

Commercial Number and Math Games

Mancala

In this ancient game, players move brightly colored “gemstones” around a game board consisting of six small indentations (pockets) and two large indentations (called their *mancala*) at opposite ends for each player. Players move the stones around the board and try to collect them in their *mancala*. The player to collect the most stones wins. Though many versions of this game exist, the simplest version involves players taking turns scooping up the stones from any pocket on their side of the game board and moving around the board counterclockwise dropping one stone in each pocket (including their own *mancala* but not their opponent's). When one side of the board is devoid of stones, the game ends. Players count the stones in their *mancala* and on their side of the board, and the player with the most stones wins. Possible strategies include causing the last stone on your turn to fall in your *mancala*, so that you get another turn, and causing the last stone on your turn to land in one of your empty pockets, so that you capture all of the stones opposite that pocket (on your opponent's side). To do this, players must count the number of stones in a pocket and compare that number to the number of pockets to be passed on the way to the *mancala* or the empty pocket. Players can also play defensively by taking into account likely moves of their opponent and trying to prevent moves that are advantageous to their opponent.

Goals:

1. Counting
2. Addition and subtraction
3. Spatial reasoning
4. Turn taking

Dominoes

This is a good beginning game because it is simple and many children can play at once. Children are dealt a certain number of dominoes, and take turns placing one of their dominoes adjacent to another domino of the same number. *Double Nine Dominoes*, described on the back of the box, can be adapted for young children in several ways.

- a. Do not require that players continue to draw from the draw pile until they get a playable domino. Simply have play move to the next person if the domino drawn from the draw pile cannot be played.
- b. Do not keep score. Simply play until one person has used all of his or her dominoes, or until no more dominoes can be played. The person with the fewest dominoes left is the winner.

Goals:

1. Number recognition
2. Classification (matching)
3. Turn taking

Set

This unique card game captivates many children and adults. It consists of a deck of 81 cards. Each card has symbols that vary according to four features.

Shape: ovals, squiggles, or diamonds

Color: red, green, or purple

Number: one, two, or three

Shading: solid, open, or striped

The cards are laid out in a grid of 12 cards. The goal is to spot a *set* of three cards that are either alike or different on all four features. For example, if all three cards are red ovals, they are alike on color and shape. If the cards contain one solid red oval, two open red ovals, and three striped red ovals, then they are different on number and shading. This is a set. (Making sets sounds more difficult than it is.) The first person to spot a set gets to keep it, and the three cards are replaced from the deck. If no one can find a set, three more cards are added to the grid. However, these three cards are not replaced, keeping the number in the grid at twelve. This game does not have to be played competitively. It can simply be played for the enjoyment of making sets, and can also be played by one child as a game of solitaire.

Problems:

Young children sometimes have trouble keeping track of four features. This problem can be overcome by splitting the deck into three decks of 27 solid cards, 27 open cards, and 27 striped cards (sorting the cards according to shading).

Goal:

Classification

Junior Monopoly

Junior Monopoly is a simplified version of Monopoly™, but it is still somewhat advanced. At least one of the players must be able to read simple sentences and understand simple quantities (1-5) in order to play. Players take turns rolling one die and moving that number of spaces around the board. When they land on amusements, they must pay the owner of that amusement an entrance fee. If the amusement is not yet owned by a player, the player to land on it first pays the bank the entrance fee, places his or her toll booth on it, and becomes the owner. Like regular Monopoly™, players collect money each time they pass go. The game ends when one player runs out of money. The remaining players count their money, and the one with the most money wins. This game provides rich opportunities for reasoning about number and arithmetic. When players buy amusements and pay (or are paid) entrance fees, they have opportunities to add and subtract in making change. When a player owns both amusements of the same color, entrance fees are doubled, so children have to figure out how much to charge. This game also provides literacy experiences, as children move around the board reading directions such as “Roll again,” or “Pay \$2 to see the fireworks.” The game also contains an element of decentering and strategy. When players draw a card that allows them to exchange one of their toll booths for an opponent's, they must decide which one to exchange, based on the relative merits of each choice.

Problems:

This game can take a long time to play. Sometimes children may need to save an unfinished game to complete on another day.

Goals:

1. Counting
2. Addition and Subtraction
3. Literacy
4. Perspective taking
5. Turn taking

Hi Ho! Cherry-O

This is a good beginning number game. Children take turns spinning a spinner and taking the number of cherries indicated off their trees and placing them in their buckets. If the spinner lands on the bird or dog, children must take two cherries out of their buckets and place them back on their trees. If the spinner lands on the spilled bucket, children must take all of their cherries out of the bucket and place them back on their trees. This game can promote fine motor coordination as children practice putting cherries in and taking cherries out of their buckets.

Problems:

- a. The spinner does not have on it how many cherries to take away if the bird or dog is spun (players have to either remember or consult the rules). You may want to write it in.
- b. The placement of the trees is too close to the spinner, so that children often knock cherries off the trees when they spin. Our solution is to cut the board apart, so that each player has a tree and bucket of his or her own, not attached to the others.

Goals:

1. Counting from 1-10.
2. Fine motor coordination
3. Positionals (off, into)
4. Turn taking

Uno

Children are dealt a hand of seven cards, and then take turns placing a card on top of the discard pile to match the card on top in either number or color. Several word cards contain instruction to reverse directions, skip the next player, or draw several cards. Children can figure out strategies (such as the benefit of saving a *wild* card to use to go out). Perspective taking is promoted as children think about the benefits of concealing their cards from their opponents. Uno can be adapted to fit different developmental levels (and a preschool version is also available).

Variations:

- a. Do not use the word cards. Sometimes the word cards, particularly the *Skip* and *Reverse* cards, can be confusing to young children.
- b. Do not use the *Wild Draw Four* cards. Sometimes drawing four cards can be very discouraging to young children and can cause them to lose interest in the game.
- c. Use the *Wild Draw Four* cards, but do not adhere to the rule that you can only play them if you do not have a card of the correct color. The rules governing how one determines if a *Wild Draw Four* card has been played legally or not are too complicated for young children.
- d. Do not keep score. Simply play that the first person to get rid of his or her cards is the winner.
- e. Do not invoke the rule that a player has to say "Uno!" when he or she has only two cards. This is often hard for young children to remember.

Goals:

1. Number recognition
2. Color recognition
3. Reading

4. Directionality
5. Classification (by number, word, or color)
6. Perspective taking

Sorry

Children take turns drawing a number card from a pile and moving their markers around the board from their own start space to their own home space. Sorry offers opportunities for a myriad of number experiences. Children learn to recognize the number cards and count the correct number of spaces on the board (one-to-one correspondence). They learn to think about the board as a series of additions and subtractions. Sorry contains ample opportunities for children to reason about number. When children have more than one marker on the board, they must compare the results of each move and decide which marker to move. For example, if they move one marker they may advance 5 spaces, but if they move another, they may land on a "slide" space and get 4 additional spaces, for a total of 9. Many cards offer children a choice between two types of moves (move forward 10 or backward 1, move forward 11 or switch places with an opponent's marker, move one marker forward 7 or split the move between two markers). In the case of the 7 card, they learn how to decompose the number 7 into two parts ($1 + 6$, $2 + 5$, $3 + 4$). Children must count and evaluate the relative merits of different moves. Sorry offers many opportunities for children to develop strategies for winning (for example, having to decide between getting one of their markers out of start or bumping an opponent's marker back to start). Finally, the Sorry cards must be read, and some of them have long instructions, so children get practice reading.

Variations:

- a. Do not adhere to the rule that you can only get out of start with a 1 or a 2 card. Young children often become frustrated if other players have gotten out of start and they are stuck there.
- b. Simply move the number of spaces indicated on the card, disregarding the additional instructions (such as move forward 10 or backwards 1).
- c. Do not use the Sorry rule (bumping a person back to start when you land on an occupied space). Young children often find this very distressing.
- d. Use three markers instead of four, so the game ends more quickly.

Goals:

1. Number recognition (1-12)
2. Counting (1-12)
3. Addition and subtraction
4. One-to-one correspondence
5. Comparison of different consequences of moves, and the development of logical strategies
6. Reading
7. Turn taking