

Family Science Activity – Friday 15th May 2020

Balancing Structures

The activity - Make a balancing toy.

Experiment with the design of your toy to find out what affects whether or not it balances.

Learn about the centre of mass of an object and how it relates to whether or not something balances.

https://www.rigb.org/docs/balancing_sculptures_infosheet_0_0.pdf - activity worksheet in full

What you need:

- A carrot or similar vegetable
 - Kebab skewers
 - Marshmallows and/or other jelly type sweets, or small pieces of carrot or similar hard vegetables.
 - Plasticine or blu-tac
 - 500ml soft drink bottle or washing up liquid bottle

Stage 1: Cut a piece of carrot about 3 cm long. Stick a kebab skewer into one end of the piece of carrot and break the skewer so that you have only 2 or 3 cm of it sticking out. Try to stand the carrot piece up on the end of the kebab skewer – you should find this very difficult, if not impossible to do.

Stage 2: Stick a kebab skewer into each side of the carrot so that they point downwards at about 45 degrees. Then stick a marshmallow or other jelly sweet onto the ends of the skewers, as shown in the picture below. Place this on top of a bottle and you should find that it balances.

Get children to investigate what happens when you slide the marshmallows up and down the 'arms' of the sculpture and if you add more marshmallows. Stick an additional two or more kebab skewers into the carrot and challenge children to add at least one item to each skewer and still keep the sculpture balanced.

Questions to ask children: With just central part of the sculpture: why doesn't this stay balanced? Before showing them stage 2: do you think we can use more kebab skewers and anything else to help it balance? Why do you think it balances like this? What can we change? (position of skewers, items pushed onto the skewers, position of things on skewers) What do you think will happen if we change these things? What do you think we need to do to make sure our sculpture balances?

Going further:

Try making some animal-shaped balancing toys: <http://bit.ly/AniBalance>

Make a balancing butterfly: <http://bit.ly/BalanceButterfly>