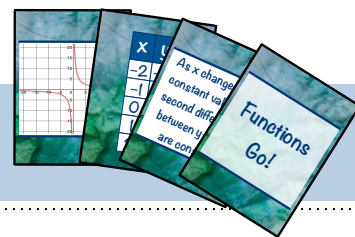


Functions Go!



Show your understanding of function families as you match function properties and representations to earn the most points in this drafting game.

Strands:

Number &
Quantity

Algebra

Functions

Geometry

Statistics &
Probability

| |
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Materials Needed:

- Functions Go! cards
- Functions Go! Scoring card
- A notepad to keep score

Where:

Outside

Inside

On-line

On-site

| |
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Set-Up:

- Give each player a Functions Go! Scoring card.
- Happiest player deals first.
- Shuffle the cards well. Deal out cards depending on the number of players:

| Number of players | 2 | 3 | 4 | 5 |
|-------------------|----|---|---|---|
| Number of cards | 10 | 9 | 8 | 7 |

Pre-game Play:

- The Functions Go! Scoring card shows a list of function families in the game. Use the list to sort the cards into function families to familiarize yourself with the functions and the cards.

Object of the Game: Identify and analyze function families as represented through equations, tables, graphs, and attributes.

Playing the Game:

1. Deal cards to players as directed in the Set-Up. Place extra cards face-down off to the side.
2. All players simultaneously play as follows:
 - a. Choose 1 card from your hand that you would like to keep.
 - b. Place the card face-down in front of you.
 - c. When each player has placed a card face down, reveal your chosen card.
 - d. Pass your remaining hand face-down to the player to your left.
 - e. Pick up your new hand.
 - f. Repeat Steps 2a through 2e until only one card remains.
3. Special cards:
 - a. "Triple the points for one set of matching trigonometric functions" card: Apply this card to one trigonometric function family, sine, cosine, or tangent. Triple the value for the function family when scoring the round.
 - b. " $f(x) = 2$ Swap for double the functions on a later turn" card: Play this card on one turn. On a future turn, before everyone else reveals their cards, call out "Functions Go!" Put this card back in your hand, then play 2 Functions Go! cards.
4. When you receive the final card of the hand, place it face-up with the other cards you collected.
5. Score the cards you have collected according to the directions on the Functions Go! Scoring card shown below.
6. Collect and shuffle the Functions Go! cards. Repeat Steps 1 through 5 to play a total of three rounds.

| Scoring | | | | | |
|----------------------------|---|---|---|----|----|
| Number of Cards | 1 | 2 | 3 | 4 | 5 |
| Linear Function | 1 | 2 | 3 | 4 | |
| Quadratic Function | 1 | 3 | 6 | 10 | 15 |
| Cubic Function | 1 | 2 | 5 | 12 | |
| Square Root Function | 2 | 4 | 6 | | |
| Rational Function | 1 | 3 | 5 | 7 | |
| Exponential Function | 1 | 2 | 4 | 8 | |
| Logarithmic Function | 1 | 2 | 3 | 4 | |
| Piecewise Defined Function | 1 | 2 | 3 | 5 | |
| Sine Function | 1 | 2 | 3 | | |
| Cosine Function | 1 | 2 | 3 | | |
| Tangent Function | 1 | 2 | 3 | | |

Find the number of points you earn for each function family under the number of cards you played in the function family.

**Think About It:**

1. What features of a graph allowed you to group it with the correct function family?
2. How are the cards in the same function family related?
3. Which representations are easiest to sort by function family? Why?
4. Which representations are most difficult to sort by function family? Why?
5. Which function family or families did you find challenging to identify? What made the function family challenging?

Variations:

Pass Both Ways: To change how the players interact, alternate which way you pass the cards each round. In Rounds 1 and 3, pass each hand to the left. In Round 2, pass each hand to the right.

Helpful Hints:

- Sort the cards in your hand by function families as you did in the pre-game play. Do this before deciding which card you will keep for that hand.
- As you keep cards in front of you from each hand, make sure to keep them sorted by the different function families.