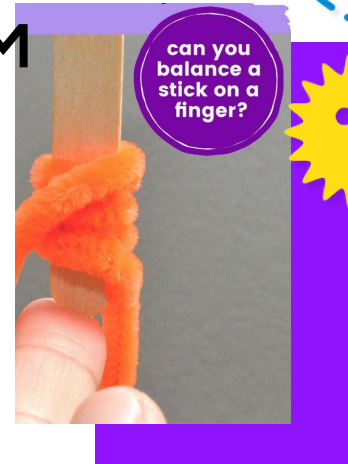


15-minute Family STEAM Center Of Gravity

Supplies:

Craft Stick Pipe Cleaner 2 Clothes Pins



1. Center the pipe cleaner near one end of the craft stick
2. Wrap the pipe cleaner tightly around the craft stick twice on each side
3. Clip a clothspine on the end of the pipe cleaner.
4. Clip the other clothspine on the other end of the pipe cleaner.
5. Carefully balance the end of the craft stick on the your finger. Adjust the pipe cleaner's position on both sides to achieve balance.
6. Once that you've succeeded in balancing a craft stick, you can substitute the pipe cleaner and the clothspins with other materials to see the differences. You can even substitute the craft stick with a pencil or other types of sticks.

The Science

This trick works because we changed the craft stick's center of gravity. Center of gravity is the average location of the weight of an object. For a craft stick, it is located in the center (the black X). When the center of gravity of an object is approximately in line with the base of support (i.e. near the vertical line), the object does not fall. It is hard to balance a craft stick by itself because its center of gravity is high up above the point of support. Even a small tilt can move it far away from the vertical line, causing the stick to topple. When a pipe cleaner and the clothspins are added, the center of gravity is lowered to near the base of support (the blue X). Tilting the stick slightly does not move it too far away from the vertical line. So this new configuration is more stable

