SQUEEZE PLAY

Getting Ready

What You'll Need

Cuisenaire Rods, 1 of each of 10 different colors per child
Squeeze Play game boards, 1 set per pair, pages 99-100
Overhead Cuisenaire Rods and/or Squeeze Play game board transparencies (optional)

Overview

In this game for two players, children take turns placing Cuisenaire Rods within a given outline in an attempt to be the last player to place a rod.

In this activity, children have the opportunity to:

- improve spatial reasoning
- develop strategic thinking skills

Introducing

- Tell children that they will be playing a Cuisenaire Rod game called Squeeze Play.
- Explain the game rules given in On Their Own.
- Emphasize that rods may not be moved once they have been placed.
- Demonstrate by playing a partial game of Squeeze Play either by yourself or with a volunteer.
On Their Own

Play Squeeze Play!

Here are the rules.

1. This is a game for 2 players. The object is to be the player who places the last Cuisenaire Rod on the game board.

2. Players choose 1 of the Squeeze Play game boards shown below. Each player gets 10 rods, 1 of each color.

3. Players take turns placing the rod of their choice within the grid lines on the game board. Once a rod is placed, it cannot be moved.

4. The player who puts down the last rod is the winner.
   - Play several games of Squeeze Play. Take turns going first.
   - If time permits, choose another game board and play a few more times.
   - Be ready to talk about good moves and bad moves.

The Bigger Picture

Thinking and Sharing

Invite children to talk about their games and describe some of the thinking they did.

Use prompts like these to promote class discussion:

- Did you choose a particular rod to begin play? If so, which one and why?
- Which rods are the easiest to place? Which are the most difficult? Why?
- Did you ever place a rod that you wanted to take back? Explain.
- Is it necessary to think about your partner’s remaining rods when you make your choices? Explain.
- What plan of action did you develop while playing the game?
- Which game board was the hardest to play on? the easiest? Why?

Writing

Ask children to describe the difference between a game of strategy and a game of chance.
Extending the Activity

1. Challenge the children to design their own Squeeze Play game boards. Then have them play the game on their boards.

Teacher Talk

Where’s the Mathematics?

This game can help children develop strategies involving spatial reasoning. Most children will begin playing without a particular strategy in mind. As they continue to play, they will have an opportunity to test different strategies. Children who are familiar with the game of chess may liken Squeeze Play to chess by saying, “Just like in chess you have to think ahead so you don’t catch yourself in your own trap.” As in chess, the offensive player has a better chance of winning than does the defensive player. Generally, the longer that children play, the more time they spend thinking before completing each move in order to survey the pieces their opponent has left and decide how they can use their remaining rods to the best advantage. They learn that as the game progresses, the shorter rods are easier to place than the longer rods, so they learn to save the white, red, and green rods for later in the game.

Some children will report that the placement of a piece is often more important than its length. For example, a player has placed the yellow rod as shown below in order to break up a long column of empty spaces and force the other player to use shorter rods to complete that side of the game board. If the other player had held on to the white, red, and green rods, this placement of the yellow rod would offer places to play these shorter rods. However, if the player had used these shorter rods earlier in the game, the player placing the yellow rod would have won.

![Diagram of Squeeze Play game board]

With experience, some children are also able to survey the rods still held by the other player and determine the winner without actually finishing the game. This shows a highly developed level of strategizing since these
2. Have children play again, but this time, the player who puts down the last rod loses.

Children are able to play several moves "in their head," anticipating the outcome.

Interestingly enough, there is a winning strategy in this game for each of the first three game boards, but children do not usually discover it because they think it is "copying." The strategy is based on the idea of rotational symmetry. The player who goes second can always win by using the same piece that the first player used in the same position on the board after the board has been rotated 180 degrees around the center.

If there is room for the first player's piece, there will always be room for the second player's corresponding piece. When the second player consistently uses the same pieces that the first player did, however, the first player is apt to get testy declaring, that the play is "unfair," and may say, "You can't copy me!" Therefore, this winning strategy is likely to be discovered only if children have discussed their strategies with their partners.

The fourth game board does not have rotational symmetry; it has mirror symmetry. Thus, there is no winning strategy that can be used for this board.

You may find that children are able to play the game thoughtfully but that they cannot articulate their strategies. Do not be discouraged by this. Listening to the children who can explain their strategies may help the more reticent children find the words to express what they have been subconsciously doing.
SQUEEZE PLAY GAME BOARDS 1 AND 2

Board 1

Board 2
SQUEEZE PLAY GAME BOARDS 3 AND 4

Board 3

Board 4