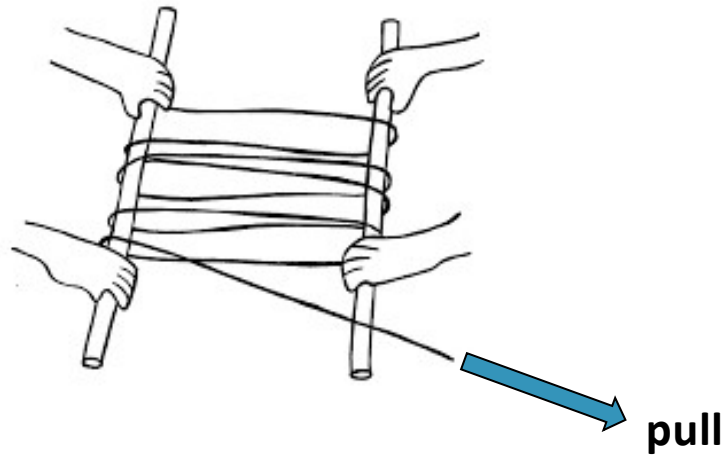


Practical Title: Investigating pulleys with broom handles and a rope



Focus and I

Equipment: 2 broom handles (make sure that these are robust so there is no danger of them breaking) and a long-ish rope

Suggested group size: Demonstration to the whole group with 3 volunteers

- Ask for 3 volunteers
- Begin with just **one loop of the rope** around the broom handles
- 2 people hold the broom handles and pull to try to keep them apart.
- The remaining person pulls on the rope in the direction shown by the arrow to try to bring the broom handles closer together.
- It is very difficult to pull them together with 1 loop!
- Increase the number of loops of the rope round the handles gradually
- If the rope is looped around the broom handles multiple times (a more complex pulley) it is much easier to pull the broom handles together than if the rope is only looped around the broom handles once (a simple pulley).

Can they think of a way of describing this?

The more loops there are around the broom handles, the less the force required to pull them together.

When there are more loops, the rope needs to be pulled further to pull the handles together. So the force needed is smaller but more rope is pulled through, which means that the force acts over a bigger distance

Health & Safety:

Teachers always need to risk assess practical activities for their children and defer to their health and safety advisor for the most up-to-date source of health and safety guidance.

This training cannot be relied upon as source of health & safety guidance.