

Go In and Out the Windows with Place Value

Summary

This activity will give students hands-on experience to reinforce and practice place value skills.

Main Core Tie

Mathematics Grade 2

[Strand: NUMBER AND OPERATIONS IN BASE TEN \(2.NBT\) Standard 2.NBT.1](#)

Additional Core Ties

Mathematics Grade 2

[Strand: NUMBER AND OPERATIONS IN BASE TEN \(2.NBT\) Standard 2.NBT.3](#)

Materials

- [Picture/Number Cards](#)
(two and three digit numbers with their matching visual representations)
- [Window Board](#)
- [Number Cards](#)
Place Value Dice
- [Place Value Game Boards](#), *Game Board Cards*
, dice, place markers
- [Place Value Game Recording Sheet](#)

Additional Resources Books

- *Math Fables*
. Tang, G. (2004). Scholastic Press. (0439453992)
- *Math Appeal*
. Tang, G. (2003). Scholastic Press. (0439210461)
- *Making tens: Groups of gollywomples (math monsters)*.
Burnstein, J. (2003). Weekly Reader Early Learning Library. (0836838122)

Background for Teachers

The teacher will need to introduce place value vocabulary: vertical, horizontal, expanded form, and standard form. This activity will give students hands-on experience to reinforce and practice place value skills.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude.
5. Understand and use basic concepts and skills.

Instructional Procedures

Invitation to Learn

Give half of the students a card with a two or three digit number. Give the other half a card with the numbers built with 100 squares, ten rods and single squares. The object is for the partners to match up their numbers with their visual representations.

Instructional Procedures

Tell the students that they are going to be learning how to read and build numbers in expanded

form and standard form both horizontally and vertically.

Show the students a picture representation of 300. Ask the students how they would write it. Do the same for 400, 500, etc. Ask the students if they notice a pattern. Do the same with 20, 30, 40, etc. Ask the student if they notice a pattern. Place a number on the board and write what each digit looks like ($321=300 + 20 + 1$). Place an addition sign between numbers to show them that this number contains all of the numbers added together.

Make an overhead of the [Window Board](#) and [Number Cards](#) . Using the Window Board, model how to build a number in expanded form both vertically and horizontally. Using place value dice have the students practice creating numbers as a whole group. Model this procedure a few times.

Pass out the *Window Board* and *Number Cards* and teacher and students will build numbers together.

Separate students into small groups and distribute each group a set of dice. Then have students practice making the numbers that they roll on their Window Boards.

To provide students with more practice with this skill, use the *Place Value Game*. Distribute the game board, cards, game markers, die, and recording sheets (one per student) to each group of four to five students. One [set of cards](#) is three digit numbers. The second [set of cards](#) is instructions of what they are to do with the numbers. Before the game begins, each player draws a number card. The first player must draw an instruction card and be able to follow the directions (e.g. "what number is in the tens place?") Students should record their answers on their recording sheets. If the player answers correctly, they can shake the die and move the number of spaces designated on the die. If they do not get it correct, the group helps the player to succeed, but the player doesn't get to shake the die and move on the game board. After each turn place the *Number Card* at the bottom of the deck and draw a new card (each player must always have a *Number Card*). The first player to get to the finish wins the game. Cards can be adapted to the capabilities of students.

Extensions

Curriculum Extensions/Adaptations/ Integration

In and Out the Window PE Activity. Make cards representing numbers in their various forms (standard form, expanded form, written, picture). Make enough sets of cards to distribute to the class, one per student. Tell the students that when you give the go signal, that they are to find the other students that have cards that match with their individual number forms. When all number forms have been found, students are going to hold up their window (hula hoop) and make sure that every member of the team goes through the window twice representing going in and out the window. When students have completed this, they will race to a designated location and be declared the winners. You may shuffle the cards and redistribute them for another round of In and Out the Window.

Students with special needs can concentrate on building smaller numbers or work with a buddy.

Family Connections

The teacher could provide a game board, cards, die and markers for the students to take home to practice with their families.

Assessment Plan

Teacher can do an informal assessment when students are building numbers with their *Window Boards*. Have the students hold up their Window Board at the same time so that you will be able to see if students are able to build the assigned number in the correct format.

In their journals have the students draw a picture representation of the numbers they build on their Window Boards.

Have students create additional task cards that can be used with the *Place Value Game*. Have them record the answer on a post-it note. Have them place the post-it note on the card that they created so you can check for understanding and accuracy before it is placed in the collection of cards for the game.

Bibliography

Research Basis

Cotter J. (2002). Using language and visualization to teach place value. *National Council of Teachers of Mathematics*.

Recognizing and replicating patterns contributes to the success of being able to determine how many objects there are without having to stop and count each one individually. Using manipulatives helps students create a visual of the base ten number system that will enable them to help visualize the quantity in their minds when the manipulatives are no longer used.

Schmidt, M.E. (1995). Mathematics intervention: second grade place value concepts. *Education*. Volume 116 Issue 2, p. 229.

Second graders who are in need of remediation are able to reach criterion of the second grade place value objectives. This can be accomplished by involving them in place value games and activities that meet their appropriate levels of understanding.

Authors

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