Number Sense

According to Howden (1989), number sense is a

"...good intuition about numbers and their relationships. It develops gradually as a result of exploring numbers, visualizing them in a variety of contexts, and relating them in ways that are not limited by traditional algorithms."
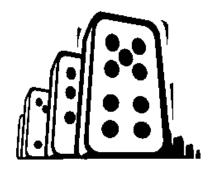
Decks

Dice

Subitizing

Being able to quickly identify the number of items in a small set without counting. Clements (1999) refers to it as "instantly seeing how many." It is a reliable predictor of later math achievement. There are two types:

<u>Perceptual</u>: recognizing a number without using other mathematical processes

<u>Conceptual</u>: recognizing patterns as parts of a whole

Fluency

<u>Efficiency</u>: having a quick way to obtain the answer

<u>Accuracy</u>: getting the right answer

<u>Flexibility</u>: being able to figure out the answer in different ways

Dominoes

Shannon Cannon, Ph.D., 2016

Go Fish

2 or more players

- Deal 5 (2-3 players) or 7 (4-5 players) cards to each player. The rest are the "stock."
- First player asks one to the left "Do you have any ___?" If not, s/he says "Go Fish" and the player takes a card from the stock.
- If the person asked has cards, they give them to the player who gets another turn to ask the next person.
- When all 13 "books" ("4 of a kind") are collected, the game is done.
- Winner has the most books.

Salute

3 players
Js, Qs, Ks removed

- Players take turns being the judge.
- Judge gives each player a card, face down.
- When the judge says "Salute" players put card up to forehead.
- Judge says, "The sum of the two cards is ___."
- The first player to guess number on the other card wins that round.
- Variation: give clues to child about card on forehead (1 more/less than)

Twenty Five

2 or more players
Js, Qs, Ks removed

- Deal equal number of cards to all players (face down in a pile).
- First player turns over first card, says number.
- Next player turns over card, says number and sum.
- Next player repeats, saying sum of previous and new card.
- Continue until 25 is reached. When the sum is more, start subtracting to get exactly 25.
- Winner counts cards as points.

Number Staircase

2 players
Qs and Ks removed (J=0), staircase paper

- The goal is to build the largest number possible in each of 5 rows.
- One player turns over a card. Everyone records same number at the top and gets a point.
- Cards continue to be turned and each player decides where to place it to make the largest number.
- For each row, discuss the highest possible number and a point is given to the person who has made the number with the greatest value.

More or Less

2 players/2 dice

- Each person rolls own dice. A point is given for the higher number.
- After 20 rolls, add up the points.
- Play again, for the number that is less.
- Variations: record the number value and add them up—for "more" the higher sum wins; for "less" the lower sum wins.

Knock Out

2 or more players/2 dice

- Each player chooses a "knock out number" (6, 7, 8, or 9—more than one player can choose same number).
- Players take turns throwing dice. Add numbers of both dice.
- If a player throws their own "knock out number" they are out until the next round.
- Decide before the game a score to be reached for a win, or keep score of all sums and total them.

Beat That

2 or more players/2 dice

- Each player takes turn rolling the dice and placing them in order to make the highest number.
- Player challenges the next player to "Beat that!"
- Play in rounds, awarding a point to a winner in each round.
- Variations: make the smallest number; use more dice; set a score (e.g., 100) needed to win.

Going to Boston

2 or more players/3 dice

- Roll the three dice and keep the highest.
- Roll the remaining 2 dice and keep the highest
- Role the last die and add up the total score.
- Keep track of the scores for each round. Either award a point for the winner of the round or add up all of the scores.
- Variations: subtract numbers and aim for smallest number; use more than 3 dice.

Dominoes

2 or more players/set of dominoes

- Put dominoes face down on table and mix them up.
- Each player takes 6 dominoes (if more than 3 players, each takes 3)
- First player (youngest or alphabetical order) places a domino face up.
- Next player puts a matching domino on the end. If the player has no match, s/he picks another domino.
- Winner is the first to get rid of all dominoes, or has the fewest left when no more matches can be made.

Add Fast/War

2 or more players/set of dominoes

- "Shuffle" the dominoes and deal an equal number to all players.
- On the count of 3, players turn up a domino and say the sum of their pips (both sides).
- The first player to correctly state sum earns a point. The player with the highest number earns a point.
- Variation: 1) do not keep track of points for "sum" and the winner of each round takes dominoes—most wins, 2) play for lowest--subtracting smaller number of pips from greater.

Make it Big

2 or more players/set of dominoes

- "Shuffle" the dominoes and deal an equal number to all players.
- Players take turns turning over one domino and creating the largest number (e.g., if a 4 and 6 are shown, the largest number possible is 64).
- The player with the highest number for each round scores a point.
- Variation: make the lowest number.

Tally Ho

2 or more players/set of dominoes

- "Shuffle" the dominoes and deal an equal number to all players.
- Players take turns turning over one domino and counting the total number of pips.
- Keep score using tally marks.
- The first player to reach 100 tallies wins (you may need to reshuffle and deal the dominoes).
- Variation: Subtract the pips and the lowest score, after all of the dominoes are used, wins.

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