



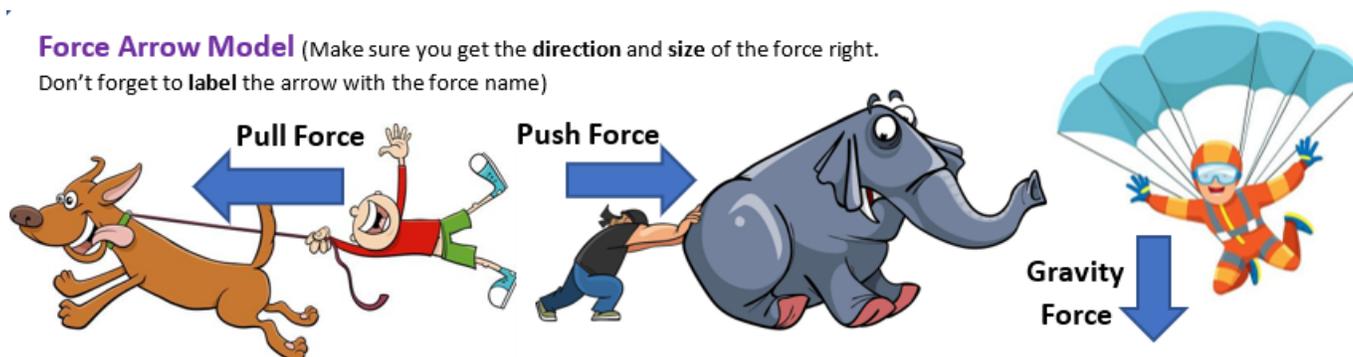
Dec 2023

Welcome to our science newsletter. Our newsletter provides fun opportunities to take science learning home. You don't need to hand anything in. Just enjoy it.

Pushes and Pulls at Christmas

A 'science model' takes a science concept and presents it in the simplest form. These then

Force Arrow Model (Make sure you get the **direction** and **size** of the force right. Don't forget to **label** the arrow with the force name)



EYFS/KS1—Push and pull the Christmas pudding

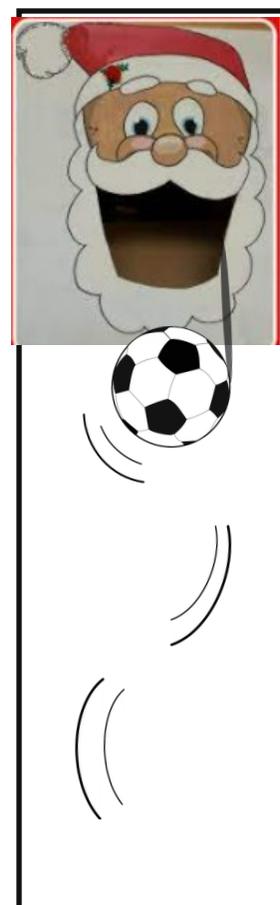
Using some playdough, can the children show how they can push.....and pull the dough? Do they recognise the difference?



Push the Christmas pudding towards Santa's mouth

Equipment: A ball and a picture of Santa's head.

Place a picture of Santa's head some distance away from your standing point. Roll the ball(Christmas pudding) towards Santa's mouth. Did you manage to get the ball to stop in his mouth. If it didn't stop in his mouth, do you need to use a smaller push (because it went to far) or a bigger push (because it didn't reach his mouth?)



A flight to the North Pole—Years 3—6

The paper aeroplane is Santa's new sleigh design for 2023. Make the paper aeroplane and investigate the effect of adding heavier loads(of presents) to his sleigh. Keep the same aeroplane design, mark out a runway with cushions on the floor or chalk outside and add an extra paper clip to the plane each time. What do you notice? How does an increasing force of weight affect the flight? Will the length of our forces arrow increase with the increasing weight?

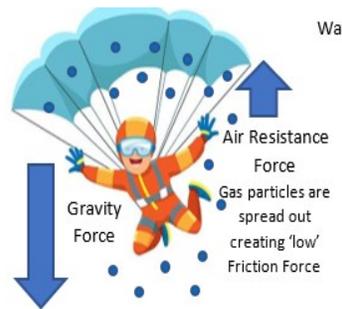
Explanation

The weight is the force due to gravity and it always acts in a downwards direction towards the centre of the earth.

Need a table to record your results?

Use the table below to record your repeated results of your investigation. If you are in Years 5 and 6 you know how to adapt the table to suit your requirements.

| | |
|--|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



Santa's present parachute drop-off to remote spots—Years 5 and 6(with the support of an adult)

- *How does the area of a parachute affect the time it takes to fall?*
- When Santa needs to deliver parcels to remote locations, he needs to ensure that the parcel, with the use of a parachute, lands safely and without any damage. Sometimes parachutes are used to reduce the speed at which the parcel hits the ground by creating an 'air' resistance force in the opposite direction to movement. Children need to design an investigation to find the best parachute design for an object to fall slowly.

Explanation: The force of gravity makes the parachute fall to the ground; gravity is always acting on it which is why it speeds up as it is falling. Forces arrows: when the parachute is falling, gravity force is greater than the air resistant force therefore the gravity force arrow should be longer.

Method: Create a selection of circular parachute canopies of varying sizes, using the compass to draw the circle on your plastic or paper before cutting them out. Using the hole punch add four equally spaced holes to each canopy and tie an equal length of string through each hole; secure the loose ends of the string in the plastic pot/around the action figure. Choose a safe height to release the smallest parachute from and find a way to mark the release position so the parachutes always fall from the same height. Release the parachute and time how long it takes to hit the floor, collect the parachute and release a further two times, repeating measurements and recording them in a table so that the mean average can be calculated. Repeat the test with the parachutes of different surface areas.