

Commercial Games

Tic-Tac-Toe

While adults may think that Tic-Tac-Toe is a simple game, research shows that children up to age nine still find it challenging. Tic-Tac-Toe offers children the opportunity to develop spatial reasoning by figuring out how to place three markers in a line, vertically, horizontally, or diagonally. Often young children can think only of vertical and horizontal lines and only later begin to notice the diagonal line. Tic-Tac-Toe also offers opportunities for perspective taking, as children think about what their opponent might do next and try to block him or her from getting three in a row. Young children often center only on their own line, and do not see their opponent's line. Older children can also reason about setting up two-way wins.

Goals:

- | | | |
|----------------------|-----------------------|----------------|
| 1. Spatial reasoning | 3. Logic | 5. Turn taking |
| 2. Directionality | 4. Perspective taking | |

Connect Four

Connect Four is similar to Tic-Tac-Toe, but more complex because it requires four in a row instead of three. Like Tic-Tac-Toe, it is a good game for promoting spatial reasoning. Children have to decenter to think about both their own lines and their opponent's lines going four different directions at once-- horizontally, vertically, diagonally to the right, and diagonally to the left. In addition, they have to consider the role of gravity in deciding where to place their marker, because the marker will always drop to the lowest position on the grid.

Goals:

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|----------------------|----------------------|-----------------------|
| 1. Spatial reasoning | 3. Logic | 5. Perspective taking |
| 2. Directionality | 4. Physics (gravity) | 6. Turn taking |

Checkers

Checkers is a particularly good game for promoting perspective taking and logical reasoning. Children learn how to evaluate possible moves in terms of what their opponent might do next, and how this will affect their position in the game. Children also reason spatially as they think about what constitutes a legal and an illegal jump, which direction to move, and how to block opponents' jumps.

Goals:

- | | |
|----------------------|-----------------------|
| 1. Spatial reasoning | 3. Perspective taking |
| 2. Logical reasoning | 4. Turn taking |

Chinese Checkers

Players take turns moving their marbles across the star-shaped board. The goal is to be the first player to move all one's marbles to the other side of the board. Moves must follow the lines on the board, and can consist of one adjacent space, a jump over one occupied adjacent space, or a series of jumps (over their own or their opponent's marbles). Players have the opportunity to decenter to think about how a marble can be moved in any of six directions and to think multiple moves ahead, setting up elaborate

jumping strategies to maximize the distance they cross on each move. Players also have the opportunity to decenter and think about what their opponent might do next, and how one's move might affect the other's possibilities for moves.

Goals:

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|---|-----------------------|
| 1. Directionality (across, up, down, diagonal) | 3. Logical reasoning |
| 2. Number and calculation (how many spaces can be moved on a jump, comparing moves) | 4. Turn taking |
| | 5. Perspective taking |

Memory

Memory (sometimes known as *Concentration*) focuses on visual memory. Using a set of cards composed of pairs, placed face down, children take turns turning over two cards, trying to get a match. If they do not get a match, they give everyone a chance to see the cards and then turn them face down again. Children must remember the placement of cards that have been turned over in order to form matches on their turns. As this does not require reading or counting, it is a good game for younger children. In fact, most young children are better than adults in this game. Often, young children do not play memory as a competitive game. Instead, they simply play it as an activity in which they take turns turning over cards, and together make matches. With a computer graphics program or a scanner, this game can easily be custom-made to correspond to a theme of study. Children then have opportunities to practice vocabulary (the names of animals, occupations, etc.).

Goals:

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|--|----------------|
| 1. Matching | 3. Vocabulary |
| 2. Visual memory (of spatial arrangements) | 4. Turn taking |

Guess Who

Players take turns asking each other questions to try and discover the identity of their opponent's "mystery" person. Each player has a large plastic frame containing a set of 20 different faces in small frames attached in rows. The two sets of faces are identical, but are not necessarily arranged in the same order. The small face frames may be flipped up or down so the face is or is not visible to the player using that frame. Two players position themselves so they cannot see the other's cardboard faces. Players choose one face card (their "mystery" person) from a third set of face cards (also identical) and places them in the slot on their frames, concealing them from their opponents. To figure out the opponent's mystery person, players take turns asking questions that can be answered with yes or no (such as, "Does your person wear a hat?"). Depending on the answer, the player then eliminates all persons wearing (or not wearing) hats by putting them all face down. If all questions are answered correctly and all are eliminated correctly, the last remaining face should be the identity of the other's mystery face. This game is challenging to children at a wide range of developmental levels. While older children find it challenging to think of categorical questions that will eliminate the most number of faces, younger children often ask specific questions such as "Is your person the policeman?" They may also find it difficult to decide what to do with the answers to questions. For example, if their opponent answers "No" to "Does your person wear glasses?" they must ask themselves, "Do I leave the faces with glasses up, or push them down?" Many young children find the reversibility involved (deciding that if the opponent's person does not wear glasses, then they must turn all of the faces with glasses down) difficult.

Variation:

Replace the faces with pictures of children in the classroom or the school.

Goals:

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|-----------------------------|------------------|
| 1. Classificatory reasoning | 3. Reversibility |
| 2. Oral language | 4. Turn taking |