Linear Graphs Algebra Card Game

Improve algebra fluency with these 12 sets of matching cards. Each set includes 6 cards showing multiple representations of the same equation: coordinate pairs, y-intercept, slope, graph, equation, and standard form. This set includes 72 game cards and activities. For up to 4 players.

Hand out the cards and have students work in small groups to match the six different representations of the equation. Or play one of the games included in this guide!

For students that may need help, we've included a card that features **Clues for Matching Linear Graphs Cards.**

1. Going Fishing!

Number of Players 2–4
Object of the Game To accumulate the most points by matching sets of 5 cards
Game 1: Math Standards: 8.F.B.5; HSF-IF.B.4

How to Play the Game

1. Put the 12 Standard Form cards aside. Shuffle the cards. Each player is dealt 5 cards. The remaining cards are placed facedown in a pile in the center of the playing surface. Players will draw cards from this pile when they cannot get cards from the other players.

2. Each player takes a turn asking one of the other players for all of their cards answering a specific description. For example, a player could say, "Give me all of your negative slope cards," or "Give me all of your Coordinate Pairs cards with (0, 0) in the table." Players will find it beneficial to strategically ask for cards that match what they have in hand, acquiring a good selection of cards.

However, players should also avoid acquiring so many cards that they hinder their chances of being the first to play all of their cards.

3. Any player who is asked for specific cards must give all the cards of that description in their hand to the requesting player. The requesting player may now ask for more cards from other players until no player can provide any more cards. The player must then draw a card from the drawing pile and then place a card in the discard pile.

4. Play continues in turn. The next player requests specific cards from other designated players until a player says that they do not have any cards of that description. Then the player whose turn it is must draw a card and discard a card. Note that a card may be "played" in any of three ways: as a match in a set, as a discard, or given to the player requesting it.

5. Players may not draw cards from the discard pile. When the drawing pile is empty, the discard pile is shuffled and placed facedown to become the new drawing pile.

6. During each player's turn, matching sets of three cards may be placed on the table to be counted later as part of the player's total score. A 3-card match can be made from any three cards that describe the same line. During later turns, matching cards describing the same line may be added to the set.

How to Score Each card in a set of three or more already played on the table is worth one point. The player who is first to play all cards gets a bonus of 10 points. (Note that each player must balance the strategy of playing on another player's set to score points with the benefit of going out and scoring the 10-point bonus.)

2. Match Match

Number of Players 2–4, all facing the grid in the same direction
Object of the Game To accumulate the most points by matching sets of 5 cards
Game 2: Math Standards: 8.F.B.5; HSF-IF.B.4

How to Play the Game

1. Place all of the 12 Graph cards faceup in a single horizontal row. This row is the top row.

2. Remove the Standard Form cards from the deck. Shuffle the remaining cards and place them facedown in a 12 × 4 grid to align with the top row of graphs. Each play consists of turning over two cards to see if they match a graph. If both of the cards match the same graph, the player may keep the cards to begin a set. The Graph cards stay faceup on the playing surface. If the two cards do not match the same graph, the player must place them back in the same locations facedown.

3. If two players have cards that match the same graph, they have the option to trade the cards so that each player has a full set. If a player collects all 4 cards that match a graph, that player may take the Graph card from the playing area to complete the set.

How to Score Each card in a 5-card set counts as one point. Any cards in a less-than-5-card set count as one-half point.

3. Rummy

Number of Players 2–4
Object of the Game To accumulate the most points
Game 3: Math Standards: 8.F.B.5; HSF-IF.B.4

How to Play the Game

1. Shuffle the cards. Deal each player 6 cards. Place the remaining cards facedown in a pile. Turn over the top card to be the first card in the discard pile. Each player takes a turn drawing a card from either the top of the facedown deck or the top of the discard pile and then discarding a card. During a turn, a player may also play 3-card matches by placing on the table any 3 cards that describe the same line. The player may add to this set as play continues until all 6 matching cards describing the same line are collected and then the full set is turned facedown. The game ends when a player can play all cards in hand and discard one card.

2. During the game, any player may add a card to another player's matching set on their play area and move that set to their own playing area. A player may reclaim a set by providing another match to the set. If the drawing pile empties before the game ends, shuffle the discard pile and continue the game.

How to Score Each card in a complete 6-card set counts as one point. Any cards in a less-than-6-card set count as one-half point. The player who is the first to play all cards and discard one card gets a bonus of 5 points.

Clues for Matching Linear Graph Cards

Slope to Equation The numbers on the slope cards match the coefficient of *x* (the number in front of *x*) on the equation card. If there appears to be no number there, then the coefficient of 1 is implied.

y-intercept to Equation The *y*-intercept in the equation is the constant term in the equation.

Slope to Coordinate Pair Find the difference between two adjacent *y* values on the Coordinate Pair card. The same number keeps appearing. If the *y* values are increasing, then the slope is positive; if decreasing, then the slope is negative. (This strategy works when the *x* values are listed in order from least to greatest and increasing by 1.)

Slope to Graph If the line is going up from left to right, the slope is positive; if it's going down, then the slope is negative. Select any two points on the line graph. Count the rise (or vertical spaces) and the run (or horizontal spaces) between the two points. Write the rise and run in a ratio. The ratio of rise to run is the slope.

Equation to Graph Select two points on the line, substitute the *x* coordinates into the equation and if your answer is the corresponding *y* coordinate, the equation and the graph match.

Equation to Coordinate Pair The *b* term in the equation expressed in $y = mx + b$ form is the value of *y* when $x = 0$ on the Coordinate Pair card. Select at least two points from the Coordinate Pair card. Substitute each *x* coordinate into the equation onthe Equation card. If the answer is the corresponding *y* coordinate on the Coordinate Pair card, then the Equation card and the Coordinate Pair card match.

Coordinate Pair to y-intercept Look for $x = 0$ in the table on the Coordinate Pair card. The *y* value that is paired with $x = 0$ is the number for the *y*-intercept.

Don't Miss the Complete Sets of
The Algebra Game
For Grades: 7–12
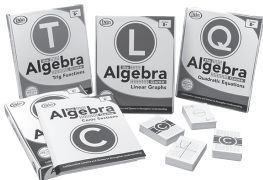
These comprehensive sets include multiple decks of cards — as many as 12 students can work with one set at the same time.

Available for key topics, each of these sets include four decks of matching cards, increasing in difficulty from Deck A to Deck D. They also include a comprehensive teacher's guide featuring activities and games, discussion questions and reproducibles.

Linear Graphs	#211753
Quadratic Equations Basic	#211754
Quadratic Equations Advanced	#211755
(Designed to be used in conjunction with QE Basic — no guide included)	
Trig Functions	#211756
Conic Sections	#211757
Complete Set	#211790