

Equations Game

Topic:	Solving Two-Step Equations
Grade Level:	Algebra 1
Number of Players:	3-5 in a group
Materials Needed:	One Set of "Equation Game" cards for each group.

Procedure:

- The cards can be used to play a rummy like game. Shuffle the deck of cards and deal 8 cards to each player. The remaining cards are placed face down as a draw deck.
- When play begins one card from the draw deck is turned face up to start a discard deck.
- The first player can either pick up from the discard deck or draw a card from the draw deck.
- After drawing or picking up from the discard deck, the player makes any books that he/she wishes and places them face up on the table in front of him/her. If a player picks up the discard pile he/she must make at least one book using a card or cards from the discard pile. A book consists of a two-step equation, the corresponding one-step equation, and the solution. For example: $5 - 2x = 9$, $-2x = 4$, and $x = -2$.
- The player then discards a card from their hand and play passes to the next player.
- If a player cannot make a book after drawing a card, play passes to the next player.
- Play continues in the same manner until all the books are made. The player with the most books is the winner.

Alternate Game:

- Use only the two-step equation and the solution for the alternate game. i.e., $3x + 4 = 10$ and $x = 2$. This will give you 48 cards.
- Shuffle the altered deck of cards and deal 8 cards to each player. The remaining cards are placed face down as a "Go Fish!" deck.
- Each player makes any books as he/she can and places them face up on the table in front of him/her. A book consists of one card with an equation and one card that has the solution. For example, $2x + 4 = 6$ and $x = 1$.
- To begin play, the first player asks one of the other players, by name, for a solution card, i.e., "Sue, do you have $x = 2$?" If Sue has one of these cards, she must give it to the first player. The first player must make a book using the card and place it on the table. He/she takes another turn. If Sue does not have the card, she tells the first player, "Go fish!" The first player draws a card from the draw deck and play passes to the next player.
- Play continues in the same manner until all of the players are out of cards. The player with the most books is declared the winner.

$2x + 1 = 8$ $8 = 1 + 2x$	$2x = 7$ $7 = 2x$	$x = \frac{7}{2}$ $x = \frac{7}{2}$
$4x + 2 = 5$ $4x + 2 = 5$	$4x = 3$ $4x = 3$	$x = \frac{3}{4}$ $x = \frac{3}{4}$
$3x + 1 = 8$ $3x + 1 = 8$	$3x = 7$ $3x = 7$	$x = \frac{7}{3}$ $x = \frac{7}{3}$

$2x + 5 = 12$ $2x + 5 = 12$	$2x = 7$ $7 = 2x$	$x = \frac{7}{2}$ $x = \frac{7}{2}$
$2x - 4 = 10$ $2x - 4 = 10$	$2x = 14$ $2x = 14$	$x = 7$ $x = 7$
$3x - 4 = 3$ $3x - 4 = 3$	$3x = 7$ $3x = 7$	$x = \frac{7}{3}$ $x = \frac{7}{3}$

$x = 1$	$2x = 2$	$2x + 4 = 6$
$1 = x$	$2 = 2x$	$6 = 4 + 2x$
$x = 6$	$2x = 12$	$2x - 4 = 8$
$6 = x$	$12 = 2x$	$8 = 4 - 2x$
$x = 6$	$3x = 18$	$3x - 4 = 14$
$6 = x$	$18 = 3x$	$14 = 3x - 4$

$x = 1$	$2x = 2$	$2x - 1 = 1$
$1 = x$	$2 = 2x$	$2x - 1 = 1$
$x = 1/4$	$4x = 1$	$4x + 6 = 7$
$1/4 = x$	$1 = 4x$	$7 = 6 + 4x$
$x = 3/4$	$4x = 3$	$4x - 1 = 2$
$x = 3/4$	$4x = 3$	$4x - 1 = 2$

$x = 1/2$	$2x = 61$	$2x + 4 = 5$
$x = 1/2$	$2x = 1$	$2x + 4 = 5$
$x = 5$	$5x = 25$	$5x - 10 = 15$
$x = 5$	$5x = 25$	$5x - 10 = 15$
$x = 5$	$3x = 15$	$3x - 2 = 13$
$x = 5$	$3x = 15$	$3x - 2 = 13$

$X = 3$	$2x = 6$	$2x - 4 = 2$
$x = 3$	$6 = 2x$	$2 = 4 - x$
$x = 4$	$2x = 8$	$2x + 7 = 15$
$x = 4$	$8 = 2x$	$15 = 7 + 2x$
$x = 3$	$2x = 6$	$2x + 3 = 9$
$x = 3$	$6 = 2x$	$9 = 3 + 2x$

$3x + 4 = 10$ $10 = 4 + 3x$	$3x = 6$ $6 = 3x$	$x = 2$ $2 = x$
$2x - 3 = 5$ $5 = 3 - 2x$	$2x = 8$ $8 = 2x$	$x = 4$ $4 = x$
$3x - 2 = 4$ $4 = 2 - 3x$	$3x = 6$ $6 = 3x$	$x = 2$ $2 = x$