



BALANCE A COIN ON A DOLLAR

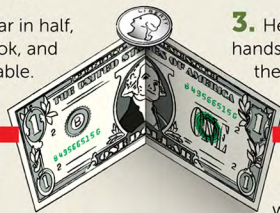


What do I need?

- A crisp \$1 bill (or a long, skinny piece of paper)
- A coin (the larger the coin, the easier this trick is)
- A table
- Steady hands

What do I do?

1. Fold the dollar in half, open it like a book, and stand it on the table.
2. Set the coin on the fold. The bill will support it easily.



3. Here's where you need steady hands. Grab the upper corners of the dollar and slowly pull them in opposite directions until the bill is almost straight. (Even when it looks straight, there's a tiny fold. That's what supports the coin.)

Tips for Master Balancers

- The bill has to be crisp. This is a great opportunity to ask a grown-up if you can borrow a bill that's worth more than whatever you have. Bills of higher value aren't used as much and are usually crisper.
- Hold the bill at the top corners when you pull. That will keep the edge steadier.

BONUS CHALLENGES

Pick up the dollar with the coin still balanced. Steady, now!

Balance three coins. Fold the bill so it looks like a W from above, set a coin on each fold, and then pull on the ends. This takes practice.



What's going on?

When you set the coin on the folded dollar, the edges of the bill hold the coin up. Those edges make an angle. As long as the center of the coin is inside that angle, the coin balances. (If you don't believe us, give it a try.)



This coin balances

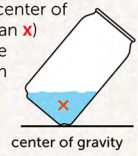


This coin falls

As you straighten the dollar, the center of the coin (marked with an **x** above) always stays inside the angle made by the edges of the bill. That's because the part of the bill that has less of the coin's weight resting on it moves more than the part that has more weight on it.

The center of the coin is where its center of gravity is located. You can think of the center of gravity as the spot where all the coin's weight is concentrated. As long as the dollar supports the center of gravity, the coin stays balanced.

The center of gravity of the soft drink can moves around. When you tip the can, the liquid inside moves, changing the center of gravity. If the right amount of liquid is in the can, tipping it moves the center of gravity (marked with an **x**) so it is right above the beveled section. Then the can is perfectly balanced standing at a slant.



center of gravity

BALANCE A CAN ON A SLANT

What do I need?

- An ordinary aluminum soft drink can
- Water
- A table

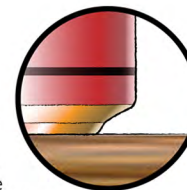


What do I do?

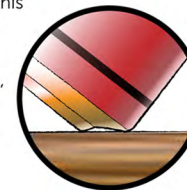
1. If the can is empty, add water until it's about a quarter full. If it's full, drink until there's about a quarter left.

Before you try this trick at a lunch table, practice it in the kitchen sink, where a failed experiment won't be a disaster.

2. Take a look at the bottom of the can. You'll see that there's a slanted, or beveled, section connecting the side of the can with the bottom.



3. Set the can on this beveled edge and see if it balances. If it doesn't balance, pour a little of the liquid out (or drink a little more) and try again.



4. Once you have a feel for how much liquid you need in the can, you're ready to try it at the lunch table. Just drink until you think you have the right amount, and then check the balance. If there is still too much, drink a little more and keep testing until you get it right.

