

Pennywise

A Game of Making Change

It's a sad truth that the real-life penny is almost worthless, costing the U.S. government more than its own value to produce. Some say we'd be better off eliminating it and rounding all prices to the nearest \$0.05.

But not so in Pennywise. Here, the dull copper-coated coin steps into the spotlight. James Ernest, the game's creator, offers three words of crucial advice: "Save your pennies."

Do as he says, and in return, the pennies just might save you.

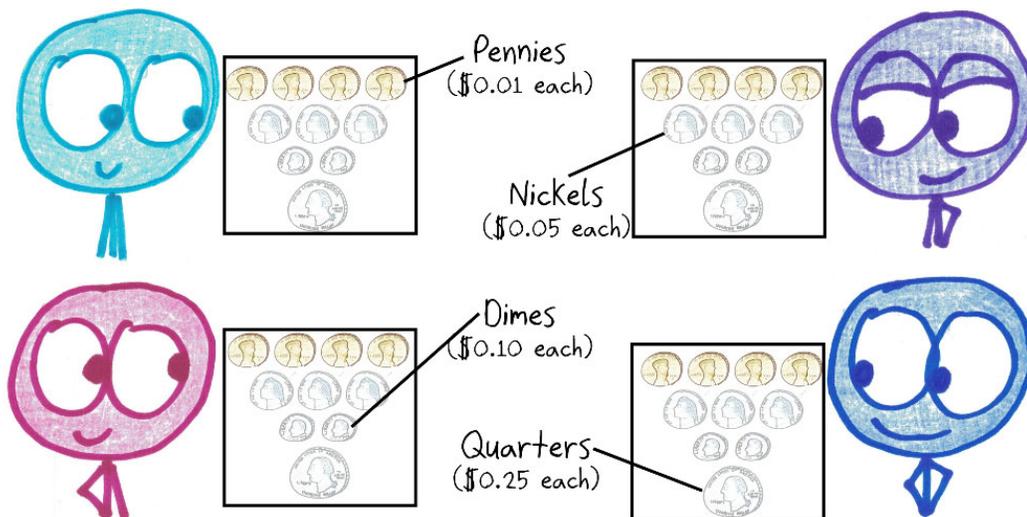
How to Play

What do you need? Two to six players, and a jar of coins.

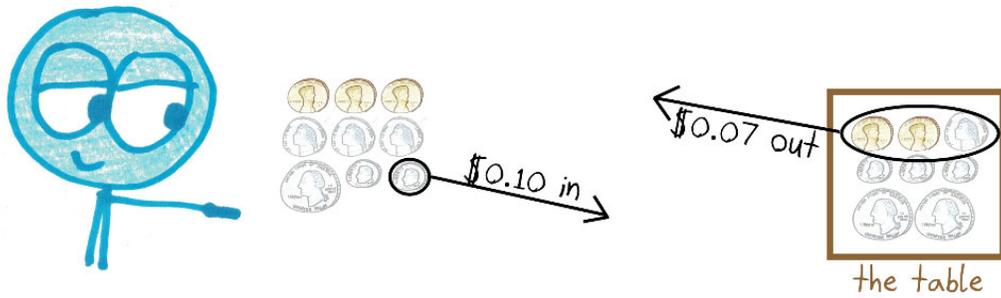
What's the goal? To be the last one with coins remaining.

What are the rules?

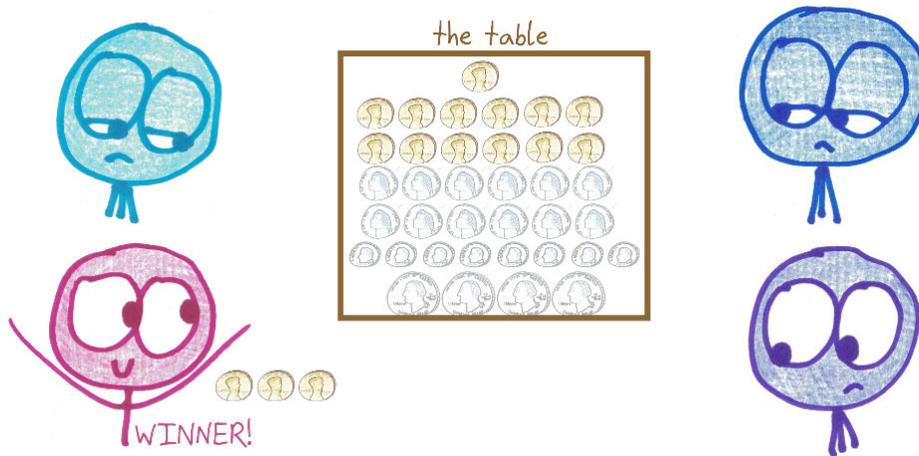
1. Each player begins with **four pennies, three nickels, two dimes, and one quarter.**



2. On each turn, **place one of your coins in the center of the table.** Then, you may **take back any combination of coins whose total value is strictly less than the coin you put in.** For example, if you put in a dime, you can take back at most \$0.09 of change.



3. Last player with any coins remaining is the winner.



Variations and Related Games

OTHER STARTING COINAGE: Rather than beginning with the coins mentioned above, try out these alternatives (proposed by James Ernest, the game's creator) or make up your own.

Name	Coins at the Beginning	Coins	Value
Original	1, 1, 1, 1, 5, 5, 5, 10, 10, 25	10	\$0.64
Coprimes	1, 1, 1, 1, 4, 4, 4, 7, 7, 13	10	\$0.43
Darlene	1, 1, 1, 3, 3, 3, 10, 10, 20	9	\$0.52
Nodimes	1, 1, 1, 1, 5, 5, 5, 25	8	\$0.44
Sugar	1, 1, 2, 2, 5, 5, 10	7	\$0.26
Taylor	1, 1, 1, 5, 5, 10	6	\$0.23

Whatever you pick, just make sure all players begin with identical stashes.

NEW CHANGE-MAKING RULES: These two interesting variations come from Joe Kisenwether.

1. You may take back any combination of coins whose value is less than **or equal to** the coin you put in, as long as they are of **a lower denomination**. For example, if you put in a dime, you can take back two nickels.
2. You may take back **all the coins of a lower denomination than the one you put in**, even if their total value exceeds your original coin. For example, you could put in a dime, then take out three nickels and five pennies.

A good puzzle from Joe: Could either of these variations lead to an endless game? If not, what is the maximum number of turns that the game could last?

FLIP: A two-player dice game. To begin a round, each player rolls five standard dice. The player with the lowest total goes first. Then, on each turn, you may either:

1. *Flip over one of your own dice.* Note the two numbers on opposite sides of a die always add to 7. Thus, flipping turns 1's into 6's, 2's into 5's, and 3's into 4's (and vice versa).¹
2. *Tap one of your opponent's dice.* They must now place that die in the center of the table, and in return, they may take from the middle any combination of dice whose total is strictly less than the die they just put in. For example, if you lose a 5, you could take any dice whose sum is 4 or lower.

The last player with dice remaining is the winner of the round, and scores the total of their remaining dice. Whoever gets to a score of 50 first wins the game.

¹ One caveat: Once you flip a particular die, you cannot flip it again until after you've tapped one of your opponent's dice. This rule is necessary to avoid stalemates.