

Title:

Wobble Wobble

Activity Overview

Description: Learn about centre of gravity by making a simple contraption that balances on everything, using only a few materials.

Topic Area(s): Engineering

Grade Level: Grades 1-6+

Duration: 20 minutes

Learning Outcomes:

- Center of Gravity
- Balance

Hook

Try to find something this wobble wobble does *not* balance on!

Background Information

Adding evenly dispersed weight to a structure lowers its centre of gravity. As long as more than half the weight of an object is located below its resting point, it will balance! In this case, the marshmallows add enough weight to perfectly balance the 'A'-shaped structure.

Materials

Per child:

- 2 Wooden skewers
- 2 Marshmallows
- 1 Cork
- 1 toothpick

Safety Considerations

Be careful pushing the sharp skewers and toothpick into the hard cork, they may slip and hurt your hands! Don't balance near or on eyes.

Procedure

1. At an angle (approximately 45 degrees) insert the pointy end of the skewer into the long side of the cork until it is snug and won't fall out. Repeat this on the opposite side of the cork, with the other skewer. Try to get the skewers poked into the cork in the same plane, creating an 'A'-shape.
2. Insert the toothpick into the flat base of the cork (the side where the skewers are pointing *down*).
3. At this point, test the structure's ability to balance by resting it on the tip of your finger – it won't balance!
4. Push the marshmallows onto the ends of the skewers, just so they are holding on – not so the skewer pokes out the end of the marshmallow.
5. Now experiment with the wobble wobble to see what it can balance on! *

*Sometimes the wobble wobble may not balance on the first try. In this case, some components may need adjusting – such as the position of the skewers in the cork, or the angle they are inserted on.



Wrap-Up/Debrief

Why is such a simple structure able to balance on anything? With a low centre of gravity, the structure is able to stay balanced due to the fact that the marshmallows serve as perfectly equal weights and are much lower than the resting point (the place where the object or structure sits on a surface – in this case, the point of the toothpick).

Have the children try to balance their bodies on one foot, relating the principles learned making the wobble wobble to a real-life balancing situation!

Additional Resources

<http://pbskids.org/designsquad/build/balance-magic/>