) of a person’s body weight is water. Write this fraction as a decimal.

26. It rains only 9 hundredths of an inch each year in Ica, Peru. Write this number as a decimal.

Measurement Write the customary measure for each metric measure as a decimal.

27. 1 kilometer
28. 1 millimeter
29. 1 gram
30. 1 liter

<table>
<thead>
<tr>
<th>Metric Measure</th>
<th>Customary Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kilometer</td>
<td>62 ( \frac{10}{100} ) mile</td>
</tr>
<tr>
<td>1 millimeter</td>
<td>4 ( \frac{10}{100} ) inch</td>
</tr>
<tr>
<td>1 gram</td>
<td>35 ( \frac{10}{100} ) ounce</td>
</tr>
<tr>
<td>1 liter</td>
<td>908 ( \frac{10}{1000} ) quart</td>
</tr>
</tbody>
</table>

H.O.T. Problems

31. OPEN ENDED Write a fraction that has a denominator of 100. Then write the fraction as a decimal and draw a model to represent the decimal.

32. FIND THE ERROR Ryan and Janelle are writing \( \frac{95}{1,000} \) as a decimal. Who is correct? Explain.

Ryan  \( \frac{95}{1,000} = 0.095 \)  
Janelle \( \frac{95}{1,000} = 0.950 \)

33. WRITING IN MATH Explain how the word form of a fraction can help you write the fraction as a decimal.

Chapter 1 Use Place Value
Objective
Read and write decimals in standard form, expanded form, word form, and short word form.

Review Vocabulary
place value

Resources
Materials: Work/Sheet 4: Place-Value Chart
Literature Connection: Alexander, Who Used to Be Rich Last Sunday by Judith Viorst
Teacher Technology
TeacherWorks • Interactive Classroom

Focus on Math Background
Place value provides the foundation for the understanding of decimals. Place value is 10 times the place value on its right. It is also true that a place value is \( \frac{1}{10} \) the place value on its left. For example, the value of the tenths place is 10 times the value of the hundredths place.

Help students avoid thinking of the decimal point as the “center” of the place value system. The ones place is the true center, as the place names have a kind of symmetry about the ones:

thousands

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>tens</th>
<th></th>
<th>ones</th>
<th></th>
<th>tenths</th>
<th>hundredths</th>
<th>thousandths</th>
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</tbody>
</table>

Daily Routine
Use these suggestions before beginning the

5-Minute Check
(Reviews Lesson 10-4)
Write each fraction as a decimal.
1. \( \frac{67}{100} \)
2. \( \frac{14}{1000} \)
3. \( \frac{87}{1000} \)
4. \( \frac{26}{100} \)
5. \( \frac{3}{1000} \)

Problem of the Day
Jimmy buys two dozen cookies and a \( \frac{1}{2} \) bakery for $17.50. The pie costs $8.30. Does one dozen cookies cost $4.60?

Review Math Vocab
Write the review vocabulary word and its definition on the board.

Have students identify the place value of the number 23,765. Then have them write the number using the vocabulary word and its definition.
1 Introduce

Activity Choice 1 - Hands-On

Draw the following on the board:

- Write 3 in the tens place.
- Write 0 in the thousands place.
- Write 8 in the ones place.
- Write 2 in the hundreds place.
- Write 7 in the ten thousands place.
- Write 5 in the ten millions place.
- Write 2 in the hundreds place.
- Write 1 in the hundred millions place.
- Write 6 in the hundred thousands place.
- What is the number? 152,670,238

Activity Choice 2 - Literature

Introduce the lesson with "Alexander, Who Used to Be Rich Last Sunday" by Judith Viorst. For a related math activity, see p. TR37.

2 Teach

Scaffolding Questions

Draw a place-value chart on the board from tens through thousands. Write the number 23,145 in the chart.

- What digit is in the tenths place? 2
- What digit is in the hundreds place? 4
- What place is the 5 in? Thousands
- What is the value of the 5? 5,000

GET READY to Learn

Have students open their books and read the information in Get Ready to Learn. Review place value. As a class, work through Examples 1–3.
H.O.T. Problems

31. OPEN ENDED Write a number that has 6 in the thousandths place. Then write the number in expanded form and word form.

32. WHICH ONE DOESN'T BELONG? Identify the decimal that does not belong with the other three. Explain your reasoning.

- five and thirty-nine hundredths
- 5.39
- 5 + 0.3 + 0.09
- 5 and 39 tenths

33. WRITING IN MATH Name an advantage of using 0.8 instead of \( \frac{8}{10} \).

TEST Practice

34. Which decimal is represented in the model below? (Lesson 1-5)

- A 45
- B 4.5
- C 0.45
- D 0.045

35. Which decimal represents the total value of 5 nickels, 1 quarter, and 3 dimes when compared to 1 dollar?

- F 0.08
- G 8.0
- H 0.80
- J 0.008

Spiral Review

Use a model to write each fraction as a decimal. (Lesson 1-4)

36. \( \frac{6}{10} \)

37. \( \frac{29}{100} \)

38. \( \frac{541}{1,000} \)

39. \( \frac{7}{100} \)

40. The ticket prices for a children’s play are shown in the table. Mrs. Rodriguez bought 4 children’s tickets, 2 adult tickets, and 1 senior ticket. If she gives the cashier $40, how much change should she receive? (Lesson 1-3)

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Adults</th>
<th>Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$4.00</td>
<td>$6.00</td>
<td>$3.00</td>
</tr>
</tbody>
</table>

Replace each \( \bullet \) with \(<\), \( >\), or \( =\) to make a true sentence. (Lesson 1-2)

41. 830 \( \bullet \) 813

42. 5,670 \( \bullet \) 590

43. 23,904,156 \( \bullet \) 23,904,156

44. About 234 million bushels of apples were produced in the United States in a recent year. Write this number in expanded form. (Lesson 1-1)
CHECK What You Know

Name the place of the underlined digit. Then write the value of the digit. See Example 1 (p. 32)

1. 6.14  
2. 32.095

Write each number in standard form. See Example 2 (p. 33)

3. 5 and 87 hundredths
4. 20 + 6 + 0.9 + 0.01 + 0.004

Write each number in expanded form. Then read and write in word form. See Examples 2, 3 (p. 33)

5. 19.4
6. 35.19
7. 1.608
8. 2.085
9. A spider can travel one and two tenths miles per hour. Write this as a decimal.  
10. Discuss how place value is used to read decimals.

Practice and Problem Solving

Name the place of the underlined digit. Then write the value of the digit. See Example 1 (p. 32)

11. 63.47
12. 9.56
13. 4.072
14. 81.453

Write each number in standard form. See Example 2 (p. 33)

15. 13 and 9 tenths
16. fifty and six hundredths
17. 10 + 1 + 0.9 + 0.02 + 0.003
18. 7 + 0.1 + 0.005

Write each number in expanded form. Then read and write in word form. See Examples 2, 3 (p. 33)

19. 4.28
20. 0.917
21. 69.409
22. 20.05
23. 13.09
24. 0.25
25. 92.301
26. 2.047

27. An athlete completes a race in 57.505 seconds. Name all the places the digit 5 appears in the number.

28. There was three and five hundredths inches of rain yesterday. Write this number in standard form.

29. A baseball player had a batting average of 0.334 for the season. Write this number in expanded form.

30. The table shows the amount of salt that remains when a cubic foot of water evaporates. Read each number that describes the amount of salt. Then write each number in words.

Salt Comparison

<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Amount of Salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic Ocean</td>
<td>2.2 pounds</td>
</tr>
<tr>
<td>Lake Michigan</td>
<td>0.01 pound</td>
</tr>
</tbody>
</table>

34 Chapter 1 Use Place Value
**Objective**
Compare decimals.

**Vocabulary**
equivalent decimals

**Resources**
- **Materials:** 10-by-10 grid, number line, WorkMat 4: Place-Value Chart
- **Literature Connection:** Little Numbers and Pictures that Show Just How Little They Are! by Edward Packard
- **Teacher Technology:** TeacherWorks • Interactive Classroom

**Focus on Math Background**
Students should see a large variety of models for representing whole numbers and decimals: number lines, place value charts, and tenths or hundredths grids. Physical models like base-ten blocks can also help in the comparison process. Building on similar experiences in Grade 4 of comparing whole numbers and fractions is helpful. Students should be reminded that regardless of the direction of the inequality symbol, the closed side always points to the lesser number (e.g., $8 > 0.8$ and $0.8 < 8$).

Students know from Grade 2 that whole dollar amounts can be written with 0 cents (e.g., $53 \equiv 53.00$), so annexing extra 0s to provide the same number of decimal places for comparison of different decimals should make sense.

**Daily Routine**
Use these suggestions before beginning the lesson.

**5-Minute Check**
(Reviews Lesson 1-5)
Write each number in expanded form a word form.
1. $0.34 \equiv 0.3 + 0.04$; thirty-four hundredths
2. $4.262 \equiv 4 + 0.2 + 0.06 + 0.002$; four and twenty-six hundred sixty-two thousandths

**Problem of the Day**
Honovi starts practicing the piano at 3:30 P.M. and practices until 4:15 P.M. Niral starts practicing her violin at 4:00 P.M. and practices until 4:10 P.M. Who practices longer? How much longer?

**Building Math Vocabularies**
Write the lesson vocabulary word and its definition on the board.

Ask students if they see a familiar word with a prefix that makes it equivalent. Explain that its prefix, *equi-* means equal. Have students make a list of all the words that have the prefix *equi-* and then have students use a sentence using the vocabulary word and its definition.

**Visual Vocabulary Cards**
Use Visual Vocabulary Card 9 to reinforce the vocabulary introduced in this lesson. (The card is written on the back of this card.)
1 Introduce
Activity Choice 1 • Hands-On
- Give students two 10-by-10 grids. Have students label one grid A and the other B. Tell them to shade 43 squares in grid A and 62 squares in grid B. Draw the same grids on the board.
- How many squares are shaded in grid A? 43
- What decimal does this model show? 0.43
- How many squares are shaded in grid B? 62
- What decimal does this model show? 0.62
- Which number is greater? 0.62 How do you know? Sample answer: Its grid has more squares shaded.

Activity Choice 2 • Literature
Introduce the lesson with Little Numbers and Pictures that Show Just How Little They Are by Edward Packard. For a related math activity, see p. TR37.

2 Teach
Scaffolding Questions
Draw a number line on the board from 0 to 1, labeling 0.0, 0.1, 0.2, 0.3, …, 0.9, 1.0.
- Label 0.2 as point A and 1.0 as point B.
- Compare point A to point B. Which number is greater? 1.0
- How can you write that 1.0 is greater than 0.2? 1.0 > 0.2
- How does a number line help you see which number is greater? Sample answer: Numbers to the right are greater than numbers to the left.

> GET READY to Learn

Have students open their books and read the information in Get Ready to Learn. Introduce equivalent decimals. As a class, work through Examples 1–3.
Practice and Problem Solving

Replace each • with <, >, or = to make a true sentence.
See Examples 1–3 (pp. 36–37)

12. 4.4 • 4.1
13. 0.39 • 0.37
14. 0.57 • 0.65
15. 2.15 • 2.150
16. 0.1 • 0.006
17. 0.652 • 0.647
18. 0.09 • 0.001
19. 7.304 • 7.30
20. 2.800 • 2.8
21. 6.57 • 6.6
22. 0.91 • 0.90
23. 11.341 • 11.34
24. 4.972 • 4.972
25. 124 • 124.1
26. 3.06 • 3.814
27. 0.7 • 0.007
28. 36.504 • 36.6
29. 5.09 • 5.10

30. A cat’s normal body temperature is 101.5 degrees Fahrenheit. A rabbit’s normal body temperature is 103.1 degrees Fahrenheit. Which animal has a lower normal body temperature?

31. Measurement Monisha lives 2.16 miles from school and 2.08 miles from the mall. Is Monisha’s home closer to school or the mall?

For Exercises 32–34, use the table at the right that shows the cost of posters of famous works of art.

<table>
<thead>
<tr>
<th>Poster Price Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster</td>
</tr>
<tr>
<td>From the Lake, No. 1, Georgia O'Keeffe</td>
</tr>
<tr>
<td>Relativity, M.C. Escher</td>
</tr>
<tr>
<td>Women and Bird in the Night, Joan Miro</td>
</tr>
<tr>
<td>Waterlilies, Claude Monet</td>
</tr>
</tbody>
</table>

32. Does the poster Relativity or the poster Women and Bird in the Night cost more?

33. Which poster costs less: From the Lake, No. 1 or Waterlilies?

34. Which poster costs less than Waterlilies?

H.O.T. Problems

35. OPEN ENDED Write two decimals that are equivalent to 18.7. Tell why.

36. CHALLENGE How many times greater is 46 than 0.46? Explain.

37. WRITING IN MATH Discuss the similarities and differences between comparing whole numbers and comparing decimals.

38 Chapter 1 Use Place Value
Decimals that have the same value are equivalent decimals.

The shaded part of each model is the same. So, \( \frac{8}{10} = 0.8 \) or \( \frac{80}{100} = 0.80 \).

The model shows you can annex, or place zeros, to the right of a decimal without changing its value.

**EXAMPLES**

**Compare Decimals**

2. Replace \( \bullet \) with \(<, >, \) or \( = \) to make \( 0.450 \bullet 0.45 \) a true sentence.
   
   \[ 0.450 = 0.450 \]
   
   Annex a zero. The value does not change.

   So, \( 0.450 = 0.45 \).

3. Replace \( \bullet \) with \(<, >, \) or \( = \) to make \( 8.69 \bullet 8.6 \) a true sentence.
   
   \[ 8.69 \rightarrow 8.69 \]
   
   \[ 8.6 \rightarrow 8.60 \]
   
   Annex a zero to the right of 8.6 so that it has the same number of decimal places as 8.69.

   Since 9 > 0 in the hundredths place, 8.69 > 8.6.

**CHECK What You Know**

Replace each \( \bullet \) with \(<, >, \) or \( = \) to make a true sentence.

See Examples 1–3 (pp. 36–37)

1. \( 0.5 \bullet 0.7 \)
2. \( 0.62 \bullet 0.26 \)
3. \( 3.7 \bullet 3.70 \)
4. \( 4.40 \bullet 4.44 \)
5. \( 0.003 \bullet 0.102 \)
6. \( 9.624 \bullet 9.618 \)
7. \( 8.001 \bullet 8.001 \)
8. \( 0.375 \bullet 0.42 \)
9. \( 6.500 \bullet 6.5 \)
10. Each year, Wadis Halfa, Sudan, gets about 2.5 millimeters of rain, and Luxar, Egypt, gets about 0.76 millimeter of rain. Which place gets more rain each year?
11. **Talk About It** Describe how you know if two decimals are equivalent.
Intro to Unit

- Unit Title: Dealing with Decimals
- Grade Level: 5th grade math
- Target Group: mainstream class with integrated ELLs
- Source of Written Reading Materials:
  - Math Connects Grade 5 (2009); MacMillan/McGraw-Hill (p. 30-37)
- Source of Lessons:
- Learning Goals:
  - SWBAT convert decimals between word, written and oral form to thousandths.
  - SWBAT write decimals in expanded form.
  - SWBAT compare decimals.
**SIOP® Lesson Plan Template 3**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 min</td>
<td>Follow same routine with hundreds grid and penny, and thousands cube.</td>
</tr>
<tr>
<td></td>
<td>Sentence Frame: This fraction represents _____.</td>
</tr>
<tr>
<td>5 min</td>
<td>Have students complete #1-6 on partner work sheet. (time to speak in L1, elicit student talk)</td>
</tr>
<tr>
<td></td>
<td><strong>Links to Learning:</strong></td>
</tr>
<tr>
<td></td>
<td>&lt;How do we write one dollar on a price tag? (1.00)</td>
</tr>
<tr>
<td></td>
<td>&lt;How do we write one hundredth/penny as money? (0.01)</td>
</tr>
<tr>
<td></td>
<td>&lt;How do we write one tenth/dime as money? (0.10)</td>
</tr>
<tr>
<td></td>
<td>Introduce place value chart. Emphasize &quot;th&quot; at end of all decimal words.</td>
</tr>
<tr>
<td></td>
<td>To name a decimal:</td>
</tr>
<tr>
<td></td>
<td>1. Say the number you see.</td>
</tr>
<tr>
<td></td>
<td>2. Name the last place value filled up.</td>
</tr>
<tr>
<td></td>
<td>To write a decimal:</td>
</tr>
<tr>
<td></td>
<td>1. Write the number you hear.</td>
</tr>
<tr>
<td></td>
<td>2. Put the last digit in the place value you hear.</td>
</tr>
<tr>
<td></td>
<td>Model and review both strategies with class examples, checks for understanding.</td>
</tr>
<tr>
<td>3 min</td>
<td>Listen and Learn:</td>
</tr>
<tr>
<td></td>
<td>Have students pair off and label one partner A and the other B. Partner A says a decimal, partner B must write it in a place value chart. Partner A writes a decimal on plain paper, partner B must say the decimal. Then, switch. (elicit student talk, time to speak in L1, practice skill in L2)</td>
</tr>
<tr>
<td>6 min</td>
<td><strong>HOT Discussion:</strong></td>
</tr>
<tr>
<td></td>
<td>The closer to the decimal, the more it means.</td>
</tr>
<tr>
<td></td>
<td>&lt;Would you rather share a cake with ten people or one hundred people? A tenth is bigger than a hundredth.</td>
</tr>
<tr>
<td></td>
<td>&lt;Which means more: A hundredth or a thousandth? How do you know?</td>
</tr>
<tr>
<td></td>
<td>Numbers closer to a decimal point are worth more.</td>
</tr>
<tr>
<td></td>
<td>To convert a fraction (with denominator of 10, 100 or 1000) to a decimal:</td>
</tr>
<tr>
<td></td>
<td>1. Write the numerator.</td>
</tr>
<tr>
<td></td>
<td>2. The denominator is the last place value.</td>
</tr>
<tr>
<td>15 min</td>
<td>Model and practice with a few examples.</td>
</tr>
<tr>
<td></td>
<td><strong>Group Rotations:</strong></td>
</tr>
<tr>
<td></td>
<td>Cycle One: Meet with Levels 2 and 1: stagger sections 1 and 2 between levels to assess oral and listening skills. Rest of class completes sections 3 and 4 independently.</td>
</tr>
<tr>
<td></td>
<td>Cycle Two: Meet with levels 3, 4 and 5: stagger sections 1 and 2 between levels to assess oral and listening skills. Rest of class completes sections 3 and 4 independently.</td>
</tr>
</tbody>
</table>

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**SIOP® Lesson Plan Template 3**

<table>
<thead>
<tr>
<th>Topic: Dealing With Decimals</th>
<th>Class: Math, Grade 5</th>
<th>Date: 0/0/00</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Content Objectives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpret decimals given base-ten representations.</td>
</tr>
<tr>
<td>Orally and numerically represent fractions that name tenths, hundredths and thousandths.</td>
</tr>
<tr>
<td>Convert fractions with a denominator of 10, 100 and 1000 to decimals.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language Objectives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a decimal given an oral description.</td>
</tr>
<tr>
<td>Orally name a decimal using decimal vocabulary.</td>
</tr>
<tr>
<td>Orally identify place values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>represent *</td>
</tr>
<tr>
<td>tenth *</td>
</tr>
<tr>
<td>hundredth</td>
</tr>
<tr>
<td>thousandth *</td>
</tr>
<tr>
<td>numerator *</td>
</tr>
<tr>
<td>denominator</td>
</tr>
<tr>
<td>Fraction *</td>
</tr>
<tr>
<td>decimal *</td>
</tr>
<tr>
<td>point *</td>
</tr>
<tr>
<td>convert *</td>
</tr>
<tr>
<td>equivalent *</td>
</tr>
<tr>
<td>equal *</td>
</tr>
<tr>
<td>same *</td>
</tr>
<tr>
<td>rod *</td>
</tr>
<tr>
<td>cube *</td>
</tr>
<tr>
<td>grid *</td>
</tr>
<tr>
<td>shaded in *</td>
</tr>
<tr>
<td>whole *</td>
</tr>
<tr>
<td>part *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Materials (including supplementary and adapted):</th>
</tr>
</thead>
<tbody>
<tr>
<td>large hundreds grid and tens chart; penny and dime manipulatives; penny and dime board displays;</td>
</tr>
<tr>
<td>pre-tests, independent work sheets, partner work sheets;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Higher Order Questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>When do we use fractions/decimals in the real world?</td>
</tr>
<tr>
<td>Why are fractions and decimals like brothers?</td>
</tr>
<tr>
<td>Which represents more: a tenth or a thousandth? Explain:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time:</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 min</td>
<td>Building Background</td>
</tr>
<tr>
<td></td>
<td>Pretest with a Partner (time to speak in L1, activate background knowledge)</td>
</tr>
<tr>
<td></td>
<td>Review content/language objectives</td>
</tr>
<tr>
<td>12 min</td>
<td>Links to Experience:</td>
</tr>
<tr>
<td></td>
<td>Fractions and decimals are like brothers. They both represent a part of a whole, but they look different. Today, we will learn how decimals and fractions are related.</td>
</tr>
<tr>
<td></td>
<td>This is a great metaphor! We can expand on it. Frame it in the lesson so that it allows you to use questioning and talk into SS’ associating with something familiar.</td>
</tr>
<tr>
<td></td>
<td>Pass out 1 penny and 1 dime manipulative to each student. Have coin manipulatives on board with tens grid. (realia, visuals)</td>
</tr>
<tr>
<td></td>
<td>What have I handed you? (money, coins)</td>
</tr>
<tr>
<td></td>
<td>How many dimes does it take to make a whole dollar? (ten)</td>
</tr>
<tr>
<td></td>
<td>How many pennies to make a dime? (five)</td>
</tr>
<tr>
<td></td>
<td>My chart represents a whole dollar. Each rod represents a dime. Ten rods make a whole. Ten dimes make a dollar.</td>
</tr>
<tr>
<td></td>
<td>Define, discuss vocabulary:</td>
</tr>
<tr>
<td></td>
<td>represent: to show, demonstrate</td>
</tr>
<tr>
<td></td>
<td>whole: the total</td>
</tr>
<tr>
<td></td>
<td>shaded in: darkened, colored</td>
</tr>
<tr>
<td></td>
<td>How much have I shaded?</td>
</tr>
<tr>
<td></td>
<td>Sentence Frame: ____ out of ____ (part out of whole)</td>
</tr>
<tr>
<td></td>
<td>Sentence Frame: say numerator, say denominator with &quot;ths&quot; at end.</td>
</tr>
</tbody>
</table>

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Lesson One Performance Indicators

- **Lesson One:**
  - **Content Objectives:**
    - Orally and numerically represent fractions that name tenths, hundredths and thousandths.
    - Convert fractions with a denominator of 10, 100 and 1000 to decimals.
    - Interpret decimals given base-ten representations.
  - **Language Objectives:**
    - Write a decimal given an oral description.
    - Orally name a decimal using decimal vocabulary.
    - Orally identify place values.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening: write a decimal given oral description</td>
<td>Numerically write a decimal after hearing it once.</td>
<td>Numerically write a decimal after hearing it 3 times.</td>
<td>Numerically write a decimal in a place value chart after hearing it 3 times.</td>
<td>Match a written decimal with a spoken decimal.</td>
<td>Mark whether a written and spoken decimal match.</td>
</tr>
</tbody>
</table>
| Speaking: orally name a decimal using decimal vocabulary | Name a decimal via number and decimal place value (eg: four hundred and one thousandths) | Work with a partner to name a decimal via number and decimal place value (eg: four hundred and one thousandths) | Orally name a decimal following a two-step checklist:  
1. Say the number you see.  
2. Name the last place value. | Orally name a decimal following a two-step checklist and place value chart:  
1. Say the number you see.  
2. Name the last place value. | Repeat a spoken decimal accentuating the “th” at the end of the word. |
<p>| Speaking: Orally identify place value.      | Name each place value given an underlined digit in a decimal.          | Orally identify the place value of a digit given a place value word bank. | Name each place value given an underlined digit in a decimal and a place value chart. | Orally identify the place value of an underlined digit of a number in a place value chart. | Repeat a place value following along in a place value chart accentuating the “th.” |</p>
<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Expression</th>
<th>Words</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orally and numerically represent</td>
<td>Fractions that name tenths, hundredths and thousandths</td>
<td>This fraction represents &lt;five hundredths&gt;.</td>
<td>Fraction, tenths, hundredths, thousandths, represent, numerator, denominator</td>
<td>Present tense</td>
</tr>
<tr>
<td>Convert</td>
<td>Fractions with a denominator of 10, 100 and 1000 to decimals</td>
<td>The fraction &lt;2/10&gt; is equivalent to the decimal &lt;.2&gt;.</td>
<td>Numerator, denominator, decimal, fraction, tenth, hundredth, thousandth, decimal point, convert, equivalent, equal, same</td>
<td>Present tense</td>
</tr>
<tr>
<td>Interpret</td>
<td>Decimals given base-ten representations</td>
<td>&lt;A rod&gt; represents the &lt;tenths&gt; place. There are &lt;89&gt; units colored/shaded in.</td>
<td>Base ten blocks, rod, unit, square, cube, place value, digit, equivalent, tenth, hundredth, thousandth, colored in, shaded in</td>
<td>Present tense</td>
</tr>
</tbody>
</table>
Partner Work Sheet

Write the fraction.

1. __________  
2. __________  

3. __________  
4. __________  

5. __________  
6. __________

54
Rachel Ramos
Prof. Lopez-Velasquez
Lesson One: Midterm
March 14, 2012

**Modifications Used in Lesson One**

In this lesson, it is assumed that the class may have ELL students at many levels as well as mainstream students. Modifications and differentiation is utilized to help each student achieve mastery in both content and language objectives. A pretest at the beginning of the lesson allows ELLs to speak in their L1 and discuss what they are about to learn, as well as presenting them with an idea of where the lesson is headed. The visual representation of tenths, hundredths and thousandths as base ten blocks, grids, charts and coins will help students associate symbols and quantities with the new vocabulary words that they are learning. The connection to coins will also help students connect the content with a real world situation that they are familiar with. Many content words will be explicitly defined and discussed to be sure that students develop vocabulary associated with this subject. Sentence frames will be used throughout the lesson to teach students how to express their answers and thoughts.

Additionally, I planned this lesson with the intention of including cognates such as whole/total/todo, represent/demonstrate/demonstrar, and others. Cognates will allow students to instantly understand the word’s meaning by connecting it with a word they already know in their L1. Throughout the lesson, students watch the teacher model and then practice new skills with a partner, giving ELL students the opportunity to speak and practice new vocabulary. At the end of the lesson, students rotate through groups with independent work and teacher-supported instruction to guarantee that students practice oral and listening skills associated with the content.
Decimals Pretest

Write the name of the underlined place value on the line.

- \( .346 \)

Convert the fraction into a decimal. Write the decimal on the line.

- \( \frac{50}{100} = .50 \)

Write the decimal and fraction represented by the base ten blocks.

- \( \square \)
  - F: \( \square \) D: \( \square \)
Lesson One Performance Indicators

- **Lesson One:**
  - **Content Objectives:**
    - Orally and numerically represent fractions that name tenths, hundredths, and thousandths.
    - Convert fractions with a denominator of 10, 100, and 1000 to decimals.
    - Write decimals given base-ten representations.
  - **Language Objectives:**
    - Write a decimal given an oral description.
    - Orally name a decimal using decimal vocabulary.
    - Orally identify place values.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening: write a decimal given oral</td>
<td>Numerically write a decimal after hearing</td>
<td>Numerically write a decimal after hearing</td>
<td>Numerically write a decimal in a place</td>
<td>Match a written decimal with a spoken</td>
<td>Mark whether a written and spoken decimal</td>
</tr>
<tr>
<td>description</td>
<td>it once.</td>
<td>it 3 times.</td>
<td>value chart after hearing it 3 times.</td>
<td>decimal.</td>
<td>match.</td>
</tr>
<tr>
<td>Speaking: orally name a decimal using</td>
<td>Name a decimal via number and decimal</td>
<td>Work with a partner to name a decimal via</td>
<td>Orally name a decimal following a two-step</td>
<td>Orally name a decimal following a two-step</td>
<td>Repeat a spoken decimal accentuating the</td>
</tr>
<tr>
<td>decimal vocabulary.</td>
<td>place value (e.g. four hundred and one</td>
<td>number and decimal place value (e.g. four</td>
<td>checklist:</td>
<td>checklist and place value chart:</td>
<td>&quot;th&quot; at the end of the word.</td>
</tr>
<tr>
<td></td>
<td>thousandths)</td>
<td>hundred and one thousandths)</td>
<td>1. Say the number you see.</td>
<td>1. Say the number you see.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Name the last place value.</td>
<td>2. Name the last place value.</td>
<td></td>
</tr>
<tr>
<td>Speaking: Orally identify place value.</td>
<td>Name each place value given an underlined</td>
<td>Orally identify the place value of a digit</td>
<td>Name each place value given an underlined</td>
<td>Orally identify the place value of an</td>
<td>Repeat a place value following along in a</td>
</tr>
<tr>
<td></td>
<td>digit in a decimal.</td>
<td>given a place value word bank.</td>
<td>digit in a decimal and a place value chart.</td>
<td>place value chart.</td>
<td>place value chart accentuating the &quot;th.&quot;</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
Rachel Ramos  
Prof. Prof. Lopez-Velasquez  
TSL 518  
April 11, 2012  

**Modifications Used in Lesson Two**

At the beginning of the lesson, students build background and prior knowledge by reviewing yesterday's skills and vocabulary with a partner. This also provides ELL students with time to speak in their L1 about content. All visuals and graphic organizers from the day before are displayed to elicit memories about the previous lesson. After a few teacher-led review questions, sentence frames are used throughout the lesson to help students master language objectives. Sentence frames allow language learners to express their understanding of content in a way that does not allow grammar to obstruct their thinking.

At three different points during the lesson, students are given the opportunity to practice new skills with a partner, providing them with time to speak in their L1 and try out new vocabulary terms. Content vocabulary is explicitly defined or demonstrated as it is introduced, and then posted on the board for reference. Additionally, multi-step procedures are displayed piece by piece in simple sentences so that wordiness does not keep language learners from understanding the process.

The three different number forms taught in this lesson are all represented by a symbol or realia: standard form is numbers, word form is words, and expanded form is a noise-maker. By displaying these symbols during and beyond the lesson, students will be able to recall what they learned without having to decode unfamiliar words. At the end of the lesson, all students are given small group time with the teacher to practice language objectives. When not with the teacher, students complete independent work practicing the mathematical skills taught in the lesson. Level 1 and 2 language learners meet with the teacher first so that she can clarify that they have a good grasp of the vocabulary and content before they begin independent work.
Class Work

Section 1:
What is the place value of the underlined digit?
5.34______  65.04______  157.93______

What is the value of the underlined digit?
5.34______  65.04______  157.93______

Section 2:
Write the number in expanded form.
Example: 523 = 500 + 20 + 3
412 = ____________________________
63.1 = ____________________________
5.72 = ____________________________

Write the number in standard form.
500 + 60 + 4 + .2 = ________________
70 + .5 + .04 = _____________________
400 + 3 + .3 = _____________________

SHOW YOUR ADDING!

Section 3:
Write the number in standard form.
5 hundred and 9 tenths = _____________________________
13 and 43 hundredths = _____________________________

Write the number in word form.
4.53 = _____________________________
16.2 _____________________________
Math Memories 😊

What is the **place value** of the **underlined** digit?

5.90 __________
98.04 __________
155.95 __________

Write the decimal.

43 __________
100 __________

3 __________
10 __________

404 __________
1000 __________

Teacher Table

Convert the number to word form.

4.53 __________

53.2 __________

.30 __________

Which does not belong?

| 5 and 39 hundredths | 5.39 | 5 + 0.3 + 0.09 | 5 and 39 tenths |
Independent Work

What is the **place value** of the **underlined** digit?

6.29
40.32
274.5

What is the **value** of the **underlined** digit?

6.71
90.83
300.41

Convert to **standard form**.

\[300 + 40 + 5 + 0.2 + 0.03 = \]

\[40 + 0.8 = \]

\[60 + 7 + 0.08 = \]

4 and 524 thousandths=
56 and 5 hundredths=
1 hundred 12 and 3 tenths=

Convert to **expanded form**.

424 =
51.68 =
6.03 =

Convert to **word form**.

67.2 =
4.341 =
90.039 =
### SIOP® Lesson Plan Template 3

<table>
<thead>
<tr>
<th>Topic:</th>
<th>Dealing with Decimals</th>
<th>Class:</th>
<th>Grade 5</th>
<th>Date:</th>
<th>00/00/00</th>
</tr>
</thead>
</table>

**Content Objectives:**
- Identify the place value and value of a digit.
- Write a decimal in expanded form.
- Write a decimal in (short) word form.
- Write a number in standard form given (short) word form or expanded form.

**Language Objectives:**
- Explain the differentiate between 'place value' and 'value.'
- Read a decimal in word form and write it numerically.
- Orally explain the differences between standard, expanded and (short) word form of a number.

**Key Vocabulary:**
place value, value, digit, number, worth, equation, convert, standard form, expanded form, word form

**Materials (including supplementary and adapted):**
noise maker, ten chart, hundred grid, thousand cube, class worksheet, teacher table and independent worksheets

**Higher Order Questions:**
When might we see a number written in standard form? Expanded form? Word form? Which number form do you feel is the most useful? Why? How would you explain the difference between standard, expanded and word form?

**Time:**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Background</td>
<td>5 min</td>
</tr>
</tbody>
</table>

"Math Memories" Review Worksheet: Students will write decimals given base ten representations and fractions and underline given place values in a number.

Students will self correct their work with a colored pencil as it is reviewed on the board by the teacher (using manipulatives and charts from yesterday's lesson)

<What base ten blocks represent tenths? Hundredths? Thousandths? (rod/chart, grid/square, cube)
What does 'convert' mean? (to change into a different form)
<How do we convert a fraction into a decimal? (1: Write the numerator. 2: The denominator is the last place value)

**Links to Experience:**
Place Value v. Value:
<What is place value? (take student responses and write key descriptors on board)

Place Value: a word that represents the location of a digit in a number (tens, tenths, ones, etc)
TW model identifying a place value in numbers via an underlined digit on board, focusing on how the answer is a word.

Value: a number that represents the worth of a digit in a number (accompany with money hand gesture). Multiply the digit by the place value to find the value. (ie: the value of the digit 2 in 428 is 2x10=20 since the digit 2 is in the tens place)

(Developed by John Seidlitz. Used with permission.) © 2008 Pearson Education, Inc.
### SIOP® Lesson Plan Template 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 min</td>
<td>TW model identifying value in numbers via an underlined digit on the board, focusing on how the answer is a number.</td>
</tr>
<tr>
<td>4 min</td>
<td>SW complete section 1 on their class worksheet with a partner and review after 3 minutes. (time to discuss in L1, opportunity for discourse)</td>
</tr>
<tr>
<td>7 min</td>
<td>Links to Learning: There are many ways to represent a number. We know about base ten blocks, fractions and decimals. Today, we will learn 3 more ways to represent a number.</td>
</tr>
<tr>
<td>7 min</td>
<td>To write expanded form: 1) Write the value of the first digit. 2) Add the value of the next digit. 3) Continue this until you use all of the digits.</td>
</tr>
<tr>
<td>10 min</td>
<td>SW complete section 2 on their class worksheet with a partner and review after 3 minutes.</td>
</tr>
</tbody>
</table>

**Standard Form:** el forma estandar, normal  
Standard form represents a number with normal numbers. We usually represent numbers this way.

**Expanded Form:** el forma expandida  
Expanded form stretches out a number like a noise-maker. (Show noise-maker in 'standard' closed form and in stretched out 'expanded form). The value of each digit is added together in an equation.

Define equation: a number sentence with an equals sign.

"This number represents ______." sentence frame (practice with partner)  

<How can I convert a number from expanded form to standard form? (time to speak in L1 with partner) (Add up the equation)
### SIOP® Lesson Plan Template 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 min</td>
<td>TW model using word bank to say number and write in word form. TW model writing in short word form, and word form for those able to spell number vocabulary. TW model sentence frame &quot;This number represents ____&quot;.</td>
</tr>
<tr>
<td>15 min</td>
<td>TW model, then SW complete section 3 on class worksheet to review conversions between standard, expanded and word form. (time to speak in L1, opportunity for discussion) TW keep sentence frames and examples posted on board for reference, and review after 4 minutes. GROUP ROTATIONS (ELL levels 1/2, ELL levels 3/4, ELL level 5 and mainstream) Teacher Table: On back of class worksheet, TW lead students convert numbers in word form to standard form displaying steps discussed on a whiteboard. TW also help students orally differentiate between place value and value, and between standard, expanded and word form using sentence frames: &quot;____ form is ______, but _______ form is ______.&quot; &quot;The [value] tells us _______ of the digit. It is represented by _____&quot;. Independent Work: SW convert numbers between standard, word, expanded forms and decimals. SW identify the place value and value of underlined digits.</td>
</tr>
<tr>
<td>Function</td>
<td>Situation</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Identify</td>
<td>the place value and value of a digit</td>
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<td></td>
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<tr>
<td>Write</td>
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</tr>
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<td>Write</td>
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<tr>
<td>Write</td>
<td>A number in standard form given (short) word form or expanded form.</td>
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Lesson Two Performance Indicators

- **Lesson Two:**
  - **Content Objectives:**
    - Identify the place value and value of a digit.
    - Write a decimal in expanded form.
    - Write a decimal in (short) word form.
    - Write a number in standard form given (short) word form or expanded form.
  - **Language Objectives:**
    - Explain the differentiate between ‘place value’ and ‘value.’
    - Read a decimal in word form and write it numerically.
    - Orally explain the differences between standard, expanded and (short) word form of a number.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaking: Explain the differentiate between ‘place value’ and ‘value.’</td>
<td>Using math vocabulary, contrast ‘place value’ and ‘value’ of a digit.</td>
<td>Given a math vocabulary word bank, contrast ‘place value’ and ‘value’ of a digit.</td>
<td>Given a math vocabulary word bank, contrast ‘place value’ and ‘value’ of a digit using the sentence frame “The [value] tells us _____ of the digit. It is represented by _____.”</td>
<td>Given the sentence frame “The [value] tells us _____ of the digit. It is represented by _____.”</td>
<td>Repeat sentences that contrast ‘place value’ and ‘value’ of a digit using the sentence frame “The [value] tells us _____ of the digit.”</td>
</tr>
<tr>
<td>Reading/Writing: Read a decimal in word form and write it numerically.</td>
<td>Given a decimal number in word form, write the number in standard form.</td>
<td>Given a decimal number in word form and a word place value chart, write the number in standard form.</td>
<td>Given a decimal number in word form and a word place value chart, numerically write the number in a place value chart.</td>
<td>Given a decimal in word form and a word place value chart, circle the word “and” to identify the decimal's location, underline number words and box place value terms. Write the number in a place value chart.</td>
<td>Given a decimal in word form and a word place value chart, circle the word “and” to identify the decimal's location, underline number words and box place value terms.</td>
</tr>
<tr>
<td>Speaking: Orally explain the differences between standard, expanded and (short) word form of a number.</td>
<td>Describe standard, expanded and (short) word form of a number. Contrast the way that they are written.</td>
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<tr>
<td>Given an example of each to refer to, describe standard, expanded and (short) word form using the sentence frame &quot;_____ form represents a number by <em><strong><strong>.&quot; Contrast the way they are written using the sentence frame &quot;</strong></strong></em> form is _____, but _____ form is _____.&quot;</td>
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<tr>
<td>Repeat sentences contrasting standard, expanded and (short) word form following the sentence frame: &quot;_____ form is _____, but _____ form is _____.&quot;</td>
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<td></td>
</tr>
</tbody>
</table>
Comments on Rachel Ramos' Lesson Plan:

1. Don't forget to share the COs and LOs with students.

2. What is the "buddy review" like? Briefly explain.


4. Nice sheltered explanation of great/greater, less/lesser. You may also have the kids "demonstrate" the symbols < > by making them with their hands. The right hand is always the "greater than" symbol. The left hand is always the "lower than" symbol (that's how I still remember them! 😊)


6. Nice narrative. See my comments on it.

7. Functional/Notional Chart: Depending on what the Buddy Review requires in terms of language, consider adding some expressions to your F/N chart.

8. Nice worksheets!
Lesson Three Modifications

In this lesson, I began with a partner review of what students had been learning for the past couple of days. Students were able to complete this review with a partner to provide an opportunity for interaction. This review was also discussed whole class, reviewing sentence frames and important vocabulary. The lesson itself was framed around the concept of comparing quantities of money, a concept that students are knowledgeable about and interested in. Students participated in this activity hands-on with toy money, and were comparing their ‘salaries’ with those of their classmates. This activity was a realistic link to life.

Throughout the lesson, important vocabulary words were explicitly explained and given a context. For example: the word “compare” was explained not only in mathematical terms, but in general terms (“we can compare how tall, how light, how grumpy...”). The skill of comparing decimals was broken down into three steps, with three main phrases for students to remember. The teacher modeled each variation of comparing fractions, and kept examples of each on the board. Sentence frames were provided and modeled to help students express their learning.

Abstract concepts such as greater than/less than symbols were made meaningful by relating them to a hungry mouth. Lastly, students were given time to practice the content skills and language objectives in small groups, with a partner and independently. Each student rotates through to meet with the teacher in a small group to practice language objectives and clear up any confusion about the content.