# EQUILIBRIUM AND CENTRE OF GRAVITY

# Specification

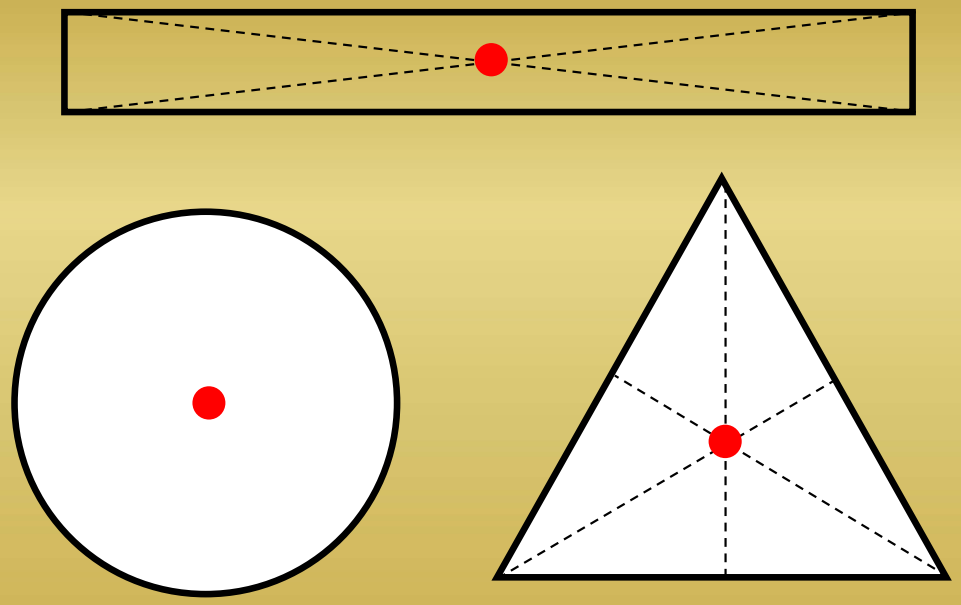
know that the weight of a body acts through its centre of gravity

# Centre of gravity

**The centre of gravity of a body is that point at which the weight of the body acts.**

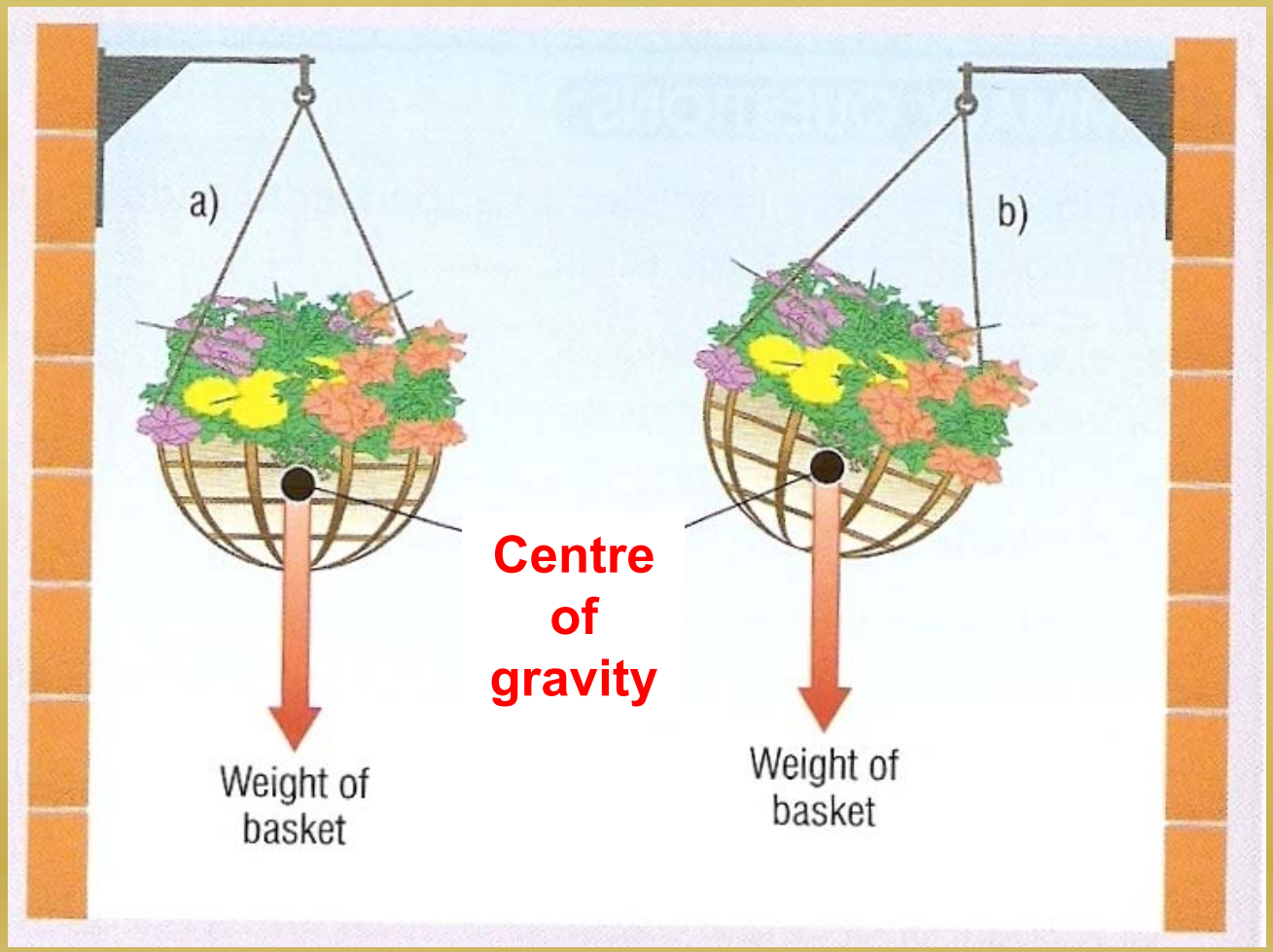
The **centre of gravity** of a symmetrical body is along the axis of symmetry.

**Centre of gravity** is also sometimes called **centre of mass**.

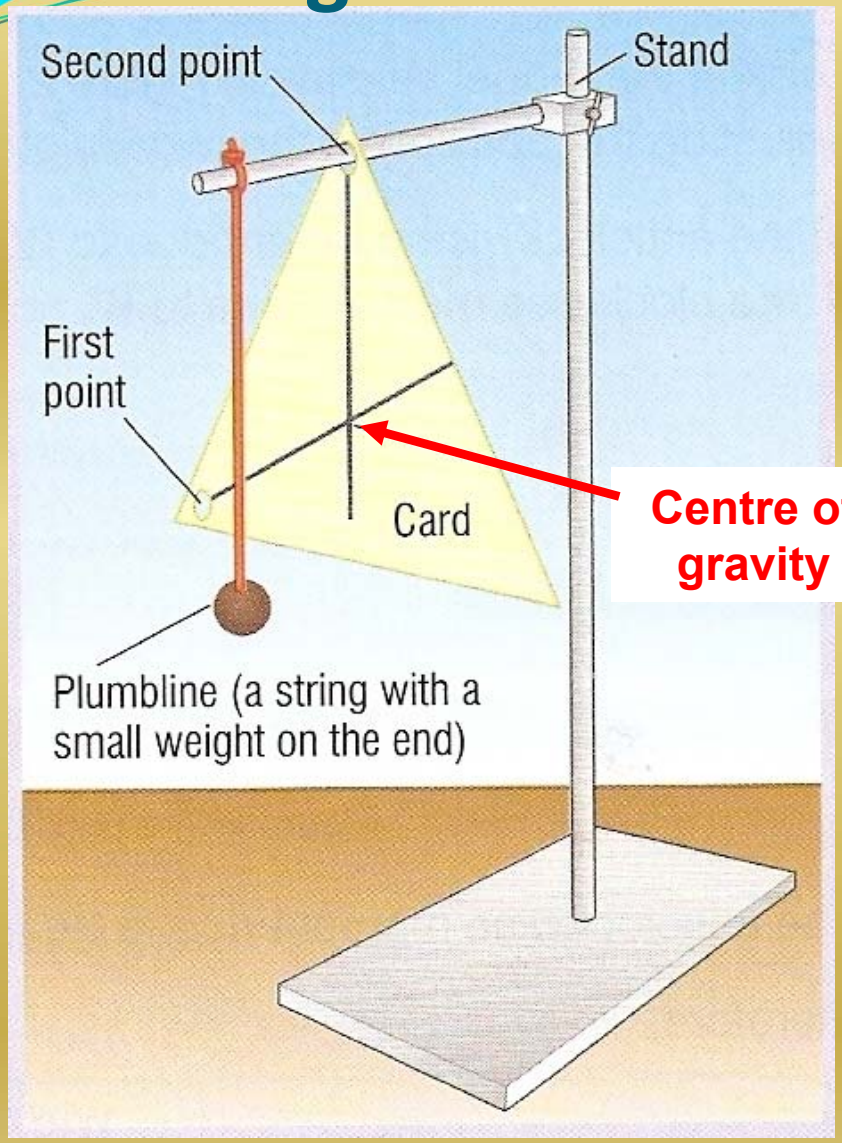


**centres of gravity of regular shapes**

**If suspended, a body will come to rest with its centre of gravity directly below the point of suspension.**



# Finding the centre of gravity of a card




Pierce the card in at least two places.

Suspend the card from one of these holes.

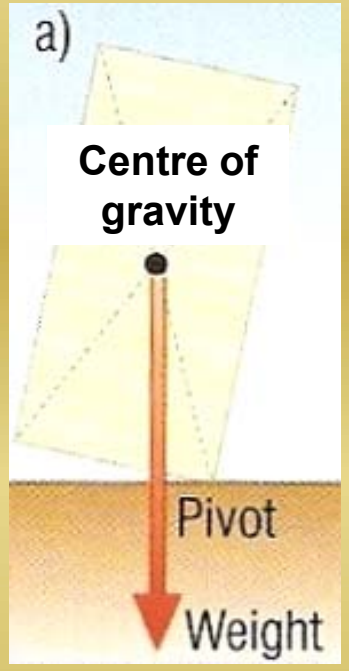
Hang a plumbline from the point of suspension.

Using the plumbline as a reference draw a vertical line on the card.

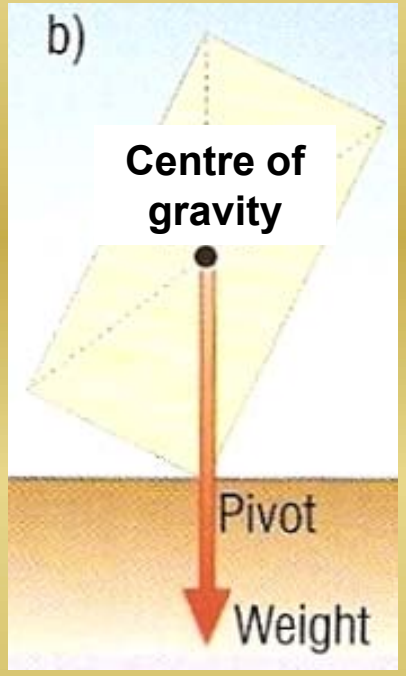
Repeat for the other hole(s).

The **centre of gravity** is where the lines cross on the card.

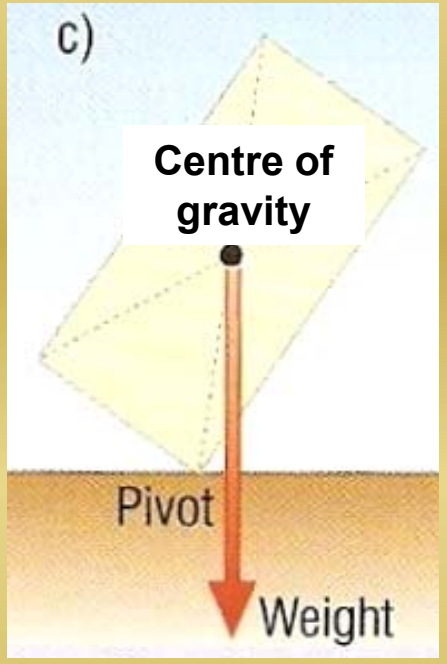
# Stability




**stable**




**balanced**




**unstable - toppling**

A body is stable as long as its centre of gravity remains vertically above its base.

If this is not the case, the body will topple.

# Question

*What factors make a modern racing car as stable as possible?*


1. A wide wheel base.
2. A low centre of gravity.