

Overview

Topic Math, rounding decimals

This lesson is designed to increase student awareness of how to round numbers with decimals. By using various strategies, students will learn how decimal numbers round to the nearest whole, tenth, and hundredth. Decimal place value will be a previously learned strategy that students will use to obtain an accurate decimal rounding technique. A short video will give those auditory and visual learners additional assistance during the lesson. For those kinesthetic learners, a hands-on numbers flipchart (*teacher created*) will be used to further enhance the lesson.

Note: This lesson uses worksheets specific to a Math textbook. Teacher may have to create or use system textbook.

Grade 4

Time Allotment

One 90-minute session

Learning Objectives

On completion of this lesson students will be able to:

- Round decimals to the nearest whole number, tenth, and hundredth

This lesson addresses Va. SOL Math 4.4b

Media Components

- Videostreaming: Math Mastery: Decimals and Percents . Math Mastery, 2001. Retrieved April 11, 2007. <http://www.unitedstreaming.com/index.cfm>.

Segment 8: Lesson 7: Rounding Decimal Numbers (2:59)

- Projector with screen and laptop – used to show video stream
- Computer lab
- Websites:

Quia – Rounding Decimal /Whole Numbers

<http://www.quia.com/jg/66061.html> – Used in this lesson to provide total classroom interactive practice for rounding decimal numbers. Students will enjoy playing these rounding activities as a whole group. Links on the site to visit include *matching*, *flashcards*, and *concentration*.

Rounding decimals to whole numbers – flashcards

<http://teachingtreasures.com.au/maths/decimalsk-3/rounding-decimals2-3.htm> –

Used in this lesson to provide additional classroom interactive practice for rounding decimal numbers to whole numbers. Students will enjoy playing this decimal to whole number rounding activity as a whole group.

Rounding Numbers

http://www.kindermagic.com/real_math/rnd_dec.html – Used in this lesson to provide additional classroom interactive practice for the lesson and also lesson remediation. Student types his/her name then begins the rounding process. Good activity to show where a student would go wrong during the rounding process.

Materials and Student Handouts

- Flipchart holder or rod (picture included, see page 12) or pocket chart
- Teacher created numbers flipchart – to do this, teacher will need to have large number cards made for digits 0-9 and the following math symbols: + - x $\$$ = < > % () cent sign, comma, decimal point, and division sign (see sample on page 12 of this lesson)
- “O” clips for teacher created numbers flipchart number sets (at least 12 clips)
- Paper to make number sets for teacher created numbers flipchart (for numbers 0-9 times six identical sets = 60 sheets, plus one sheet for the decimal point found in the middle of the six identical sets giving a grand total of 61 sheets) – for longer lasting charts have these pages laminated
- Whole punch for teacher created numbers flipchart number sets
- Packet Introductory Page, Rounding Decimal Notes Page, Culminating Activity Page, and Graphics Page (optional)-one each per student (attached)
- Rounding decimal numbers practice packet – one per student (Note: this packet is textbook-specific. It uses Mathematics Scott Foresman Addison Wesley worksheets P11-4 and R11-4. If not available, teacher can create his/her own or use school system's textbook.)
- Virginia SOL like rounding decimal numbers assessment – one per student (attached-do not include in student packet)

Teacher Preparations

- Check the websites to make sure they are still active and relevant to your needs
- Download and preview the video clip used in the lesson
- Bookmark websites used for easy access for yourself or students or use teacher PortaPortal
- Make copies of rounding decimal numbers practice packet and Virginia SOL like rounding decimal numbers assessment – one per student; or create your own practice and assessment. Packet should be assembled in this order: Introductory Page, Rounding Decimal Notes, 2 or more practice worksheets, Culminating Activity Page, and Graphics Page (last is optional). Do not include assessment page.
- Create a numbers flipchart – chart should have six places for numbers and one place in the middle for a decimal point (example: # # # . # # #). Each number set should range from 0 – 9. Use “O” clips to hold all nine cards together in one set, remember there will be six identical sets. You will need at least two clips per number set, making it twelve clips total. You can use regular paper with printed numbers for the number sets but they should be laminated for longer lasting and easier use. Once all six number sets have been created you can slide them on to a flipchart holder or rod. Now students will be able to flip numbers in order to show their rounding technique.
- Reserve computer lab, if necessary

Introductory Activity

1. Focus: Today we will be using our prior knowledge of rounding whole numbers and decimal place value to round decimal numbers to the nearest whole, tenth, and hundredth. The video I have for you to view gives an overview of the proper techniques used in rounding decimals to whole numbers, tenths, and hundredths. I want you to look for similarities in decimal rounding techniques to rounding techniques you have used already this year. Watch to see how the number rounded gets underlined and the neighbor number get circled.

Play: the video clip in its entirety.

Stop: at the end (2:59).

Follow-up: According to the video clip, what is a good technique used in rounding decimals? (Answers should follow what the students ascertain from the video) So why are we learning how to round decimals anyway? (Answers will vary – all acceptable if effort is given) Who could describe the process of rounding decimals? (Pause to see how many hands go up in the class. If it is not an acceptable number, you should plan on replaying the segment and pausing at appropriate points.

Learning Activities

1. Focus: As I show you this flipchart that I have made I want you to be thinking about how you could use this to round numbers, particularly decimal numbers. (Pull the chart into view)

Activity: Let me create a number. (Create a three digit number) Who can read this three-digit number? (Get answer, then flip the chart around to make a larger number) Who can read this number? (Continue this until students start to get the hang of using the flipchart to show numbers) Now, let's make a number using a decimal. (Create a decimal number that has a tenths place value) Who can read this number? (Continue with such questions as you increase or rather decrease the number to the thousandths) Now let's see if we can round our numbers. (Create a decimal number that has a tenths place value) Who can read this number? (Get responses) What would be the process we would need to use to round this number to the nearest whole number? (Get responses, check for accuracy – students should respond with the way you have been practicing rounding in class. Continue this line of questioning until students become comfortable rounding numbers to the nearest whole, tenth, and hundredth)

Follow-up: How can this flipchart help you round numbers? (Get response) Let's see if it really does help us solve some rounding problems. As I pass out your *rounding decimal numbers practice packet*, please put your name on the top of the first page and open it up to the first set of questions. (Pass out the *rounding decimal numbers practice packet*) Read question one for us please? (Get response) Ok. Who can come up to the flipchart to first create and then round this number? (Get a volunteer, help if needed, and continue this process for as long as you deem necessary. Work through at least the first 5 questions with the students because they will enjoy coming up and showing off what they know and have learned. Once you see that understanding has occurred you can do some on-site remediation (by calling those students who don't seem to get it up to the flipchart) while those students who do get it continue on with their work.) Let's review the rounding process. (Have students tell you the process involved.)

2. Focus: Now that we have practiced our rounding abilities on the flipchart and on our paper, let's try a few on-line rounding activities to give us a different view on the same subject, rounding decimals. We're going to go to the lab where I have bookmarked all the sites we will be using. (Open up the first website)

Activity: We are going to look at *Quia – Rounding Decimals / Whole Numbers* first. It is a website that allows us to round decimals in a *matching, flashcard, and concentration* format that is easy and fun. You may use your note page (provided in *rounding decimal numbers practice packet*) to write down any questions that you don't get right away. (Demonstrate how the website works and what is expected of students as they come up to answer questions) Are there any questions about how this website works? (Answer questions if needed) Let's start! (Work with students as they play through the three different activities on this site – use your professional training to decide how your students learning would benefit from this activity – whole group, teams, pairs, etc.)

Follow-up: What problems did you have? Did you write any problems down on your decimal notes pages for us to look at? (Answer any questions.)

3. Focus: Now that we have practiced our rounding abilities on the first website lets move on to the second, rounding decimals to whole numbers. (Open up the second website)

Activity: We are now going to look at *Rounding decimals to whole numbers – flashcards*. It is a website that allows us to round decimals to whole numbers by typing in the answer and pressing the enter button. The activity will keep track of how many we get correct! Be sure to write your score on your note page when you are finished. You may also use your note page to write down any questions that you don't get right away. (Demonstrate how the website works and what is expected of students as they come up to answer questions) Are there any questions about how this website works? (Answer questions if needed) Let's start! (Work with students as they play through the activity on this site – use your professional training to decide how your students learning would benefit from this activity – whole group, teams, pairs, etc.)

Follow-up: How did you do with this site? Is anyone willing to share his/her score? What problems did you have that I can help you with?

4. Focus: (This site is good for additional remediation or can be included into the lesson depending on your timeframe.) Now, that we have practiced our rounding abilities on the second website lets move on to the third, rounding numbers. (Open up the third website)

Activity: We are now going to look at *Rounding Numbers*. In this website you will type your name and then begin the rounding process. This is a good activity to show where you could be going wrong during the rounding process. This one also keeps track of your score so be sure to write that down on your note page. You may also use your note page again to write down any questions that you don't get right away. (Demonstrate how the website works and what is expected of students as they come up to answer questions) Are there any questions about how this website works? (Answer questions if needed) Let's start! (Work with students as they play through the activity on this site – use your professional training to decide how your students learning would benefit from this activity – whole group, teams, pairs, etc.)

Follow-up: Are you getting good at rounding? How were your scores this time? What questions can I answer?

Culminating Activity

1. **Focus:** Now that we have practiced individually, and in a large group, let's put our efforts into a smaller collaborative group to show our understanding of rounding decimals numbers. (Students will be working in pairs or groups of four depending on class size)

Activity: If you turn to the culminating (tying it all together) activity page in your packet (attached) you will see numbered blank spaces. You and your group will come up to the flipchart and create a number. The number must have a decimal in it. All other groups must copy your number down. Once the number is created the group will decide where they would like to see it rounded and tell the audience where to round their number. So each student in the audience will have two numbers written down for every group, the number created and then the number rounded to the place that was chosen. We will continue this until every group has created a number and had it rounded to a place that they have chosen. (Allow sufficient time for all students to be involved in this activity.)

Follow-up: Now that all groups have gone, let's see how well we have learned our rounding technique. I would like a group to come up and become the teacher. Recreate a number from another group, and then ask for a student to read that number. Then I would like for you to ask another student to round that number, but for this you will have to remember to what place you were asked to round the number. Who would like to go first? (Call on a group, do this until all groups have shared and worked through their successes and / or failures of their rounding technique)

Assessment

- The student will be assessed using the attached Virginia SOL like rounding decimal numbers assessment. Summative assessments can also be done using several other examples and samples of SOL questions that deal with rounding decimals which can be found and downloaded from the Virginia DOE website. Make sure that students can explain their rounding technique in written or oral form.

Community Connections

- Students can work with third or lower level grades to show how the numbers flipchart can help with the understanding of the rounding process.
- Students can make up games using the numbers flipchart that will further their understanding of the rounding process.
- Students could write a newsletter entry describing the rounding processes and how this lesson made it easier to understand.

Cross-Curricular Extensions

- **Math:** This lesson can be used for many other math applications including, place value, comparing numbers, understanding and reading numbers, ordering numbers, number forms, estimation

- **Science:** The flipchart in this lesson can be used to model graph numbers in a comparative way. Also students could use the chart to help round larger scientific numbers to get approximate results.
- **P.E.:** Guided by a teacher, students can create a game using the flipchart as a scorekeeper, lap keeper, etc.
- **English:** Students can use their rounding and estimation abilities to estimate the time it would take to read a book when timed on the first page.
- **Social Studies:** Students could use the flipchart as a comparative tool. They could put two time periods up on the chart and underneath compare the similarities and differences between them, like a timeline comparison.

Adaptations

ESL: Partner students with a regular education student. Provide them with a language appropriate copy of all student materials. (This could involve some internet research.)

Advanced: Have students create additions to the flipchart that would suit their educational needs. (Larger numbers)

Autistic: Have individual flipcharts created for easily distracted students. (If they are playing with anything it should at least be the educational flipchart.)

Use your professional judgment – there are so many possibilities for this hands-on approach to learning rounding. (Explore and have fun)

About the Author

Pedro Hernandez

Pedro is a fourth grade teacher at Gordon-Barbour Elementary School in Orange County, Virginia.

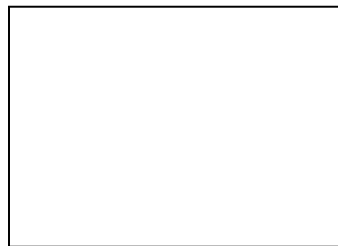
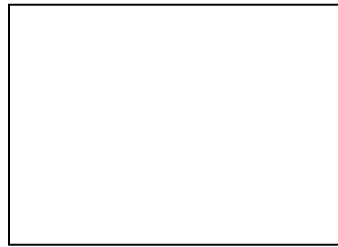
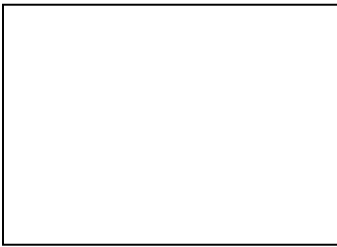
This lesson was written as part of the Spring 2007 WVPT NTTI for the Virginia Enhancing Education Through Technology Ed Tech Grant awarded to the Shenandoah Valley Technology Consortium (SVTC).

Rounding Decimal Numbers Practice Packet



Belongs To: _____

Culminating Activity Page
(Tying it all together)



Place Value SOL like rounding decimal numbers:

Name _____ Date _____

1. Mrs. Zee likes to read. She read 6.49 pages in two weeks. 6.49 rounded to the nearest tenth will be between which two numbers?
 - A 7.0 – 7.5
 - B 6.5 – 6.0
 - C 5.5 – 5.0
 - D 4.5 – 4.0

2. Nicholas collects matchbox cars. He has 7.63 cars. 7.63 rounded to the nearest tenth will be between which of following numbers?
 - F 7.0 – 7.1
 - G 7.6 - 7.7
 - H 8.0 – 8.1
 - J 8.5 – 8.6

3. Mike likes to ride his bike. He rode 4.3 miles during the summer. 4.3 rounded to the nearest whole number will be between which of the following numbers?
 - A 4.4 – 4.5
 - B 4.2 – 4.3
 - C 4.0 – 5.0
 - D 3.8 – 3.9

4. Mr. Hernandez enjoys mountain climbing. This last year, he hiked 86.798 kilometers. 86.798 rounded to the nearest hundredth will be between which of the following numbers?
 - F 88.000 – 88.600
 - G 87.000 – 87.600
 - H 86.000 – 86.600
 - J 85.000 – 86.000

5. Ms. Davi collects frogs. She has 35.210 frogs. 35.210 rounded to the nearest hundredth will be between which of the following numbers?
 - A 37.000 – 38.000
 - B 35.210 – 36,000
 - C 33.000 – 34.000
 - D 32.000 – 33.000

