

Learn about: How distance and weight affect balance on a seesaw

# Weight Distribution

When loading a boat, it is crucial to distribute the weight evenly across the boat. If the boat is weighted too heavily at one side, it will capsize and sink. When designing the boat, engineers calculate how best to distribute the weight to ensure the boat will not tip over if too many people are on it.

## Weight Challenge 1:

Can you balance ten 2p pieces on the ruler?

You should be able to do this easily with five 2p pieces on each side.

Can you find a way to balance the ruler with more 2p pieces on one side than the other?

(Hint: the closer to the eraser a 2p is, the less it will tilt the ruler)

Remove all the 2p pieces from the ruler.

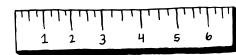
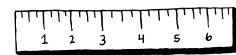
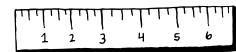
Balance the ruler on the eraser, with a weight (such as a potato, or a tin of beans) on top of both the ruler and eraser.

Can you balance the 2p coins more easily now?

Place all 2p pieces on the same side of a seesaw in the park.

Does it move at all?

Why is this?

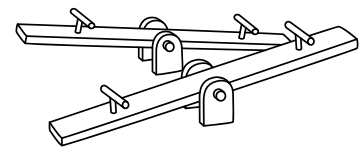


## Weight Challenge 2:

Sit on a seesaw, with a family member or friend of a similar size on the opposite side. You should balance with each other.

Now you and the other person should sit on the same side of the seesaw. Your weight will tilt the seesaw as it has become unbalanced.

**Warning:** Remember to follow social distancing guidelines at all times.



## Weight Distribution Conclusions

If the weight is distributed evenly on both sides of the seesaw or ruler, it will not tilt – this means that the seesaw or ruler is balanced.

The heavier the seesaw or ruler is, the less likely it is to be moved by weights on either end (like the 2p coins on the seesaw.)

When loading a ship, the cargo will be distributed evenly around the ship to help it balance, this will help ensure that when people move around the ship it will not tilt to one side but remain balanced.