

# DIY Math Games

## KABOOM! — Hidden Danger Games

One way to make fact practice fun is to create a game with risk. You can do that by creating a game where players collect correct answers, but lose it all if they have an unlucky draw.

**Materials & preparation** — You need popsicle sticks and a cup. Write one math fact equation on the end of each popsicle stick (e.g.,  $3 \times 7$ ). On several sticks, instead of an equation, write KABOOM! Place all the sticks, written side down, in a cup.

**How to play & win** — Player draws one stick from the cup. If an equation is written on it, the player gives the answer. If correct, player keeps the stick, if incorrect, player returns the stick to the cup. If the stick says “KABOOM!”, the player has to return all their sticks to the cup. Once all the sticks have been drawn, the player with the most sticks wins.

### Variations

- Add additional pitfalls or windfalls — for example:
  - Put a red dot on some of the equation sticks. If a player draws that stick and answers the equation correctly, player keeps that stick and collects one stick from every other player.
  - Put a green dot on some of the equation sticks. If a player draws that stick and answers the equation correctly, player keeps that stick and collects all other players' sticks.
- How to use existing equation sets (instead of popsicle sticks) — for example, to use an existing flashcard deck, put colored sticky dots (found at office supply stores or office supply sections of places like Target) on the answer side of a few random cards. Choose what color means what action (for example, blue = KABOOM!, red and green like example above). Shuffle the deck and place it equation side up in the center of the players. Take turns drawing cards and answering the equations until there is a winner.

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## Turning any Board Game into Fact Practice

Play your favorite board game with its rules, except, replace the single 6-side die or spinner in any board game with one of the following:

- 2 dice and a  $+$  /  $-$  or  $+$  /  $-$  /  $\times$  operations die (or make your own operation die using a foam cube, or flip a coin for +/-)
- Double dice (add or multiply the two numbers together)
- a 10-sided die and a coin (heads is +1, tails is +2); add them together
- an existing set of flashcards stacked as a draw pile; or index cards with equations stacked as draw pile

If the “rolled” number is too large, make a rule that a player must roll an exact number to land on the end / finish space — if their roll is too high, they go back to start, finish out their move, and keep playing.

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## A Twist on Traditional Card Games

**Math War** — you can buy Math War card decks, but you can also make your own.

- If you already have an existing flashcard deck, use them to play war. If the answers are printed on the back of the cards, simply stack each player's deck equation side up.
- Make a deck using index cards.

### Division / Subtraction Go Fish

- Remove the jacks, queens and kings from a regular deck of playing cards. Tell the players that Aces = 1.
- Deal the cards as you would in traditional Go Fish (5-7 cards per player, remainder stacked face down for draw pile).
- Play like regular Go Fish, except ask for cards using division or subtraction equations. For example, instead of asking, "Do you have any 5's?" a player would ask, "Do you have any 25 divided by 5's?" or "Do you have any 9 minus 4's?"
- All other rules of play just like traditional Go Fish.

**Math Rummy** — this game combines the ideas from traditional rummy and Math Dice.

- Use a traditional deck of playing cards. Face cards (jacks, queens, and kings) are wild cards. Ace = 1.
- Shuffle the deck. Turn top card over. That number is the "target number." (If a face card, turn next card up until you get a number card). Set to the side as a reminder of the target number (shuffling any face cards back into the remaining deck).
- Deal 9 cards to each player. Play like traditional rummy, except, instead of collecting sets and runs, collect 3 groups of 3 cards each, where the 3 cards can be used to make an equation equaling the target number. The equation can use any operation (+, -, x, ÷), and can use more than one operation. For example, if the target number is 10, a winning hand might have a group of 3, 3, 4 ( $3+3+4=10$ ) and a group of 2, 5, Ace ( $2 \times 5 \times 1=10$ ) and a group of 10, 2, 10 ( $[10 \times 2]-10=10$ ).
- To help the child keep track of their equations, have a stack of index cards with operations (+, -, x, ÷) written on them in the corners that they can put slip in their hand between the cards to help them remember what equations they are creating.

- **Variations to make it easier:**

- Allow players to put completed groups of 3 down as they create them, so that they can focus on what is left in their hand.
- Deal 3 cards instead of 5, with an objective of just creating one group of 3 equation.

- **Challenge Variation (for 2 players):**

- Turn the face cards into operations (+, -, x, ÷) cards by writing operations on sticky notes and putting one on each face card (or write them on an index card and tape it to the face card; or, replace the face cards with operation cards made from index cards). Suggest splitting up the 9 face cards as follows: 3 for +, 2 for -, 2 for x, 2 for ÷.
- Deal each player 3 operations cards each, put the remaining 3 cards face down in a draw pile.
- Deal 6 number cards to each player and put the remaining cards face down in a separate draw pile. Turn the top card over for the target number and put it to the side.
- Play as above, looking to make 3 equations that each equal the target number, using 2 numbers and 1 operation for each equation. (For example, if the target number is 3, the 3 groups might be  $Ace+2$ ;  $6 \div 2$ ; and  $1 \times 3$ . On their turn, players can either draw a number card or an operation card (discard the same type of card at the end of their turn).

### **Fact Family Match Race**

- Write multiples of a number on the back of index cards, one number on each card. (For example, if working on the 6 fact family, write 6, 12, 18, 24, 30, 36, 42, 48, 54, each number on the back of one index card.)
- Shuffle the index cards and place them face down in the center of the players.
- Remove the jacks, queens, kings, and jokers from a regular deck of playing cards.
- Aces stay in the deck. Ace = 1
- Shuffle the number cards and place them face down as a draw pile in the center next to the index cards.
- Turn over the first index card. That is the target number.
- On each player's turn, draw a card. If the card multiplied by the fact family number equals the target number, it is a match. (For example, working the 6 fact family, if the index card target number is 42, a number card of 7 would be a match [ $7 \times 6 = 42$ ])
  - If the player does not draw a match or have it in their hand, their turn is over (leaving card in their hand).
  - If the player has a match, they take the index card and put it on the table in front of them and turn over the next index card for the new target number. The player discards the number card. If that player has the new match already in their hand (from previous turns — do not draw a new number card), they can play it. That player's turn continues until they no longer have any matches in their hand.
- When out of target cards (index cards), the game is over. Whomever has collected the most target cards, wins.
  
- **Bridge-to-10 Addition Variation:**
  - Remove the 10's, jacks, queens, kings, and jokers from a regular deck of playing cards.
  - Aces stay in the deck. Ace = 1
  - Take out one set of Ace -> 9 cards from the deck. Shuffle them and place them face down for the target number draw pile.
  - Shuffle the remaining cards and place them face down for the draw pile.
  - Play as above, except, a match is the number that when added to the target number will equal 10. For example, if the target number is 4, the match is 6.