

Centre of mass

(Ukraine)

Background

The centre of mass of an object is the point at which the object can be balanced.

Mathematically, when an object is in a state of equilibrium the sum of the moments around any point is zero.

You will need:

- ✓ a cork
- ✓ matchstick or toothpick
- ✓ a wire clothes hanger
- ✓ metre stick

Follow these steps:

1. Place the matchstick in the bottom of a cork.

2. Take a hanger or strong wire and make a Z shape.
3. Place the wire in the top side of the cork as in Figure 1.
4. Try to balance the cork on the matchstick on the end of the metre stick as in Figure 2.



So what happened?

The cork stays balanced (in equilibrium) as the sum of the moments around the fulcrum is zero.

A short wire won't balance as the moments are not balanced.

What next?

Progress to the hanging hammer on a metre stick (see Science on Stage 2017 booklet).

