

Title: Go “One-on-One” With Decimals

Brief Overview:

In order to understand decimals, students should have prior knowledge of fractions as specified in NCTM Content Standards. This unit uses a basketball theme to introduce students to the place value of decimals through thousandths and teaches them to compare their relative size.

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 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:

3-4 days (60 minutes per day), 1 day will be used for assessment.

Student Outcomes:

Students will:

- Identify the relationship between common fractions and decimals.
- State the value of each digit in a given decimal through thousandths.
- Read and write decimal numbers through thousandths.
- Estimate the value of a decimal as being close to zero, one-half, or one.
- Compare (using $>$, $<$, $=$) and order decimals through thousandths and locate their position on a number line.

Materials and Resources:

Lesson 1-

- Calculators (1 per student)
- Trashcan
- Scrap paper balls
- Transparency of Teacher Resource Sheet 1, “Trashcan Hoops”
- Masking tape
- Overhead projector and screen

- Overhead base ten blocks
- Base ten blocks (1 flat, 10 longs, and 10 units per student)
- Overhead markers
- Student Resource Sheet 2, “0-9 Spinner” (1 per student)
- Paperclips (1 per student)
- Student Resource Sheet 1, “Spin on Decimals” (1 per student)
- Teacher Resource Sheet 2, “Spin on Decimals Observation Checklist”
- Teacher Facilitation and Student Application adapted from *The Super Source Base Ten Blocks-Grades 3-4: ETA/Cuisenaire.*

Lesson 2-

- 3x5 index cards (2 per student)
- Markers (1 per student)
- Scissors (1 pair per student)
- Masking tape
- Teacher Resource Sheet 3, “What’s My Number/Starting Line Up”
- Overhead projector and screen
- Transparency of Teacher Resource Sheet 4, “Player’s Stats”
- Overhead markers
- Chalk
- 3x3 Post-It notes (1 per student)
- Teacher Resource Sheet 5, “Backboard Benchmark Near 0”
- Teacher Resource Sheet 6, “Backboard Benchmark Near 1”
- Student Resource Sheet 3, “Starting Line Up” (1 per student)
- Pencils (1 per student)

Lesson 3-

- Student Resource Sheet 5, “Day 3 Pre-Assessment” (1 per student)
- Pencils (1 per student)
- Student Resource Sheet 6, “NBA Wizards vs. Spurs Stats” (1 per student)
- 3x5 index cards (1 per pair of students)
- Teacher Resource Sheet 7, “Wizards vs. Spurs Observation Checklist”

Summative Assessment-

- Student Resource 7, “Summative Assessment” (1 copy per student)
- Pencil (1 per student)
- Teacher Resource Sheet 8, “Summative Assessment Answer Key”

Development/Procedures:

Lesson 1

Pre-Assessment –

- Informally record and evaluate students' ability to represent money amounts using decimals. Tell students that you will be asking them to show money amounts on a calculator.
- Distribute a calculator to each student. Say: *"I will tell you an amount of money. I want you to input that amount on your calculator. I will be walking around to see how you are doing as you work."*
- Circulate and observe as students input the following amounts: \$4.30; \$2.15; \$8.56; \$7.01; \$6.95
- Ask the class the following questions: *How did you know how to input \$6.95? What does the "dot" mean?*

Launch – Trashcan Hoops

- Tell students that today they will be learning about decimals and how to use them. Mention that decimals are just another way of recording fractions.
- Ask, *"Who likes to play basketball?"* Explain that they will be using basketball to learn about fractions.
- Ask for a student volunteer. Tell the student to stand on a tapeline placed 8 feet away from a trashcan. Have the student take 10 shots at the trashcan baskets. Use the transparency of Teacher Resource Sheet 1, "Trashcan Hoops" on an overhead projector to record the results. Explain how the shots made are recorded as a decimal. Repeat procedure with three more students.
- Ask, *"Who made the most shots? What does that decimal look like?"*
Who made the least shots? What does that decimal look like?"

Teacher Facilitation –

- Distribute base ten blocks to students.
- Display an overhead a hundred flat base ten block and have students do the same.
- Tell students to cover their flat with longs as you do the same on the overhead. Ask, *"How many longs does it take to completely cover the flat?"*(10)
- Ask, *"If a flat has the value of one whole, then what will the value of each long be?"*(1/10)
- Write 0.1 on the overhead and explain that this is the decimal form of the fraction 1/10.
- Then write 0.3. Ask students to use their base ten blocks to show three tenths.
- Display a base ten unit on the overhead and ask, *"How many units would be needed to cover 1 flat."* (100)
- Ask, *"If a flat has the value of one whole, what will the value of each unit be?"*(1/100)
- Write 0.01 on the overhead and explain that this is the decimal form of the fraction 1/100.

- Now write 0.14. Challenge students to use their blocks to show 14 hundredths.
Establish that there are two ways to do this- with 1 long and 4 units or with 14 units.
- Have students use their blocks to make a few more examples with decimals to the hundredths.

Student Application – Spin On Decimals

- Using a transparency of Student Resource Sheet 1, “Spin on Decimals” and a transparency of Student Resource Sheet 2, “0-9 Spinner”, model playing the game with the students. For example: *“I’ve spun an 8, so I will take 8 longs. I’m going to record 0.8 in the tenths column on my recording sheet and color in 8 tenths on my illustration. I’ve spun a 2, so I will take 2 units. I’m going to write 0.02 in the hundredths column on my recording sheet and color in 2 hundredths on my illustration. When I combine my tenths and hundredths numbers I get the decimal 0.82.* Continue in this manner demonstrating and asking questions until your students are comfortable playing the game on their own.
- Give each student a flat.
- Have students spin the 0-9 spinner using a paperclip spinner and take longs to match the number spun. Have students record the value of the longs as a number of tenths on Student Resource Sheet 1, “Spin On Decimals Data Record” in the tenths column.
- Have students spin again and take units for this spin. Have students record their value as hundredths in the hundredths column on the “Spin On Decimals Data Record”.
- Have students push the blocks together and find the sum they represent. Have the students write the sum in decimal form on the worksheet.
- Repeat 4 more times.

Embedded Assessment –

- While students are playing the game observe and record behaviors on Teacher Resource Sheet 2, “Teacher Observation Checklist: Spin On Decimals”. Share with students that you will assess their performance as they play the game. Discuss with students the observable behaviors you will be looking for and establish an evaluation method to assess the criteria. For example,
 - 0- Student’s understanding is completely incorrect
 - 1- Student shows minimal or partial understanding
 - 2- Student shows complete understanding

Reteaching-

- If a student doesn't understand the concept, play a few rounds of the game with them in a small group while others play independently. Continuously question students as they construct their own meaning for decimals. You may also choose to pair students who are having difficulty with a student with stronger skills.

Extension –

- Have students select 4 of the decimals that they spun during the game. Using a flat as a reference, have them order the 4 decimals from largest to smallest. The decimal closest in size to the flat will be ranked as 1, which is the largest decimal. The decimal smallest in size compared to the flat will be ranked as 4, which is the smallest decimal.

Lesson 2

Advanced Preparation –

- Before students arrive, create a class set of index cards with different decimals to the hundredths written in large numbers with a marker. Use for What's My Number Game during the pre-assessment.
- Cut apart one set of Student Resource Sheet 4, "Starting Line Up Decimal Digit Cards" for use during the student application.

Pre-assessment – *What's My Number*

- As students arrive tape an index card to each student's back without letting him or her see the number.
- Direct the students to draw on a separate index card a decimal point followed by 2 blanks to write his or her number.
- Have the students walk around and ask classmates questions about their decimal that can be answered with a yes or no answer. He/she should use these clues to try and determine what their decimal is and record their guess on their blank index card.
- As students work, the teacher should circulate using Teacher Resource Sheet 3, "What's My Number/Starting Line Up" to record observations and ask questions to assess student's understanding.

Launch –

- Ask, "*Who do you think is the best player in the NBA?*" Elicit responses from students. Who do you think is better between Allen Iverson, LeBron James and Shaquille O'Neal? Elicit responses from students.
- Say, "*We are going to look at real data on these three players to help us better understand decimals.*" Display a transparency of Teacher Resource Sheet 4, "Player's Stats."
"How do you think that the people that keep the NBA statistics come up with these numbers?" (They divide the number of shots that the

player attempts by the number of shots they actually made; just like we did yesterday in our trashcan hoops game.)

- Ask, “*Can anyone tell me anything they notice about the statistics?*” Elicit responses from students. Be sure and have them explain how they made that observation.
- Say, “*So far we have only talked about decimals with 2 places beyond the decimal.*
What do you notice about these decimals?”(They have three places beyond the decimal point)
“*Why do you think they did that?*”
“*If we compare Allen Iverson field goal average to LeBron James’ and only look at the decimal to the tenths place what would happen?* (They would both have 0.4)
“*If we continue to look at those same statistics and continue out to the hundredths place what happens?* (We have 0.42 and 0.47)
“*If we keep looking at that third number beyond the decimal point, which is called the thousandths place, then what 2 decimals are we comparing?* (0.424 and 0.472)
“*So, how do you think extending the decimal out to the thousandths place helps us?* (It gives us more detail and makes the number more accurate).
- If available, illustrate the scenario above using overhead decimal squares so that students have a visual representation of the relative size of the tenths, hundredths and thousandths.
- Continue in this manner comparing other averages to the thousandths place.
- Ask probing questions such as, “*Who has a better field goal average? How do you know? Who has a better three point shot average? How do you know? Who has a better free throw average? How do you know?*”

Teacher Facilitation –

- Write 0.649 on the chalkboard or overhead projector. Say, “*We know that decimals are composed of digits and one decimal point. Each digit in relation to the decimal point has a particular value. What is the value of 6 in 0.649? What is the value of 4? What is the value of 9? As with all numbers, decimals can be placed on a number line. We can do this to illustrate how close they are to either 0 or 1.*”
- Say, “*Think about what we know so far about decimals. What would be an example of a digit that a decimal might have in the tenths place that would make it fall very close to 1 on a number line? (List students’ responses.) What would be an example of a digit that a decimal might have in the tenths place that would make it fall in the middle of a number line between 0 and 1? (List students’ responses.) What would be an example of a digit that a decimal might have in the*”

tenths place that would make it fall very close to 0 on the number line?
(List students' responses.)

- Write 0.751 and 0.708 on the board. Ask, “What if I have two decimals that have the same digit in the tenths place how do I know which one goes where on the number line?”
- Write 0.328 and 0.323 on the board. Ask, “If I have two decimals that have the same digit in the tenths and the hundredths place, how do I know where the numbers are on the number line?”
- Draw a line on the chalkboard that is at least 6 feet long (If you do not have a chalkboard long enough, you may use a tape line on the wall or the floor). Place Teacher Resource Sheet 5, “Backboard Benchmark Near 0”, on the far left end of the line. Place Teacher Resource Sheet 6, “Backboard Benchmark Near 1”, on the far right end of the line.
- Distribute one 3”X 3” Post-It note and a marker to each student. Instruct students to write a decimal to the thousandths on their post-it using clearly visible digits. Challenge students to try to think of a decimal that no one else will think of and to not let any one else see their decimal.
- Have students trade their post-it with another student.
- Tell students that they are going to use the number line on the board to estimate the value of the decimal on their post-its.
- Have 2-3 students at a time come up and place their decimal on the number line in relation to being near 0 or near 1. Have each student explain why he or she placed their decimal where they did.
- Use the sign language symbols for agree (making an interlocked Venn diagram with the index finger and thumb of both hands) and disagree (same as agree, only pulled apart) to have all students respond to the placement of each decimal.

Student Application – Starting Line Up game

- Draw a copy of the “Starting Line Up Grid” from Student Resource Sheet 3, “Starting Line Up Grid and Data Table” on the board. Using your precut “Starting Line Up Decimal Digit Cards” (student Resource Sheet 4) select 5 random decimals.
- Explain to students that the game is played by looking at the cards 1 at a time and estimating where it should go on the grid in relationship to 0 and 1. Tell students that once they place a digit card on the grid they may not change its position, so they must think very carefully about each decimal and its relationship to 0 and 1 before they place it. Play one sample round with students having them help you decide on each decimal's placement on the grid. Be sure to have them explain why they think each decimal should go where they suggest on the grid.
- Demonstrate how the decimals are recorded on the data table. If decimals are all placed correctly in at least to greatest sequence, have students place a star beside that row on their data table. If any

decimals are out of order, discuss with students how and why the error occurred.

- Distribute Student Resource Sheets 3 and 4, “Starting Line Up Decimal Digit Cards” and “Grid and Data Table” to each student. Have students cut the Decimal Digit Cards apart.
- Allow time for students to play the game and record their results.

Embedded Assessment –

- While students are playing the game observe and record behaviors on Teacher Resource Sheet 3, “What’s My Number/Starting Line Up”. Share with students that you will assess their performance as they play the game. Discuss with students the observable behaviors you will be looking for and establish an evaluation method to assess the criteria. For example,
 - 0- Student’s understanding is completely incorrect
 - 1- Student shows minimal or partial understanding
 - 2- Student shows complete understanding
- Collect each student’s completed copy of Student Resource Sheet 3, “Starting Line Up Grid and Data Table.” Analyze for understanding and/or error patterns.

Reteaching –

- If a student doesn’t understand the concept, play a few rounds of the game with them in a small group while others play independently. Continuously question students as they construct their own meaning for decimals. You may also choose to pair students who are having difficulty with a student with stronger skills.

Extension –

- Early finishers can visit the following website:
www.321know.com/dec
They should click on the comparing decimals link and follow the directions given on the website.

Lesson 3

Preassessment –

- Distribute Student Resource Sheet 5, “Day 3 Pre-Assessment” to each student. Give students approximately 10 minutes to respond to the BCR.
- Have students glue the BCR into their math journal.

Launch –

- After students have had an opportunity to complete the BCR preassessment, ask for a volunteer to share the answer to Step A.

Invite others to share their responses to Step B. Encourage discussion about responses shared for Step B.

Teacher Facilitation –

- Distribute a copy of Student Resource Sheet 6, “NBA Wizards vs. Spurs Stats” to each student.
- Ask, “*Can anyone tell me anything they notice about the statistics?*” Elicit responses from students. Be sure and have them explain how they made that observation.

Student Application –

- Have students work with a partner. Distribute an index card to each pair.
- Instruct students to work with their partner to generate a question related to the decimals found in the “NBA Wizards vs. Spurs Stats.” Challenge them to be thoughtful in their questions and to try to think of a question that no one else will think of. Each pair should write their question on one side of the card and the answer on the other side of the card. They should not share their questions or answers with others.

Embedded Assessment –

- While students are writing their questions and responses observe and record behaviors on Teacher Resource Sheet 7, “Teacher Observation Checklist: Wizards/Spurs”. Share with students that you will assess their performance as they write their questions. Discuss with students the observable behaviors you will be looking for and establish an evaluation method to assess the criteria. For example,
 - 0- Student’s understanding is completely incorrect
 - 1- Student shows minimal or partial understanding
 - 2- Student shows complete understanding
- Collect each pair’s completed index card. Analyze for understanding and/or error patterns.

Extension –

- If time allows, have students form 2 teams.
- Use the student generated questions to pose questions to the teams using the Wizards/Spurs Statistics.
- Each team receives one point for a correctly answered question. The team with the most points at the end wins.

Summative Assessment:

Students will demonstrate an understanding of the place value of decimals and be able to compare their relative value by completing both selected response and brief constructed response items. The assessment (Student Resource Sheet 7) will integrate all of the decimal skills that students have been taught

so far and will require them to use mathematical reasoning to justify their thinking. An answer key can be found on Teacher Resource Sheet 8.

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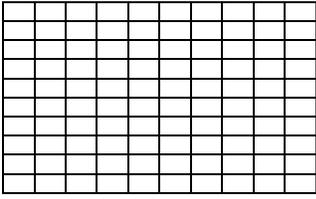
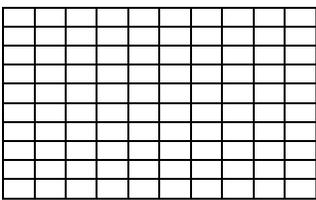
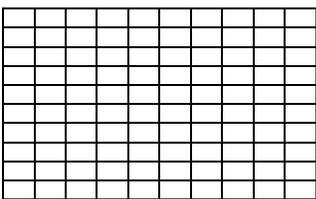
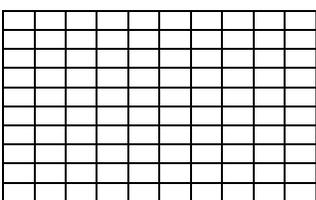
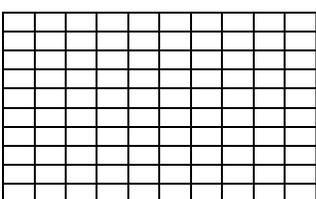
Trashcan Hoops



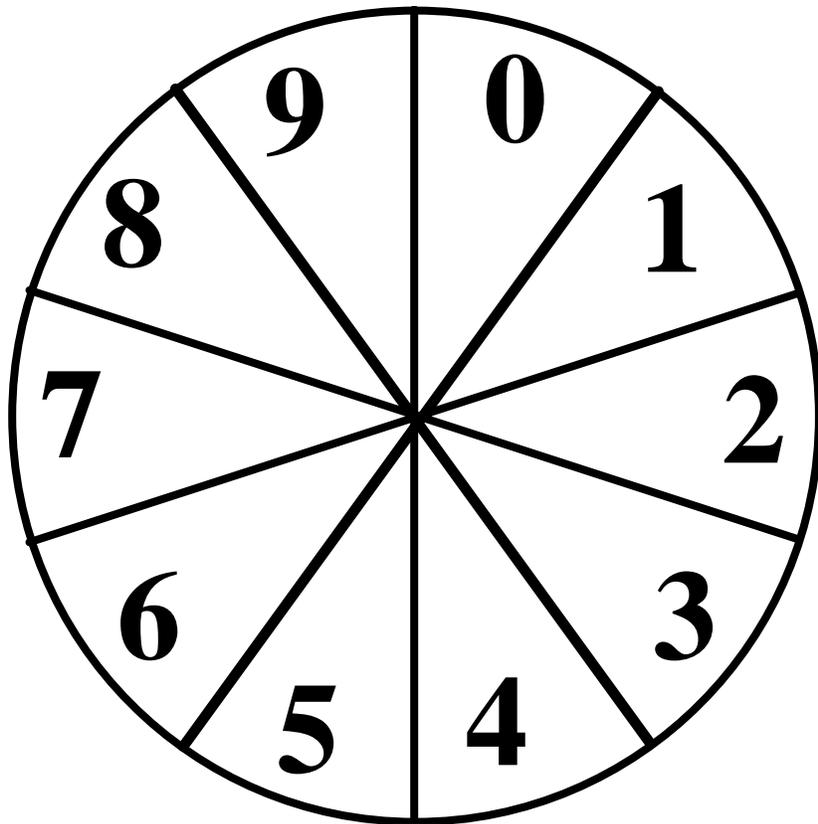
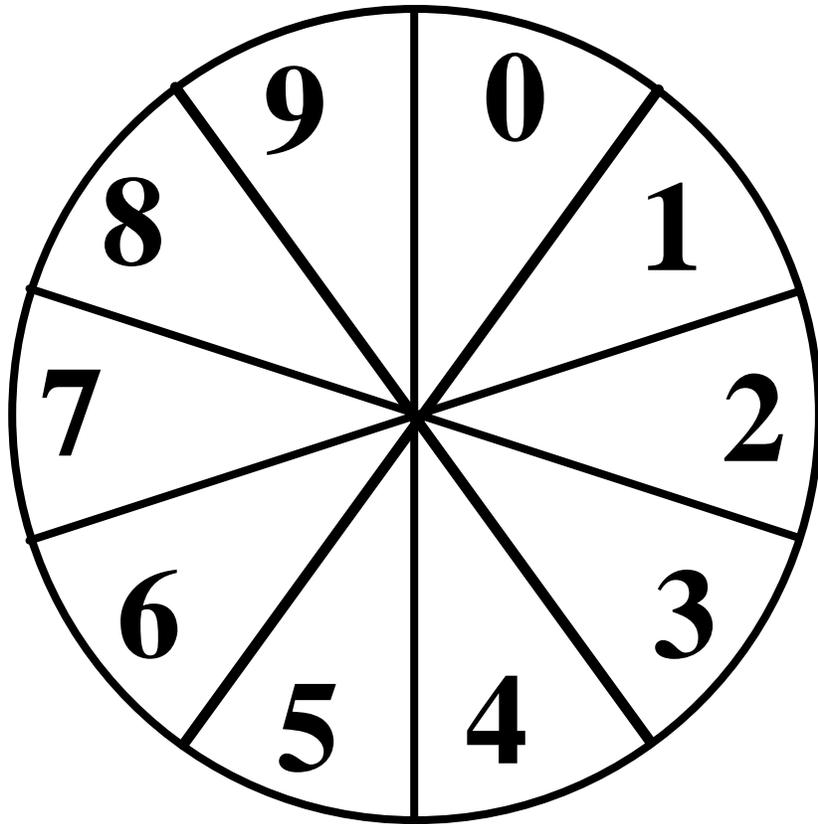
Student	Tally	Total Attempts	Shots Made	Fraction of Shots Made	Decimal Equivalent
	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	10			
	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	10			
	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	10			
	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	10			
	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	10			



Spin on Decimals Data Record

Tenths	+	Hundredths	=	Decimal	Illustration
	+		=		
	+		=		
	+		=		
	+		=		
	+		=		





Teacher Observation Checklist

Spin on Decimals

Criteria	Names of Students																								
Write the decimal to the hundredths place																									
Representation of the decimal																									
State value of each digit in the decimal through hundredths place																									

Evaluation Method

Teacher Observation Checklist

What's my Number? / Starting Line-Up

Criteria	Names of Students																			
<i>What's My Number?</i>																				
Uses decimal vocabulary when asking questions																				
Problem Solving strategies utilized to name decimal																				
<i>Starting Line-Up</i>																				
Orders decimals from least to greatest																				
Explains process used to place decimals on grid																				

Evaluation Method

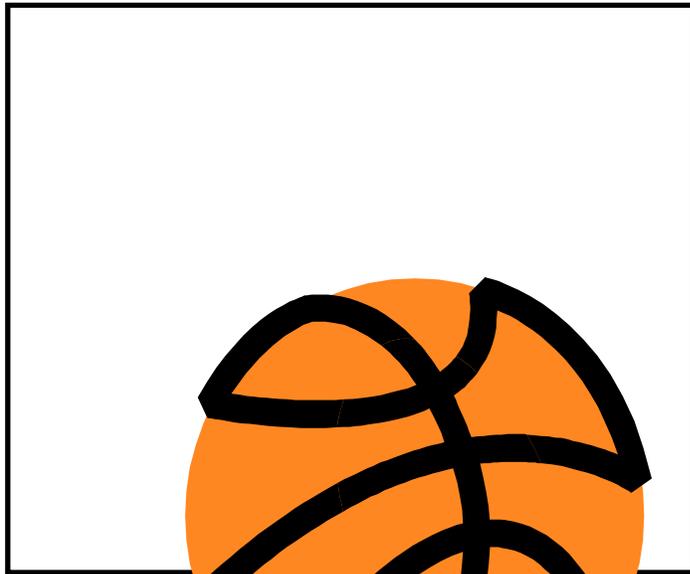
National Basketball Association

2004-2005 NBA Player Statistics

Player	Field Goal Percentage (%)	Three-Point Percentage (%)	Free Throw Percentage (%)
Allen Iverson	0.424	0.308	0.835
LeBron James	0.472	0.351	0.750
Shaquille O'Neal	0.601	0.000	0.461



Near 0



Near 1



“Starting Line-Up”



Directions: Select 5 cards.

Place the cards on the grid in order from least to greatest.

Record the value of each card on the data table in order from least to greatest.

Repeat 4 times.

0						1
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“Starting Line-Up” Data Table

Card 1	Card 2	Card 3	Card 4	Card 5

“Starting Line-Up Decimal Digit Cards

 0.578	 0.234	 0.500	 0.212	 0.840
 0.111	 0.700	 0.655	 0.606	 0.391
 0.425	 0.452	 0.765	 0.191	 0.049
 0.529	 0.296	 0.723	 0.327	 0.858

Five athletes play for the Washington Wizards basketball team. They want to know who has the best free throw percentage.

Player	Free Throw Percentage
Antawn Jamison	0.688
Gilbert Arenas	0.766
Larry Hughes	0.831
Jared Jeffries	0.765
Brendan Haywood	0.636

Step A: Place their free throw percentages in order from least to greatest.

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Step B: Explain how you determined the order of the numbers using what you know about decimals and place value. Use words, numbers and/or symbols in your explanation.

BCR

Five athletes play for the Washington Wizards basketball team. They want to know who has the best free throw percentage.

Player	Free Throw Percentage
Antawn Jamison	0.688
Gilbert Arenas	0.766
Larry Hughes	0.831
Jared Jeffries	0.765
Brendan Haywood	0.636

Step A: Place their free throw percentage in order from least to greatest.

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Step B: Explain how you determined the order of the numbers using what you know about decimals and place value. Use words, numbers and/or symbols in your explanation.

NBA Wizards vs. Spurs

2005 Player Playoff Statistics

Washington Wizards													
Player	MPG	FG%	3p%	FT%	REBOUNDS			APG	SPG	BPG	TO	PF	PPG
					OFF	DEF	TOT						
Gilbert Arenas	45.0	.376	.234	.766	.80	4.40	5.20	6.2	2.10	.60	3.90	3.40	23.6
Larry Hughes	40.1	.376	.212	.831	1.70	5.40	7.10	3.7	2.00	.70	2.50	3.50	20.7
Antawn Jamison	38.0	.451	.500	.688	1.60	4.70	6.30	1.2	.70	.40	1.60	2.40	18.5
Juan Dixon	21.9	.406	.324	.840	.30	2.30	2.60	1.3	.70	.00	1.20	1.90	11.4
Brendan Haywood	29.6	.542	.000	.636	3.50	4.10	7.60	1.0	1.40	2.00	1.00	4.00	10.6
Jared Jeffries	24.7	.490	.500	.765	1.90	2.20	4.10	1.8	.90	.90	1.30	3.40	6.4
Etan Thomas	15.8	.655	.000	.455	1.50	3.00	4.50	.3	.00	.88	1.13	2.90	6.0
Kwame Brown	20.0	.385	.000	.556	1.30	3.70	5.00	1.0	.00	.67	.67	1.70	5.0
Michael Ruffin	17.3	.700	.000	.563	1.70	2.40	4.10	1.0	.33	.33	.44	3.70	2.6
Anthony Peeler	6.1	.111	.000	1.000	.00	1.00	1.00	.4	.14	.00	.43	.60	.6
Steve Blake	4.3	.250	.000	.000	.00	.80	.80	.5	.00	.00	.25	.80	.5
Laron Profit	1.7	.000	.000	.000	.00	.30	.30	.3	.00	.00	.00	.00	.0
Team Averages	240.0	.425	.298	.728	12.9	29.9	42.8	17.2	8.2	5.8	13.7	25.4	100.4
Opponents	240.0	.452	.389	.703	12.5	31.7	44.2	21.4	6.3	5.4	16.1	28.0	102.9

San Antonio Spurs													
Player	MPG	FG%	3p%	FT%	REBOUNDS			APG	SPG	BPG	TO	PF	PPG
					OFF	DEF	TOT						
Tim Duncan	37.8	.464	.200	.717	3.80	8.70	12.40	2.7	.35	2.26	2.70	2.90	23.6
Manu Ginobili	33.6	.507	.438	.795	.80	5.00	5.80	4.2	1.22	.26	2.87	3.00	20.8
Tony Parker	37.3	.454	.188	.632	.60	2.30	2.90	4.3	.74	.09	3.09	3.00	17.2
Robert Horry	26.9	.448	.447	.732	2.00	3.40	5.40	2.0	.91	.87	.87	2.30	9.3
Nazr Mohammed	23.0	.528	1.000	.638	3.30	3.40	6.70	.3	.61	1.00	1.04	2.80	7.1
Brent Barry	24.1	.457	.424	.810	.60	1.90	2.40	1.9	.65	.17	1.17	1.90	6.1
Bruce Bowen	35.4	.359	.433	.647	.40	2.50	2.90	1.6	.48	.57	.65	3.30	5.7
Glenn Robinson	8.7	.356	.300	.882	.20	1.50	1.60	.1	.23	.54	.46	1.50	3.8
Beno Udrih	11.5	.359	.270	.857	.20	.60	.80	1.0	.43	.05	.95	1.00	3.7
Devin Brown	5.0	.350	.429	.571	.10	.50	.60	.3	.08	.00	.08	.30	1.8
Rasho Nesterovic	7.6	.417	.000	.000	.70	1.00	1.70	.1	.07	.33	.27	1.10	.7
Tony Massenburg	3.1	.167	.000	.500	.40	.80	1.20	.0	.00	.00	.00	.20	.3
Team Averages	242.2	.454	.389	.727	12.3	29.7	42.1	18.4	5.6	5.8	14.5	21.9	96.9
Opponents	242.2	.449	.300	.760	11.9	27.3	39.3	16.4	7.4	5.9	12.4	24.0	92.6

MPG – Minutes per Game **FG** – Field Goal **3p** – 3 Point Shots **FT** – Free throw **OFF** – Offense **DEF** – Defense **TOT** – Total **APG** – Attempts per Game
SPG – Steals per Game **BPG** – Blocks per Game **TO** – Turnovers **PF** – Personal Fouls **PPG** – Points per Game

Teacher Observation Checklist

NBA Wizards vs. Spurs

Player Statistics

Criteria	Names of Students																			
Uses decimal vocabulary when creating questions																				
Problem Solving strategies utilized to answer questions																				
State value of each digit in the decimal through thousandths place																				
Explains how ordering of decimals																				

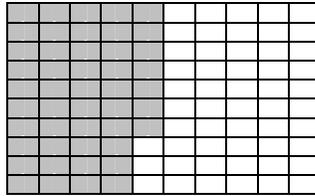
Evaluation Method

Name: _____

Date: _____

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

- a. 0.047
- b. 0.4
- c. 0.47
- d. 0.53



2. What is the value of the digit 4 in 0.546?

- a. 4 ones
- b. 4 tenths
- c. 4 hundredths
- d. 4 thousandths

3. What is the value of the digit 8 in 0.628?

- a. 8 ones
- b. 8 tenths
- c. 8 hundredths
- d. 8 thousandths

4. Which of the following shows 0.32 in the correct word form?

- a. Thirty-two hundredths
- b. Three and two hundredths
- c. Three and two hundreds
- d. Thirty-two hundred

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

- a. 0.401 0.050 0.109 0.41
- b. 0.109 0.41 0.050 0.401
- c. 0.050 0.109 0.401 0.41
- d. 0.41 0.050 0.109 0.401

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

- a. 0.099 0.459 0.502 0.523
- b. 0.459 0.502 0.523 0.099
- c. 0.523 0.459 0.099 0.502
- d. 0.523 0.502 0.459 0.099

7. Which of the following statements is **true**?

- a. $0.8 > 0.800$
- b. $0.654 > 0.564$
- c. $0.250 < 0.205$
- d. $0.845 > 0.854$

Brief Constructed Response

Five athletes play for the Washington Mystics basketball team. They want to know who has the best field goal percentage.

Player	Field Goal Percentage
Alana Beard	0.400
Temeka Johnson	0.481
Chasity Melvin	0.490
DeLisha Milton-Jones	0.419
Charlotte Smith-Taylor	0.469

Step A: Place their field goal percentage in order from greatest to least.

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Part B

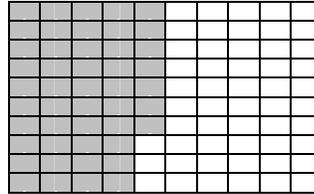
Use what you know about the place value of decimals to explain why your answer is correct. Use number and/or words in your explanation.

Name: _____

Date: _____

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- b. 0.4
- c. **0.47**
- d. 0.53



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- c. 4 hundredths**
- d. 4 thousandths

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- c. Three and two hundreds
- d. Thirty-two hundred

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- a. 0.401, 0.050, 0.109, 0.41
- b. 0.109, 0.41, 0.050, 0.401
- c. 0.050, 0.109, 0.401, 0.41**
- d. 0.41, 0.050, 0.109, 0.401

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

- a. 0.099, 0.459, 0.502, 0.523
- b. 0.459, 0.502, 0.523, 0.099
- c. 0.523, 0.459, 0.099, 0.502
- d. 0.523, 0.502, 0.459, 0.099**

7. Which of the following statements is true?

- a. $0.8 > 0.800$
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- c. $0.250 < 0.205$
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Step A: Place their field goal percentage in order from greatest to least.

0.490	0.481	0.469	0.419	0.400
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Part B

Use what you know about the place value of decimals to explain why your answer is correct. Use number and/or words in your explanation.

Answers will vary. Response should include: correct decimal vocabulary; clear understanding of the magnitude of each digit up to the thousandths place in the decimal; and ability to compare and order decimals of similar values.