Greater Than and Less Than with Numbers

Summary

These activities will help students compare numbers and learn the terms greater than, less than, and equal to.

Main Core Tie

Mathematics Grade 1

Strand: NUMBER AND OPERATIONS IN BASE TEN (1.NBT) Standard 1.NBT.4

Additional Core Ties

Mathematics Grade 1

Strand: NUMBER AND OPERATIONS IN BASE TEN (1.NBT) Standard 1.NBT.3

Mathematics Grade 1

Strand: NUMBER AND OPERATIONS IN BASE TEN (1.NBT) Standard 1.NBT.5

Materials

Number Line Ordering

Piece of white paper approximately 4" x 4"--one per student
Crayons
String or jump rope
30 clothespin

Neck and Neck

For each pair of students:

- Giraffe Pattern
  (2)
  11 dominoes
- Number cards 0-9
- More-Less Spinner
  Resealable bags

Mystery Number

- Lens Pattern
  Jumbo craft stick or tongue depressor
- Hundred Chart

Letter-Perfect

- *Hundred Charts*
  One crayon, any color

Unifix® Stacks

- *Unifix® Cube Six Count Mat*
  Unifix® cubes
  Dice- one per child
- *More-Less Spinner*
  Journal

Additional Resources

Books

- *One hungry monster: A counting book in rhyme*
  , by Susan Heyboer O'Keefe; ISBN 0316633887

- *Counting one to five*
  , by Margie Burton, Cathy French, & Tammy Jones, Benchmark (emergent)
- *Math curse*
  , by Jon Scieszka; ISBN 0140563814
- *Ten black dots*
  , by Donald Crews; ISBN 0688135749
- *Domino addition*
  , by Lynette Long; ISBN 0881068772
- *Ten sly piranhas, A Counting Story in Reverse*
  , by William Wise; ISBN 0142400742

Background for Teachers

This lesson can be taught once you have introduced number words (zero to ten) to students. Students should be able to count in sequence and use manipulatives to count. To set the stage for learning, choose a counting book to read. Any book in which the pictures for the numbers are instantly recognizable will work, but a book that also presents the written or numerical form of the numbers is preferable. *Ten Little Rabbits* or *Ten Black Dots* are two books that use the number words; *The M & M's Counting Book* uses both numerals and words for the numbers.

Intended Learning Outcomes

5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Instructional Procedures

Invitation to Learn

This is a versatile five-minute mystery number activity. In advance, post a large number line. If desired, place an adhesive dot below each even number to reinforce the odd-even number pattern. To begin, secretly select a displayed number. Then announce one or more grade appropriate clues for that number. For example, you might say, "I'm thinking of an odd number. It is less than six and greater than four," (five) or "I'm thinking of the odd number whose digits have a sum of two," (1 + 1). Invite students to identify the number, guiding their guesses as needed. When a student names the correct number, have him explain how he determined it.

Instructional Procedures

Number Line Ordering

Assign children numbers from one to 30.

Have children create pictures to show their numbers. Each picture should have the number written at the top.

Use the pictures to create a number line using string and clothes pins. As children hang their pictures, encourage them to use the words "greater then" or "less than" to describe their number in relation to the number preceding it. For example, "My number is 15. Fifteen is greater than 14."

Hang the number line around the room.

Neck and Neck

Stretch students' ability to compare numbers. Prepare a tag board copy of the giraffe pattern to make two giraffes. Store the 11 dominoes and the giraffe pieces with the number cards in a reseal- able bag. Note: the dominoes are only used as game pieces; students will not refer to the dots on the domino for this activity. Therefore, it does not matter which dominoes students choose. The dominoes may be placed upside down.

Students will play with a partner. To set up, each player uses one set of game pieces and one domino to assemble a giraffe. One player shuffles the cards and then stacks them facedown. Each player takes two cards.

Players arrange their cards to create the greatest possible two digit number. For example, a player draws a number three and number eight card. They would arrange the cards to make the number 83.

One player uses the phrase *greater than* or *less than* to compare his number with his opponent's number.

The player with the greater number adds a domino to his giraffe's neck. Then each player places his cards in a discard pile.

The game continues, with players reshuffling the cards as necessary and taking turns comparing numbers. The first player to make a five-domino giraffe wins.

To put a spin on the game, have the students use a *More--Less spinner* . Once the students have created their greatest possible two-digit number, the students take turns spinning the spinner to determine who will add a piece to their giraffe neck, the student with the *greater than* number or the student with the *less than* number.

Another activity to incorporate the dominoes is to place the dominoes upside down. Students draw one domino, add the dots together, and spin the spinner. The students with the *greater than*, or *less than* number adds a domino to the giraffe neck. Continue play until one student has six dominoes for the neck of their giraffe

Students may be required to draw a domino the first time, write the math equation and sum in their journals. Their next turn students must draw a domino with a sum *greater than* or *less than* the first domino placed on the neck of the giraffe. If the sum of the domino is not *greater than* or *less than* their turn is over and the second player begins their turn.

Mystery Number

Give each student a copy of a lens pattern and a jumbo craft stick.

Have students cut along the outer edge of the pattern and then carefully cut out the inner rectangle (provide assistance as necessary). Instruct the students to glue the lens to the craft stick and then sign their name on the resulting handle.

To present a case to be solved, give each student a hundred chart.

Secretly choose a number between one and 100.

Use the terms "greater than" and "less than" to identify the numbers immediately preceding and following the chosen number.

Challenge students to use the clues and their number finders to locate the mystery number on their charts.

When they have found the mystery number, they can put their lens finder over the number until the teacher asks for the mystery number to be revealed.

Challenge students in the class to give clues using the terms greater than and less than to locate a mystery number.

Letter-Perfect

On one copy of a hundreds chart, color the appropriate squares to form a selected letter.

To begin, give each student a copy of an unmarked hundreds chart.

Announce that there is something special about the hundreds chart--a letter is concealed in it!

To provide proof of this claim, verbally provide step-by-step directions for finding and making each square needed to form the letter. For example, a direction for 64 might be the following: "Find 66. Color the number that is two less."

Have students make their own letter in a hundreds chart and then give directions to a partner to uncover their letter. Observe to see that correct vocabulary is used to uncover the letter in the chart. For example, using the term one more or one less than any whole number from one to 99.

Unifix® Stacks

Students work in pairs. Each student rolls their die and places a vertical stack of Unifix® cubes on the first square to represent the number on their die.

After each roll students will compare the cubes to determine who has more or less. Students will use the vocabulary greater than, less than and equal to as they compare cubes.

Students will write their number and their partner's number in their journal and draw a corresponding picture after each turn.

Students will spin the spinner to determine if they will circle the greater than, less than or equal to number.

Instead of a journal, students can use a t-chart to keep their numbers separate with their names at the top. When they spin the spinner they will circle the correct number, greater than, less than or equal to and the student with the most numbers circled on the t-chart will be the winner.

Students will continue playing in this manner until all six squares are filled.

Extensions

Extensions/Adaptations/Integration

For high ability students, provide additional number cards or draw three cards and have the players create three and four-digit numbers while completing the Neck and Neck activity.

Journaling: have students write the math problems they create in the Neck and Neck activity in their journals with the correct sum.

Have students with special needs use manipulatives to create two different numbers and indicate by pointing to the number that is greater than or less than.

Greater than and less than may be difficult math terms for students who are acquiring English. Connect the words more and fewer to the words greater than and less than. Show magazine pictures of two groups of people or objects. Talk about the groups, using more and greater, and fewer and less. Have children find two pictures of things or people and use greater than and less than to describe the groups. Use picture clues.

Family Connections

Encourage students to play the games at home and/or share with their parents what they learned.

Have students find items around the house, count the items for a family member, and then tell the family member which number is greater than, less than, or equal to.

Assessment Plan

Observe to see that students are using the correct vocabulary such as *greater than*, *less than* and *equal to*.

Observe individual students giving directions to find a letter pattern in the hundreds chart. Watch to see that students are using the correct vocabulary.

Check student journals for their understanding of the concepts taught.

Observe students as they use manipulatives to complete an activity. Watch to see that they use the materials appropriately to understand the concepts taught.

Bibliography

Research Basis

Marzano, R.J., Pickering, D.J., & Pollock, J.E. (2001). *Classroom instruction that works: research-based strategies for increasing student achievement*, pg 131-133

Students need opportunities to satisfy their curiosities, test their imaginations, create, wonder, and invent. Classrooms that allow students to enjoy learning and encourage playfulness, sensitivity, humor, and joy are inviting and stimulating. Environments that allow students to approach

mathematics in many ways- with manipulatives, technological tools, and hands-on activities- engage students' multiple intelligences.

Walsh & Sattes, (2000). Effective instructional strategies. *ERIC Source* (AN 18100419). Retrieved September 2005, from http://www.eric.ed.gov

This article interviewed students and asked them what motivates them to learn and participate in school. The main factors were a good relationship with the teacher, clear expectations, hands-on activities, and assignments related to real life. Studies on cooperative learning indicate a strong impact on student achievement as well as increased motivation and improved interactions with adults and peers.

Authors

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