

Title: Place Value of Decimals to Hundredths: Diving For Decimals

Brief Overview:

In order to understand decimals, students should have prior knowledge of fractions as specified in NCTM Content Standards. The student will be able to write decimals in tenths and hundredths and relate them to common fractions by using prior knowledge of dollars and cents. Students will make a quick reference place value chart and be able to correctly place a decimal number on the number line. Students will be able to read a number with decimal place value up to hundredths.

NCTM Content Standard/National Science Education Standard:

1. Understand Numbers, ways of representing numbers, relationships among numbers, and number systems.
 - Understand the place-value structure of the base-ten number system and be able to represent and compare whole numbers and decimals;
 - Explore numbers less than 0 by extending the number line and through familiar applications
2. Compute fluently and make reasonable estimates. Develop and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience.

Grade/Level:

Grades 4-5

Duration/Length:

4 days (60 minutes per day).

Student Outcomes:

Students will be able to:

- Read decimal numbers in tenths, hundredths and thousandths.
- Write decimals in tenths, hundredths, and thousands
- Relate whole numbers with decimals to dollars and cents.
- Identify fractional equivalents of decimals.
- Create a place value chart as a quick reference tool.
- Identify ways in which decimals appear in every day life.

Materials and Resources:

- Swimming Story – Day 1 (TR1)
- Place value chart

- SR1 through SR14
- Laminated SR2 – one per student
- TR1 through 7
- Number digit cards (2 sets) 8” x 11” 0-9
- Selection of index cards with one digit whole numbers and two digit decimals.
- Blank index cards
- Dice
- Rope for “Clothesline”
- Clothespins
- Base 10 blocks
- Laminated place value mats
- Game: Is Bigger Better
- Washable Markers
- Kleenex for Erasing

Development/Procedures:

Lesson 1 Decimal Place Value

Pre-assessment –

- Informally record and evaluate the students’ ability to represent money amounts using decimals in place of currency symbols. Tell students you’ll be asking them to write down amounts of money on the index cards they have... Tell them that for now, they will be writing down the amount of money you call out *without* using the dollar sign (\$) or the cents (¢) sign. They will only be using the point/period to separate the dollars from the cents. *Say: Let’s suppose I ask you to write ten cents. You would write this on your index card.”* Hold up an index card with **.10**. Now ask students to write thirty cents on an index card and hold it up when they are finished. Note students’ responses. Repeat with: thirty cents; one dollar and seventy cents; fifty cents.
- Ask students to pick up the card that represents fifty cents. Have them think about another way to say fifty cents. Guide students to the term “half of a dollar.” Ask the students to write “fifty cents, or half of a dollar” as a fraction on the back of the index card. Note students who show one-half as a fraction and ask one of them to volunteer how they knew that fifty cents would be written “1/2” as a fraction.

Launch –

- Tell students that today we’ll be learning about decimals and how we use them. Briefly mention that decimals are another way of expressing fractions. Have a brief discussion about the Olympics and ask the students if they watched any of the swimming events. Talk about Michael Phelps, a swimmer from Maryland, who qualified for the Olympics. Read Day 1 of Danny’s Swimming Decimals. (TRs1&2).

Teacher Facilitation –

- After reading the Day 1, construct a simple chart on large chart paper as seen here.

<u>Event</u>	<u>Michael Phelps</u>	<u>Aaron Peirsol</u>
100-Meter Butterfly		
200-Meter Backstroke		

- Repeat the times Danny knows about as of Day 1 and write the times in the appropriate place on the chart. Ask students to think about ways in which they use decimals. Tell students that decimals will play a big part in the (upcoming) Olympics and invite students to speculate why. Particularly note any reference to the sport of swimming, and why decimals play a big role in this sport. Throughout the lesson, look for ways in which student observations/comments can be related to the concept of scoring at the Olympics events.

Student Application-

- Display tens grid on the overhead. (SR1) Cover up the place value chart while you do the following:
- Display grid divided into ten rectangular sections. Ask students what fraction of the unit each of these sections is worth (i.e. tenths).
- Cover one row with base 10 blocks. Ask the children what fraction of the rectangle has been covered (i.e. $1/10$).
- Explain that $1/10$ can be written in another way. Say: *For example, I have no whole numbers and one tenth. I can write” **0.1***
- Now reveal the place value chart and say: *“The dot in between the 0 and the 1 is called the DECIMAL POINT and we use it to separate the ones, the whole numbers, from the tenths, the decimal number. Can you see a connection between how we separate ones from tenths and the way in which we separate dollars from cents?”*
- Again, write the number **0.1** on the board or overhead and say: *“We always write in the 0 before the decimal point because it reminds us that the whole number is less than one.*
- *We say this number as “one tenth”.*
- Hand out SRs1&2, “There is a Place for Every Number” to the class, making sure they are on side one (tenths grid). Note: This is a two-sided handout to avoid a lot of paper passing. SR1 is on one side, and SR2 is on the other side. Have students use base ten blocks to cover one tenth of the grid. (If base ten blocks are not available, students can color in the block). Direct them to write one-tenth as a decimal on the line provided under the grid and then to write one-tenth as a fraction.
- Display grid on SR2 on the overhead with the ten sections split into ten squares (there are 100 small squares inside the large square). Explain that we can split

tenths up even more. Say: if the sections on the first grid are called tenths, what do you think each of the smaller sections on this grid is worth? (hundredths). Direct students to turn over to SR2.

- Model using blocks to cover in one section of the hundredths grid. Ask students what fraction of the grid has been colored ($1/100$). Explain that $1/100$ can be written another way. i.e. 0.01 (no whole numbers, and one hundredth). Have students turn their paper over to the hundreds grid and color in one section of the grid. Write the number one hundredth as a decimal and as a fraction below the grid.
- **Note that there are no “tenths” so we put a zero to hold the place in the tenths column.**

Ones	“AND” Decimal Point	Tenths	Hundredths
	.	0	1

- **Distribute SR2 “There’s a Place for Every Number” Laminated Grid Sheets.** Say: *“I will be writing a number on the place value chart on the overhead (TR2) and you will write this number the same way on your place value chart. Then, you will show the number by covering spaces with your blocks on the hundredths grid. Finally, you will write the number in the space provided as a decimal and as a fraction. Let’s do the first one together.”*

- Review the following concepts:
- There are ten hundredths in one tenth and one hundred hundredths in one grid.
- Hundredths are written to the right of the tenths column when writing numbers in decimals.

Ones	“AND” Decimal Point	Tenths	Hundredths
	.	1	0

- **Explain to students that .10 is the same as .1 --** Say *“We don’t have to write in the zero but we can do that when we want to compare two numbers”*.
- At this point assess whether or not the students are comfortable with the lesson thus far. Distribute two or three index cards and ask students to write down the decimal as you say it: four tenths; thirty-one hundredths; eighteen hundredths; nine tenths. Students complete one card at a time and hold up the card when finished.

- Introduce using whole numbers with decimals by asking students how they would write the number three and one tenth as a fraction. Demonstrate how to write the number as a decimal on the place value chart.

3 1/10

Ones	“AND” Decimal Point	Tenths	Hundredths
3	.	1	0

- Say, “*Instead of saying ‘three decimal point 1 tenth’, we substitute saying ‘decimal point’ with the word AND.*”
- Practice this concept of reading a decimal number correctly by replacing 3.1 on the place value chart with various examples. (I.e. two and seven tenths; 8 and six tenths, etc). In this teacher directed activity, have students volunteer to read each number.
- Ask students to tell you how they would write the number two and twenty-three hundredths as a fraction. Have them write their answer on an index card and hold it up. *Tell students: “If you think you also know how to write the number as a fraction, write the fraction form underneath the decimal”.* Note number of correct responses and proceed to demonstrate the answer on the place value chart.

Ones	“AND” Decimal Point	Tenths	Hundredths
2	.	2	3

- Repeat with two or three more examples. **Include at least one example of a whole number and decimal with no tenths. Example: four and two hundredths. Make sure students understand that they need to place a zero in the tenths column to hold the place.**

Embedded Assessment

- Assess students’ understanding of each concept through teacher observation and more formally by asking students to write the number on an index card at frequent intervals throughout the lesson. Observe students responses on worksheets and laminated grid activity.

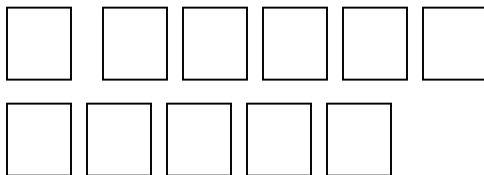
Reteaching/Extension-

- For those who have not completely understood the lesson, distribute base 10 blocks. Ask students to demonstrate their knowledge of decimal place value by arranging the blocks to show the number on the overhead. Alternatively, use centimeter grid paper with rainbow cubes and call out decimal numbers for students to demonstrate on the grid with the cubes.
- For more kinesthetic reteaching activity, play the following game: Place and Pace Yourselves”
- Draw the following place value chart across the chalkboard.

	“AND”		
Ones	Decimal Point	Tenths	Hundredths

- Divide class into two groups. Explain that one group will be the numbers; the other group will be the callers. Designate one person in the numbers group to be a decimal point. (If there are more than 11 students in the numbers group, they will have to take turns being a number).
- Hand out 9" x 11" cards containing a large decimal point and numbers from 0-9, to the numbers group. Give index cards each containing a whole number with two- digit decimals to each person in the callers group.

NUMBERS GROUP MATERIALS:



SAMPLE CALLER’S

NUMBER CARDS



- The callers take turns calling out the number on their card. Give students fifteen seconds (more or less depending on teacher judgment) to arrange themselves under the number line in the correct place. If students can accomplish correct placement in fifteen seconds, numbers groups get a point. If not, callers get a point. (Or if caller reads number incorrectly, numbers group gets a point). Team with most points wins the game.
- Extend the lesson for those who have understood the lesson, by taking them to the next step in development of the concept. Increase place value to thousandths combined with three or four digit whole numbers. Play the game, “Place Yourselves, Pace Yourselves” with a place value chart that extends into the thousandths and three or four digit whole numbers. Index cards would contain numbers accordingly (i.e. five hundred sixty-two AND two hundred twenty seven thousandths).

Lesson 2 Place Value - Writing Decimal Numbers in Word and Expanded Form

Preassessment-

- Students review decimal place value with SR3, “ Preassessment Activity”. Make overhead and show only the example at the top of the page. Ask as student to read the number for you. Say, “*This is how we would show the number using our grids. The first grid is completely colored in. What number does this stand for?*”(the number one). “*The second grid has rows of tenths shaded in. Why?* (Because it shows five tenths). “*Who can tell me how many sections are colored in on the hundredths grid? What does this grid show?* (fifty-six hundredths). “*Notice that I wrote 1.56 as a decimal then I wrote it as a mixed number in fraction form*”.
- Hand out the worksheet SR3 Preassessment to each student. Show first problem on the overhead and say: “*We’ll do this first one together. Who would like to name a number for our example*”? Do this first one together as a group.
- Ask a volunteer to name a number for the second problem. **Make sure the number has a 2 representing the whole number since there are two whole blocks shown.** Give students enough time to complete the problem. Go over the answer together.
- Ask another volunteer to name the third number for the worksheet and **make sure it has a 3 for the whole number.** After students have enough time, review the answer.

Launch –

- Read Day 2 (TR1) of the short story, Danny’s Swimming Decimals. Pause when the time is mentioned for each event and have a student record the time in the appropriate column before continuing with the day’s story. After reading, review with the class the information obtained thus far regarding the swimmer’s times.

EX:	<u>Mike Phelps:</u>	<u>Aaron Peirsol</u>
100 meter Butterfly	55.11	
200 meter Backstroke:	1.57	1.61

- *Say: Tomorrow we’ll find out whether Danny wins his bet. We’ll be looking at putting the decimals in order to see who has the best time. Remember in swimming, the person who finishes with the least amount of time, wins.*

Embedded Assessment

- Ongoing as students volunteer answers, complete laminated sheet in pairs, and in completion of homework assignment, Form is Important.

Reteaching/Extension

- Extend time working in pairs with the laminated mat. For enrichment, extend lesson into the thousandths with or without mat.

Lesson 3 Comparing and Ordering Decimals

Pre-Assessment

- Display the chart from the previous day containing the swim times for Mike Phelps and Aaron Peirsol.

	<u>Mike Phelps:</u>	<u>Aaron Peirsol</u>
100 meter Butterfly	55.11	
200 meter Backstroke:	1.57	1.61

- Say: *“So far this is what we know about Mike Phelps and Aaron Peirsol’s time for the try-outs. What is your prediction about whether or not Danny will have to do his sister’s chores for a week? Write your answer in your journal and explain how you got your answer.*
- Walk around and observe student responses as they are writing in their journals. After 10 minutes, (longer per teacher discretion) ask students to share answers.

Launch

- Say: *“How many think that Danny will find out today if Mike Phelps’ times were low enough to beat his opponent in two events? How do you think Danny will obtain this information?”* (Allow students time to speculate). Finish reading Day 3 of the short story, Danny’s Swimming Decimals. (TR1). **Stop when the time is mentioned for each event and have a student record the time in the appropriate column.** At the end of the story, ask students how they would know who won?

Teacher Facilitation

- Show overhead (SR 7) “Dare to Compare”. Ask students how they would compare 35 to 67. Which is less, which is more? How would they prove this? Guide students to focus on the digit occupying the place value. (Three tens are less than six tens, so thirty is less than sixty).

Student Application

- Distribute a “Dare to Compare” worksheet (SR 7) to each student. Write the numbers 1.35 and 1.23 at the top of the page for student reference. Say: “*We compare decimal numbers the same way we compare whole numbers. We look at the number in each place value, starting with the greater place value first. “We know both numbers have one whole so we move to the right and look at the tenths place. Which is more, tenths or hundredths?”* (tenths).
- Write these two numbers on the overhead: 1.35 **1.23**
- Say, “*The first step is to line up the numbers we are comparing, making sure the numbers are lined up so the decimals are in a straight row. We look at the whole numbers first and in this example they are both the same. Then we go to the next highest place value.*” Model writing on the Dare to Compare chart and ask students to fill in the chart along with you:

Tens	Ones	•	Tenths	Hundredths
	1	•	3	5
	1	•	2	3

- “*We look at the tenths place to compare the value of the numbers.*” **Have students circle the number in the tenths column that is greater.** *Since two tenths is less than three tenths, 1.23 is less than 1.35.* Point out the place underneath the chart to write in the equation:

$$1.23 < 1.35$$

- Say: “*Let’s look at our chart again and see how we’ll know who won the swimming events.*”
- Place chart paper with swimmer’s recorded times so that its visible and fill in the next two spaces on the Dare to Compare chart with the two times for the Backstroke.
Follow the same format and procedure using the next two spaces on the Dare to Compare Chart for comparing the times for the Backstroke. Make sure students enter the equation:

$$1.59 < 1.61$$

on the equation line provided.

- Say: “*We’re going to compare the times for the Butterfly and now we have a chance to compare numbers using the hundredths place. Why is that??* (Because the tens, ones and tenths column all have the same number so we have to move to the right to compare the numbers in the hundredths column.) After circling the higher number in the hundredths place, concluding that 51.11 is a lower time than 51.15, have students write this on the second equation line.

$$51.11 < 51.15.$$

- Say: “So the question is, will Danny have to do his sister’s chores for a week or not?” (Since Michael Phelps scored lower times in two events, Danny won the bet).
- Informally assess student’s comprehension and if ready, move on to comparing three decimal numbers. Say: “Now we’ll compare three decimal numbers. Two days later, our swimmers Mike Phelps and Aaron Peirsol compete in the 200 meter Backstroke against a third opponent, Ian Crocker. Write these times on the overhead or chalkboard:

Aaron Peirsol 1.59
 Mike Phelps 1.60
 Ian Cocker 1.58

- Model lining up the numbers on the Dare to Compare chart on the bottom of the page. Say: “Instead of using an equation, we’re going to write the numbers from smallest to largest. Guide students through this step so the chart looks like this:

Tens	Ones	•	Tenths	Hundredths
	1	•	5	9
	1	•	6	0
	1	•	5	8

- “We can see which number is the largest from looking at the tenths place. What is that number? (1.60)
 “We will have to look at the hundredths column to see which of the two remaining numbers is the largest number. What is that number?” (1.59) “What number is the least? (1.58) **Direct students to write the results from smallest to largest under the chart.**

1.58 1.59 1.60
 smallest middle largest

- Have students do another example of comparing three decimal numbers. Ask students to roll the dice to produce three numbers to record on the chart. Give students time to work on their own reminding them to order the numbers from smallest to largest on the bottom of the page. Walk around the room to monitor progress. Review answers together.
- Introduce the game, (SR 8-SR 11) “Is Bigger Better?” Teacher Prep for game: Before the lesson the teacher should have one set of cards and one set of directions for every three students. The cards need to be cut apart. The cards and directions can be laminated for future use. Students should be in groups of three

to play the game. Model the game for a few rounds with two other students. The person with the lowest decimal should state how they know their decimal is the lowest. Then, the person with the lowest decimal keeps all three cards. The object of the game is to win the most rounds and have the most cards. This game can be put in a center for students to play during their free time.

Reteaching/Extension

- Clothesline Activity – Pass out index cards and tell students they can write any decimal on the card. It should not have a whole number. They should write the decimal in one of three ways: word form, expanded form and standard form. Have one student hold one end of a “clothesline” (any type of thin rope) while you hold the other. You represent zero and the student represents the number 1. Have the class come to a consensus as to where the middle is and what decimal number would be placed there. Clip this decimal number (.5) on the middle of the clothesline. One by one have students come up and place their decimal number in the appropriate place on the line.

This activity can be adapted as an enrichment activity by including whole numbers with decimals and/or extending decimal placement into the thousandths.

Lesson 4 – Summative Assessment

- Before giving the summative assessment, a quick review of the past three lessons is important. Using the Clothesline activity in Lesson 3’s *Reteaching/Extension* exercise, modify the directions so that students can choose to write the decimal in one of three ways: word form, expanded form or standard form.
- The summative assessment (SR 12-14) consists of 10 multiple-choice questions and one brief constructed response. The assessment will require the students to demonstrate the knowledge of decimals that they have acquired from the past three lessons. Some students might require the use of manipulatives (base 10 blocks) to complete this assessment.

Answer Key (TR 3-5)

Authors:

Judy Moody
Crofton Elementary School
Anne Arundel County Public Schools

Mary Piffath
Howard County Public Schools

Danny's Swimming Decimals

Day One

Danny was so excited about the upcoming Olympic Games. He had been following Michael Phelps, the champion swimmer from Maryland, every day to see how he was performing in the Olympic trials. Danny had to get up early for swim practice and when his radio alarm went off he heard the sports broadcaster saying, "And Michael Phelps from Maryland with a time of 55.11 in the Men's 100 Meter Butterfly has . . ." "Quiet!" yelled Josh, Danny's older brother as he suddenly turned off the radio. "I hate noise in the morning."

"Hey, I didn't hear the rest of how Mike Phelps did!" Danny complained.

"How could you not hear it? The radio was blaring! Phelps did 55.11 in the Butterfly." Josh put the pillow over his head and went back to sleep.

"Yeah, but did he win?" Danny was about to turn the radio back on when he heard the doorbell ring. His friend Andrew's mom was driving the boys to swim practice so Danny grabbed his swim bag and ran out the door. "No problem," he thought as he ran to the car, "Andrew always watches the sports news -- - he'll know."

As soon as Danny got into the car, he asked Andrew if he knew how Mike Phelps did in the Olympic trials for Butterfly compared to his competitor, Aaron Peirsol.

"All I know is Aaron Peirsol had a time of 1.61 for Backstroke. Don't know how he did in the fly." Andrew said. "My dad shut the TV off because it was time to go to practice."

Danny looked out the window anxiously. He had bet his sister, Amy, a week's worth of chores if Michael Phelps did not beat Aaron Peirsol in at least two events in the Olympic Trials. As the car pulled into the swimming pool parking lot, Danny spotted his coach, Kristen. "She'll know," he thought. "She follows every swimmer in the United States."

Day Two

"Hey, Kristen!" Danny called. "Do you know if Mike Phelps beat Aaron Peirsol at the Olympic trials?"

"Olympic trials for which event?" Kristen asked impatiently. She was always very busy and rushed in the morning, trying to get the pool set up for practice.

"Well I know that Mike Phelps did the Butterfly in 55.11. Did he beat Aaron Peirsol?"

“Hmmm. “Kristen thought. “I’ve been really busy lately but I read in the paper this morning that Mike Phelps finished Backstroke in 1.57. Aaron finished his Butterfly in...”

The shrill whistle of the lifeguard caused Kristen to stop in mid-sentence and dash off just as Danny’s sister Amy approached him. “I am so tired,” she yawned. “The sleepover at Emily’s was fun but I sure didn’t feel like getting up for swim practice this morning. Good thing you’re going to be doing my chores for a week. I’ll be much too tired.”

Day Three

Danny tried as hard as he could to swim his best at swim practice that morning. But the thought of having to do his chores plus his sister’s for a week was slowing him down. “What’s the problem?” Andrew asked as he swam up to Danny. “You’re swimming so slow today!”

“I just wish I knew once and for all how Mike Phelps did at the trials.” Danny said. “All I know is that his time for Backstroke was 1.57 and Aaron Peirsol’s was 1.61. But who won?”

“Well that’s easy!” Andrew started to explain. “We learned in fourth grade how to compare decimals, like times for swimmers. All you do is...” The whistle blew again and Jennifer, the assistant coach shouted, “Swim, boys, swim! You’re here to practice!”

As Andrew took off down the lap lane, Coach Kristen called to Danny from the side of the pool, “Hey, Kyle told me that Aaron Peirsol did his Butterfly in 51.15. He just looked it up on the Internet.”

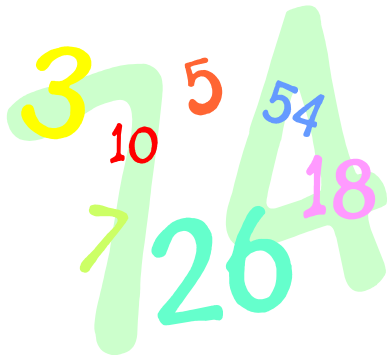
Danny, remembering that Mike Phelps did his Butterfly in 55.11, was getting frustrated. “Yeah, but WHO WON?” he practically shouted.

Kristen looked at him as if he was crazy. “I just told you,” she said and walked away.

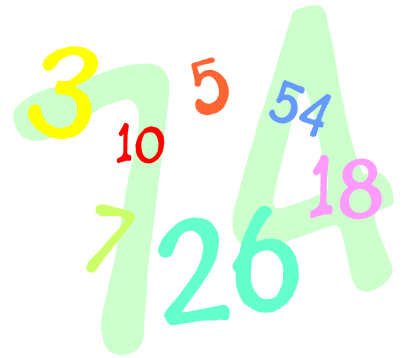
Help Danny figure out if he won or lost the bet.


There's a Place for Every Number

SR 1



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Ones		Tenths	Hundredths

_____ decimal

_____ fraction

_____ decimal

_____ fraction

_____ decimal

_____ fraction

_____ decimal

_____ fraction

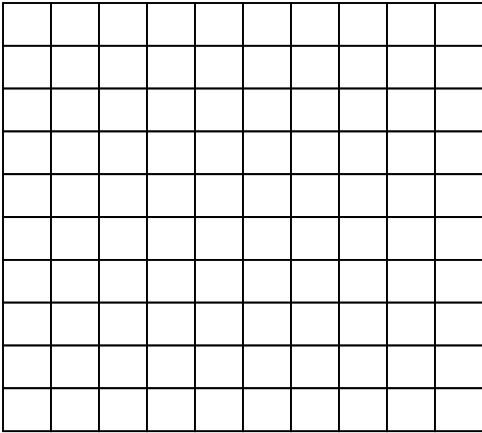
_____ decimal


_____ fraction

_____ decimal

_____ fraction

There's a Place for Every Number



Ones		Tenths	Hundredths

_____ decimal

_____ fraction

_____ decimal

_____ fraction

_____ decimal

_____ fraction

_____ decimal


_____ fraction

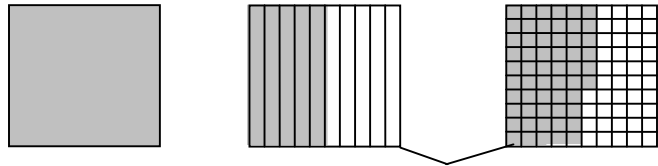
_____ decimal

_____ fraction

_____ decimal

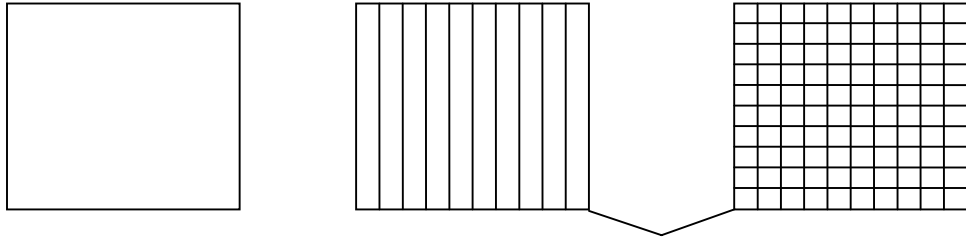
_____ fraction

Ones		Tenths	Hundredths



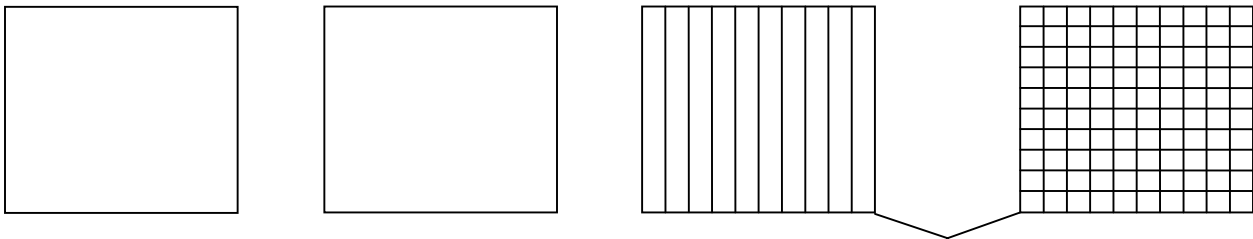
1.56 decimal

$1 \frac{56}{100}$ mixed number



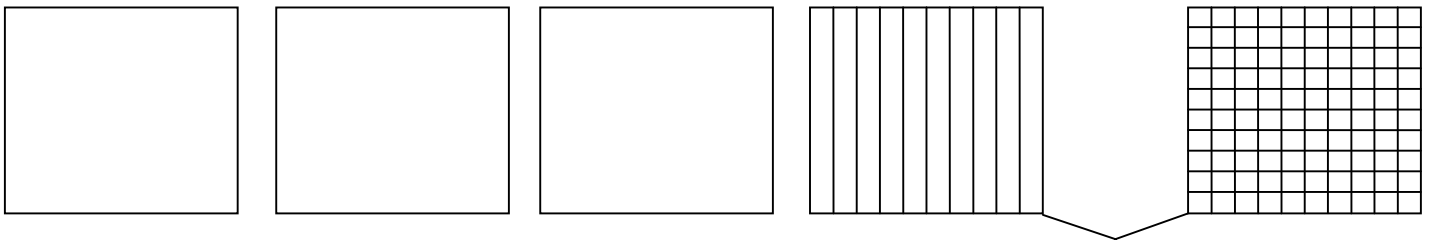
decimal

mixed number



decimal


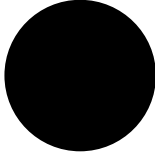


mixed number



decimal

mixed number

Decimal Place Value Chart

<i>Ones</i> 		<i>Tenths</i> 	<i>Hundredths</i> 

Decimal with Digit Cards

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Expanded Form

	
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Digit Cards

1	1	2	2
3	3	4	4
5	5	6	6
7	7	8	8
9	9	0	0
0	0	0	0
0	0	0	●

Form is Important



Directions: Write the decimal in standard and expanded form.

one and fifteen hundredths _____

three and seventy-four hundredths _____

eight and six hundredths _____

six and eighty hundredths _____

four and thirty-six hundredths _____

seven and forty-seven hundredths _____

five and ninety-one hundredths _____

two and one hundredth _____

Directions: Write the decimal in word form.

9.66 _____

4.49 _____

6.81 _____

3.07 _____

5.98 _____

7.55 _____

1.08 _____

2.26 _____

Form is Important



Directions: Write the decimal in standard and expanded form.

one and fifteen hundredths 1.15 1 + 0.10 + 0.05 or 1 + 0.1 + 0.05

three and seventy-four hundredths 3.74 3 + 0.70 + 0.04 or 3 + 0.7 + 0.04

eight and six hundredths 8.06 8 + 0.06

six and eighty hundredths 6.80 6 + 0.80

four and thirty-six hundredths 4.36 4 + 0.30 + 0.06 or 4 + 0.3 + 0.06

seven and forty-seven hundredths 7.47 7 + 0.40 + 0.07 or 7 + 0.4 + 0.07

five and ninety-one hundredths 5.91 5 + 0.90 + 0.01 or 5 + 0.9 + 0.01

two and one hundredth 2.01 2 + 0.01

Directions: Write the decimal in word form.

9.66 nine and sixty-six hundredths

4.49 four and forty-nine hundredths

6.81 six and eighty-one hundredths

3.07 three and seven hundredths

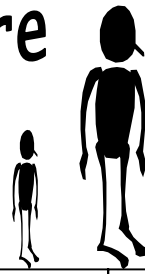
5.98 five and ninety-eight hundredths

7.55 seven and fifty-five hundredths

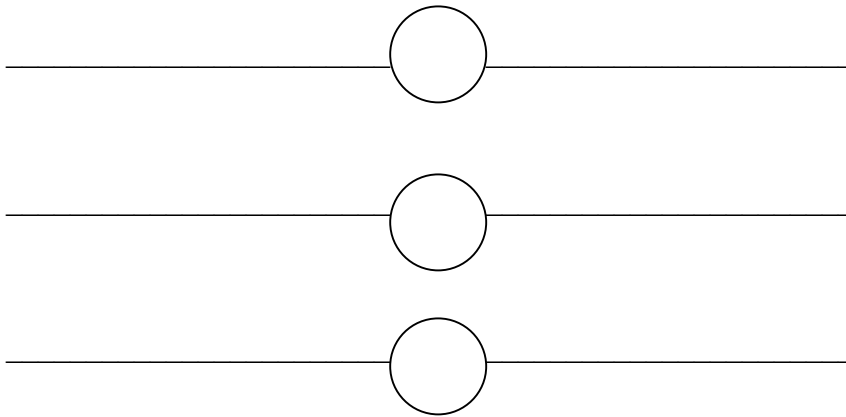
1.08 one and eight hundredths


2.26 two and twenty-six hundredths

Dare to Compare



Tens	Ones		Tenths	Hundredths



Tens	Ones		Tenths	Hundredths

_____ smallest

_____ middle

_____ largest

_____ smallest

_____ middle

_____ largest



Directions: *For three players.* Mix up the cards. Place them face down on your desk. Each player draws one card. The player with the smallest decimal tells how he/she knows his/her decimal is the smallest. The smallest decimal wins the round and keeps all three cards. Draw cards until there are no cards left. Each player counts his or her total cards. The player with the most cards wins.



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5.03	0.50	1.65
0.30	23.37	0.06
0.19	0.28	7.99
0.89	0.11	0.01
0.41	0.6	0.9
0.54	0.68	0.06
0.70	3.91	0.7

0.75	0.57	0.05
0.76	0.39	0.04
0.81	0.95	0.27
0.44	0.24	0.67
0.71	0.92	0.38
0.88	0.24	0.77
1.55	0.15	0.14

13.56	75.21	15.99
65.33	42.81	9.79
18.57	0.43	1.02
1.90	5.21	22.61
82.38	4.11	0.61
15.65	54.82	7.23
97.97	67.41	8.09

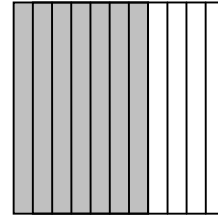
Name _____

Date _____

Summative Assessment

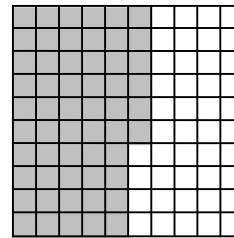
1. The shaded grid on the right represents what decimal?

- 0.5
- 0.06
- 0.07
- 0.6



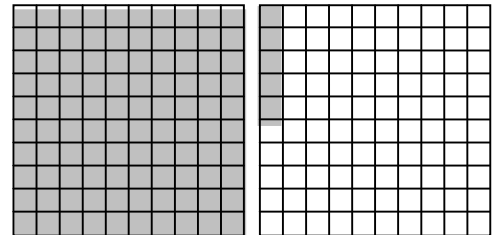
2. The shaded grid on the right represents what decimal?

- A. 0.36
- B. 0.44
- C. 0.35
- D. 0.56



3. The shaded grids on the right represent what decimal?

- A. 1.50
- B. 1.05
- C. 1.55
- D. 1.65



4. Which of the following shows 0.85 in correct word form?

- A. eighty-five hundredths
- B. eight and five hundredths
- C. eight and five hundreds
- D. eighty-five hundreds

5. Which of the following shows 3.64 in correct word form?

- three hundred sixty-four
- thirty-six and four hundredths
- three and sixty-four hundredths
- three hundred sixty-four hundredths

6. Which of the following statements is true?

- A. $0.3 > 0.30$
- B. $0.65 < 0.95$
- C. $0.23 > 0.32$
- D. $0.19 < 0.09$

7. Which of the following statements is true?

- A. $0.78 > 0.79$
- B. $0.55 > 0.51$
- C. $0.22 < 0.2$
- D. $0.83 < 0.86$

8. Which of the following decimals are ordered from least to greatest?

- A. 2.65, 2.85, 2.83
- B. 9.32, 9.23, 9.13
- C. 3.43, 3.67, 3.85
- D. 4.72, 4.98, 4.96

9. Which of the following decimals are ordered from least to greatest?

- A. 0.30, 0.03, 0.04
- B. 0.04, 0.06, 0.40
- C. 0.20, 0.03, 0.40
- D. 0.64, 0.68, 0.06

10. Which of the following decimals are ordered from least to greatest?

- A. 1.64, 1.65, 1.69
- B. 3.37, 2.38, 3.32
- C. 4.47, 4.42, 4.43
- D. 0.96, 0.94, 0.97

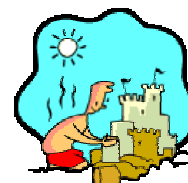
Swim for the Gold

The athletes competing in the mens'200 meter backstroke at the Olympics scored record times. The judges were going to award the gold, silver and bronze medals to the top three finishers. Pick out the three lowest scores and assign the medals. Remember the lowest score wins.

Marvelous Melvin
57.43



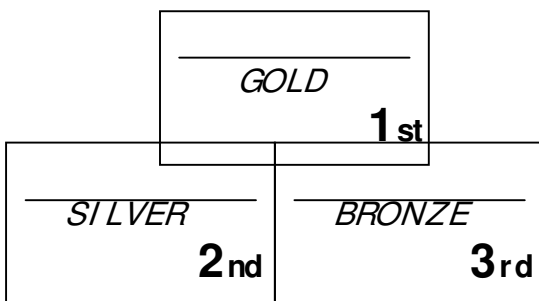
Sensational Sam
57.65



Dynamic Dan
57.43



Fantastic Fred
57.67



Show the winning times in decimals.

Use what you know about ordering and comparing decimals to explain why your answer is correct. You may use words, pictures and/or diagrams to explain your answer.

Name _____

Date _____

Summative Assessment – ANSWER KEY

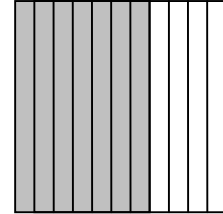
1. The shaded grid represents what decimal?

A. 0.06

0.5

0.07

0.6

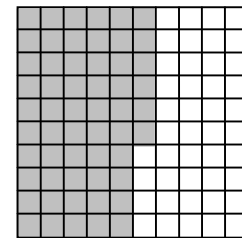


2. The shaded grid represents what decimal?

A. 0.36

B. 0.44

C. 0.35

 D. 0.56

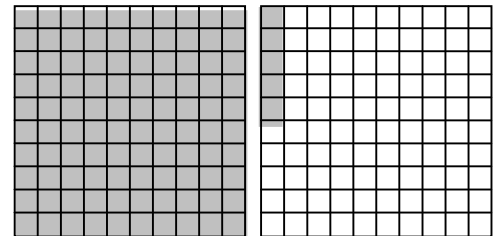
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C. 1.55

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C. Eight and five hundredths

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A. *three hundred sixty-four*

thirty-six and four hundredths

three and sixty-four hundredths

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Marvelous Melvin
57.43



Sensational Sam
57.65



Dynamic Dan
57.44



Fantastic Fred
57.67



Melvin - 57.43 GOLD 1st	
Dan - 57.44 SILVER 2nd	Sam - 57.65 BRONZE 3rd

Show the winning times in decimals.

Use what you know about ordering and comparing decimals to explain why your answer is correct. You may use words, pictures and/or diagrams to explain your answer.

The order of the scores from least to greatest was: 57.43, 57.44, and 57.65. Melvin won by one hundredth over Dan. All three had the same whole number of 57, but the decimal amounts of their scores were different. Dan had almost two less tenths than Sam. Their scores were 0.21 apart. Fred was only 0.02 behind Sam. It was amazing that Melvin won by 0.01!

