Race to 500

Grade 4

Lesson 403

Lesson Overview

Teams take turns rolling dice and placing blocks on a Place mat up to 500. Students pay close attention to be sure to pack groups of 10 blocks into holders whenever possible and move them to the correct columns on their mat.

Objectives

Thinking Skills:	Students use pattern recognition and reasoning to discover that because our number system only has 10 digits, they must group their blocks in tens if they want to express the total number.
Mastery Skills:	Students learn to build and recognize numbers represented in hundreds, tens, and ones. Students learn the pattern of grouping by tens inherent in our number system. They learn to pack groups of 10 blocks into holders and move them to the correct place value position.

Materials

Each group of two - four students needs:
- 500 single blocks, 50 small holders, 5 medium holders
- Two regular dice
- Two Place mats

- Digit flip cards – 3 sets (one for each place on the mat)

Class Demonstration (10 minutes)

Take turns with the following steps: the game, Race to 500:
- Students play this game in teams of 2-4.
- Teams take turns rolling the dice and placing blocks-of-10 and single blocks on the place mat.
- One die represents the blocks-of-10 and the other represents the single blocks. Teams can choose depending on the goal for the game.
- After placing blocks on their mat, the team must also set their Digit flip cards to show how many blocks are on the mat.
- When trying to set the flip cards, the students may find it necessary to pack and move blocks in order to avoid having more than 9 in any place.
- On subsequent turns, the teams count on from the amount on the mat from the previous turn.

Decide from the following list of options to determine the winning team:
- The first team to reach or go over 500.
- The first team to reach exactly 500.
- The team that avoids reaching 500 before any other team.

Play a few rounds of the game with a student volunteer to clarify directions and answer questions.

Student Activity (15 - 20 minutes)

Provide each group of students with materials. Have two teams play together.
- Be sure to insist that student teams do not go on to their turn until the other team is finished. This will assist students in helping each other with their turns rather than playing "on top of each other".

Closure (5 - 8 minutes)

Discuss with students what they thought about the game. Ask:
- Was there any strategy involved?

- Did they struggle with their turns at all? If so, how?

Ask students to describe situations where they had to pack and move:
- If there are fewer than 9 blocks of a kind, they cannot be packed.
- If there are more than 9 blocks of a kind, they can be packed.
- Ask, **Were there any instances where packing ones triggered packing blocks-of-10 to make a block-of-100, or a "chain reaction"?** (For example 18 ones and 9 tens when packed would be 8 ones, 0 blocks-of-10, and 1 block-of-100.) What made this happen?

Assessment

As the class works, walk around the room observing student behavior.
- Are the students working collaboratively?
- Are they following the directions correctly?

Observe students as they pack the blocks and set the digits.
- Do they count single blocks before packing or do they pack first and then count?
- Do they immediately recognize the numeral represented by packed blocks by counting the number of blocks-of-100, blocks-of-10, and then the number of ones, or do they employ skip-counting strategies (counting first 810, 820, 830, and then 831, 831, 833....)?
- Do they count with accuracy?

As students are playing the game, can they answer questions such as:
- **Who is winning the game right now?**
- **How many more does your team need to win the game?**
- **How many more blocks do you need to have the same amount of blocks as your opponents?**

Extension

- Have students play "Race from 500" where each team starts with 500 and removes blocks down to exactly zero. Each roll of the dice tells a team how many blocks to take away.