



The Value of What?

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Overview

Topic: Place Value of Greater Numbers—Thousands, Ten Thousands, and Hundred Thousands. After learning place value positions up to 1,000, students will investigate the place value positions of ten thousands and hundred thousands through interactive technology and hands-on manipulations. Students will use video, the Internet, an interactive whiteboard, and presentation software to reinforce the concept. Students should already know place value through thousands.

Time Allotment

Two 55-minute periods

Learning Objectives

On completion of this lesson students will be able to:

- Identify the thousands, ten thousands, and hundred thousands place values in a given number.
- Locate a specific value of a digit.
- Generate their own numbers up to 999,999 according to a given place value.
- Differentiate between different values of numbers.

(This lesson addresses Va. SOL Math 3.1; Computer/Technology C/T 3-5.2, C/T 3-5.8)

Media Components

- **Discovering Math 03-05: Number Theory.** Discovery Channel School. (2005). Retrieved July 16, 2009, from Discovery Education: <http://www.wvpt.unitedstreaming.com/>
Segments Used:
Segment 22: Example 1: Place Value to the Thousands – Stadium Seating (1:33).
Segment 23: Example 2: Place Value Greater Than Thousands – Populations (1:59).

- Websites:
 - o Interactive Game: Place Value to 100,000 www.toonuniversity.com/flash.asp?err=503&engine=15 — This website is an interactive game where students need to name the value position of numbers or type the number in standard form.
 - o Toy Theater — Road Signs www.toytheater.com/road-signs.php – Students can create their own road signs.
- *Place Value Rap* song from the album *Rockin' the Standards* can be purchased from Amazon or iTunes. A short clip is available at www.rockinthestandards.com/site/pages/teacher-zone/teaching-tips/place-value-rap.php
- Software
 - o PowerPoint (PowerPoint Viewer can be downloaded if PowerPoint is not available.)
 - o Smart Notebook Software
 - o Audio software such as iTunes
- “Place Value to 100,000” PowerPoint available to download from www.wvpt4learning.org/lessons/pdf10/value.ppt
- “Place Value Question Set” Notebook document available to download from www.wvpt4learning.org/lessons/pdf10/value.notebook
- Speakers
- Teacher Computer with Internet access
- Computer Lab with Internet access



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- Interactive Whiteboard
- Multimedia Projector
- Digital Video Cameras, such as the Flip Camera
- Student Response System

Materials and Student Handouts

- Pencils – 1 per student
- Sticky notes – 1 per student
- Envelopes or small plastic bags – 1 of either per student
- Number Card worksheet – 1 per student
- Focus Questions worksheet – 1 per student

Teacher Preparations

- Download and preview video clips
- Download and preview *Place Value Rap* and copy onto CD if necessary
- Download “Place Value to 100,000” PowerPoint
- Download “Place Value Question Set” Notebook file
- Preview websites and check for working ability with school filter
- Connect all equipment and check for working ability with school filter
- Copy handouts
- Cut 0-9 number cards apart and separate 1 set per student in an envelope or plastic bag
- Reserve computer lab

Introductory Activity

1. Focus: Say: I’m going to give you a stack of number cards. As I hand you an envelope, I’m also going to tell you how many cards to randomly take out of the envelope. With your cards, I want you to make the biggest number you can and then write your number on the sticky note that I will give you. For example (model using Interactive whiteboard) – here I chose the numbers 2, 6, 9, and 4. The biggest number I can make is 9,642. I will write that on my sticky note. Are there any questions as to what you are supposed to do? Take student questions and clarify if needed.

Activity: Hand out number cards, telling each student how many of the cards that they will use. (Randomly use a number between 1 and 5.) Say: You have one minute to create your number. Go! Students will take one minute to order their numbers and write down the number on the sticky note. **Follow-up:** After the minute, Say: What strategy did you use to make the largest number that you could? (Start with the largest number) Ok, in your small groups, I’d like you to order your numbers from largest to smallest. Have students order the stickies on their desks. When groups are finished ordering, check their papers and leave them on their desks for a later activity. Say: We will come back to the stickies later so we’ll just keep them here on your desks.

Videostreaming

In order to use videostreaming interactively with students, teachers should use pre-segmented clips provided by the videostreaming company. If you wish to conduct a discussion before the clip is over and then resume after the discussion, use PAUSE, as this will cause the media player to remain at the current location in the stream. If the remainder of the video clip will not be used and the teacher wants to return to the beginning of the video clip, then use STOP so that the media player will revert to the beginning of the stream.

Learning Activities

1. Focus: Say: We have already learned about the place values up to 1,000 so let’s look at this short video clip to review what we know. Distribute focus question sheets. Say: This video clip helps us realize some ways we may use place value when we grow up. As we get ready to watch this clip, I want you to focus on how many seats make up a “stick” and how many “slabs” we will need to make 1,000. **Play:** *Example 1: Place Value to the 1,000* from the beginning. This video clip was already segmented from Discovery Education Streaming. **Stop:** Stop at end of the video clip **Follow-up:** Say: Ok, so if I’m in a stadium, show me by sitting on the floor, how many seats I need to make up a “stick.” (Students should sit in groups of 10.) Good! Now, draw me the number of sticks did

I need to make 100 seats? (10 sticks or rows). Show me what you came up with. (Check student papers)
 Say: Great! How about our second question how—many “slabs” did we need to make 100? (10 slabs)
 Good—and for another extension question, how is finding the number of sticks we need to make 100 and finding how many slabs we need to make 1,000 the same? (They both are groups of 10)

2. Focus: Say: Ok, we just reviewed the thousands place value. There are two more places left that we are going to learn about today and I’m going to introduce those with another short video clip. This time I want you to focus on how to explain the pattern as we increase our place values. I will pause the clip and give you time to write your response.

Play: Start clip *Example 2: Place Value of Greater Numbers* at the beginning

Pause: at 1:05. Visual cue: fire escape stairs. Audio cue: Notice that each place represents ten times the value of the next place value to the right.

Follow-up: You were looking for a way to explain the pattern as we increase the number of place value positions. What did you come up with? (Each value increases by 10)

3. Focus: Say: Excellent! Let’s resume the clip and see why we use commas to separate numbers.

Resume: at 1:05.

Stop: at end of clip.

Follow-up: Say: Now we have learned about 2 more place value positions.

Let’s look at question #2. Why do you think we need a comma between numbers? (Allow for student responses—to make larger numbers easy to read) Wonderful! Let’s expand that idea to understand how our place value system works.

3. Focus: Say: We are going to expand our separation of numbers idea to understand our place value system. As we go through the presentation, pay attention to the new place value positions and how we would write them using value numbers.

Activity: Open “Place Value to 100,000” PowerPoint on interactive whiteboard. Walk through the slides with the students helping them to understand what “value” means. Go through the assessment questions to see if they can determine the value of the numbers on the signs. As prompted by slides,

have students come up to circle the numbers or write values.

Follow-up: Say: After you see the place values and the pattern they make, how does this help you understand the place value positions? (Allow student discussion). Say: Explain the pattern that we use to create our place values. (Each place goes up by 10 times and we add another 0)

Now on the back of your question sheet there is a place value chart. Please label the chart with the positions we have learned and reviewed today. Use numbers to show the values of each in the boxes under the words. You have 2 minutes! (Check to make sure all students have written the correct numbers.)

4. Focus: Take students to the computer lab. Say: Now you are going to practice recognizing place value positions on your own. We are going to play a review game on the computer where you will be given a number and asked what digit is in a certain place value spot. Some questions will also ask you to write the standard form of a number from written form. If you are correct, you will get to shoot the target with your tank. If you are incorrect, you go on to the next question but will not get to shoot the tank. You can start in level 1 and work your way up to level 3.

Activity: Direct students to the Toon University Place Value to 100,000 game. Students should start at Level 1 and work their way up to Level 3. Walk around the room observing the students completing about 3 problems. If students are struggling on the activity, provide assistance and give a mini-review lesson on the spot. Have students create a place value chart to help them and let them retry the game.

Follow-up: After all students have had a chance to play the game. Say: Why do you think that we did better in the game than we may have done before the lesson? (because we learned the different places before we played the game) Did you have any problems with the game? (Allow student discussion.)

Culminating Activities

1. Focus: Say: So let’s see if you understand what we covered in the presentation and the Toon University game. We are going to use the personal

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response clickers to record your answers to the questions. Just push the button of the answer that you believe is correct. You will find out your score when all the questions are finished.

Activity: Open “Place Value Question Set” Notebook file and distribute clickers. If you do not have access to personal response clickers, students can number a paper and use a pencil or individual whiteboards. Students will use personal response systems or pencil/paper to record their answers for the question set created with Smart Notebook.

Follow-up: Say: Are there any questions that you have about what we have learned before we continue to our last activity? (Resolve any questions.) Export student responses to use as an assessment grade.

2. Focus: Say: Let’s look again at our stickies. What can you tell me about how you ordered your numbers? (Allow for student discussion.) Why do more numbers mean higher value? (because of place value, larger numbers went first, the bigger numbers were at the front, etc.) Let’s take the numbers that you came up with and write the expanded form at the bottom of your stickie note.

Activity: Students will write their number out in expanded form on their paper.

Follow-up: Say: Now please read your number out loud to the class before you hand it in. Students will read out their numbers to the class and teacher will collect the papers.

3. Focus: Say: When we go into the computer lab, you will be creating a road sign like the ones that we saw in the presentation and writing the population in word and expanded form.

Activity: Students will go to the toy theater website (www.toytheater.com/road-signs.php) and will create their own road sign from what they learned. The student’s sign should have a number in standard form, expanded form, and number form. Once they have also added their names, have students print papers when completed to use as an additional assessment.

Follow-up: Say: We are going to have you come read your sign to the class and then we will post them on the wall. Students will share their signs with the class.

4. Focus: Say: Finally, let’s wrap up our lesson with a rap. You are welcome to get up and dance to get your wiggles out. Open *Place Value Rap* and lyrics sheet on the computer. Allow students sing along and wiggle about. If possible, play more than once. Say: Now you are going to get the chance to create a short song for you to remember the different place value positions.

Activity: Allow students time to work on creating a short jingle to help them remember the different place value positions. Use a Flip camera or other device to record their songs.

Follow-up: Say: If you would like, you are welcome to will share your rap with the class. Have students perform their rap for the class.

Assessment

- Use printed road sign to see if students grasped all 3 versions of a number.
- Use annotated notes from website game to assess how students are grasping the material.
- Use results from Place Value Question Set as an assessment grade.

Community Connections

- Take a field trip to a stadium or auditorium and have students use the concepts taught in the clips to count or estimate the number of people the venues could hold.
- Invite a politician to come in to the class and discuss the importance of place value when voting in elections.
- Take a trip to see a town or county office building and the census information.
- Take a trip to a mint to see how money is made.
- Invite students to take digital pictures of signs with numbers and write corresponding expanded or word forms of the numbers.

Cross-Curricular Extensions

- **Social Studies:** Have students use Ancient Egyptian hieroglyphics to create a math worksheet with place value.

- **Art:** Create a mosaic using more than 1,000 tiles.
- **Art:** Use a digital camera to have students take pictures of population signs in the area.
- **Reading:** Read the book How Much Is A Million? by David M. Schwartz.
- **Music:** Create a new song to remember the order of the places.

About the Author

Erin Sauder

Erin Sauder is a third grade teacher in Rockingham County Public Schools. Erin is in her fifth year of teaching and is NETS*T certified. She has a Master's in Education Degree from University of Mary Washington and a degree in Psychology from Mary Washington College. She tries to integrate technology as much as possible in her curriculum. In her free time Erin loves to read, play with her dog, and spend time with her family. She loves to travel and learn about new places and cultures.

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Focus Questions



As you are watching these clips, try to find the answers to the following questions.

Clip #1 – Example 1: Place Value to the 1,000

1. How many seats in the stadium make up a “stick”?
2. How many “slabs” do we need to make 1,000?

Clip #2 – Example 2: Place Value of Greater Numbers

1. Complete this sentence – “Notice that each place represents _____ the value of the next place to the right.”
2. Explain why you think we use a comma to separate numbers.

