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DATE: March 12, 2013
SUBJECT: Mathematics Window
UNIT TITLE: Living Together
FOCUS QUESTION: How do goods get from place to place?
TOPIC: Expanding 3-digit whole numbers
DURATION: 1 hour
ATTAINMENT TARGET: Students will be able to:

1. know the value of numerals and associate them with their names and number.

SPECIFIC OBJECTIVES: Students will be able to:

- differentiate between, the standard form and expanded numbers after illustration.
- interpret at least four (4) 3-digit number showing hundreds, tens and ones after class activity.
- arrange manipulatives to identify the place value of digits in one 3-digit whole number after watching video.
- work co-operatively in groups to express eight (8) whole numbers using the expanded notation after class activity.

CONTENT SUMMARY: A person has three different names e.g. Kimberly Marie Sinclair
Similarly a number has different names and can be written in different ways e.g. 153= 1 hundred, 5 tens and 3 ones, 100+50+3.
A Number, such as 84, has two digits. Each digit is a different place value. Standard form is the usual way that we write a number expanded notation is a detailed way of writing numbers. When you write a number in expanded form, you write a number in the form of an addition statement that shows place value. It is like
stretching out a number to show the value of each digit added together.

- To expand a 3-digit number: 1) Find out how many groups of hundreds, tens or ones are in the number. 2) Add the number of hundreds, tens and ones.

**SKILLS:** explaining concepts, recalling information, interpreting information, expanding 3 digit numerals

**MATERIALS:** counters, place value mats/dienes blocks, dice, chart, fishing net, box, paper clips, bag, paper, string, hard board, markers, bowling bottles, worksheet, computer, projector.

**KEY VOCABULARY:** expanded notation, standard form, tens, ones, hundred, three digit

**PROCEDURES:** Introductory Activity:

- The lesson will be introduced with the teacher holding a rubber band in front of the class. Students will be asked to think of a word that describes what the teacher is doing to the rubber band as she slowly stretches it out.
- Teacher will say, “Did you know that? Just as the rubber band got stretched, or became longer, numbers can be stretched, made longer or expanded.” (example of this concept can be seen in step 2).

**STEP 1:**

- Review previous lesson by discussing how 2-digit numbers were done in expanded notation. For example 12 can be expanded to 10 + 2 and it does not change the value.
- Communicate lesson objectives.
- To differentiate between standard form and expanded form teacher will hold up the rubber band and stretch it out,
where they will be told that, when we stretches or expand numbers this is the expanded form. Students will then be asked, “What happens to the rubber band if I slowly let it go?” It shrinks. We can do the same with numbers. When we shrink numbers, we put it in standard form which is the original way writing numbers. Reference will be made to previous example ‘12.’ Teacher will then communicate to students that all that we did with numbers is called expanded notation. Students will read definition on the chart.

**STEP 2:**

- Students will then be introduced to 3-digit numbers by watching a short video on how to expand 3-digit numbers. A discussion will be developed after watching the video. During the discussion teacher will reinforced that 3-digits numbers range from 100 to 999.
- Enlighten students that just as how they have different parts in their names (first, middle, last), a 3-digit number has different parts in their names too (hundreds, tens and ones)
  Eg, 234= 2 hundreds, 3 tens and 4 ones

**STEP 3:**

- Teacher will elicit from a student a 3-digit number and this will be displayed on the chalkboard. Teacher will say, “I want to write this number in expanded form.” “I want to stretch it out to make it longer without changing the value.” Students will be instructed to read a section of the chart to guide as well as reinforce the concept of expanding 3-digit numbers before moving into the activity.
- The number will be written by the student on the place value chart. Review the dienes blocks the flat to represent (100), long (10), single cubes (ones). Then two other
students will be called to the front of the class. One to represent the 3-digit number on dienes blocks and the other writing the number in expanded notation.

- The students will be guided in using two forms of expanding numbers that was done in previous lesson. Students will be reminded to put in the relevant sign (plus) to complete the expanded notation.

**STEP 4:**

- Students will be placed in groups of eight (8) to work cooperatively.
- Selected students from each group will be called in front of the class, where they will be given different materials/activities to source 3 digits numbers to further write in expanded form. Eg. ‘go fishing,’ ‘wheel of numbers,’ ‘dice shaking, ‘bowling.’
- Examples of two activities. Using the go fishing activity students will use a box labelled beneath the sea. In the box are different shapes, fish, crab etc. On the shapes are different 3 digits numbers, also on each shape paper clips are attached to the mouth of eg fish, to attract the magnet that is on the fishing line. Students will use the fishing line and roll in the line until the 3-digit number comes out of the make believe aquarium.
- The activity with three dice will be used to source two 3-digit numbers for two groups to work with. The dice will represent, red hundred, green tens, and white ones. Three students from a group will carry out the task by shaking the dice on after each other, to source the three digit number to work in their group.
- The 3-digit numbers resulting from the outcome of the activities will be written on place value chart by students.
Each number will be assigned to groups for them to use worksheet and manipulative (dienes block) to aid better understanding, to write the expanded notation for the 3 digit numbers.

- A member from four selected groups will be asked to report the information on their worksheets to the class by using expanded form to present the information on the chalkboard. While teacher will visit the remaining four groups to see if they complete the task correctly.

  Eg. \( 234 = 2 \text{ hundreds} + 3 \text{ tens} + 4 \text{ ones} \)
  \( 234=200 + 30 + 4 \)

Recap lesson

**ASSESSMENT:**

(See worksheet attached)

**EVALUATION:**
Subject: Mathematics Window

Name: _______________________________________

Grade: ___________________

Write the value of the underlined digit in each number. The first one has been done for you.

a. 456  50

b. 972  ______

c. 125  ______

d. 834  ______

Write the following numbers in expanded notation. The first one has been done for you.

a. 187  100+80+7

b. 285 ____________________________

c. 454 ____________________________

d. 447 ____________________________

e. 276 ____________________________