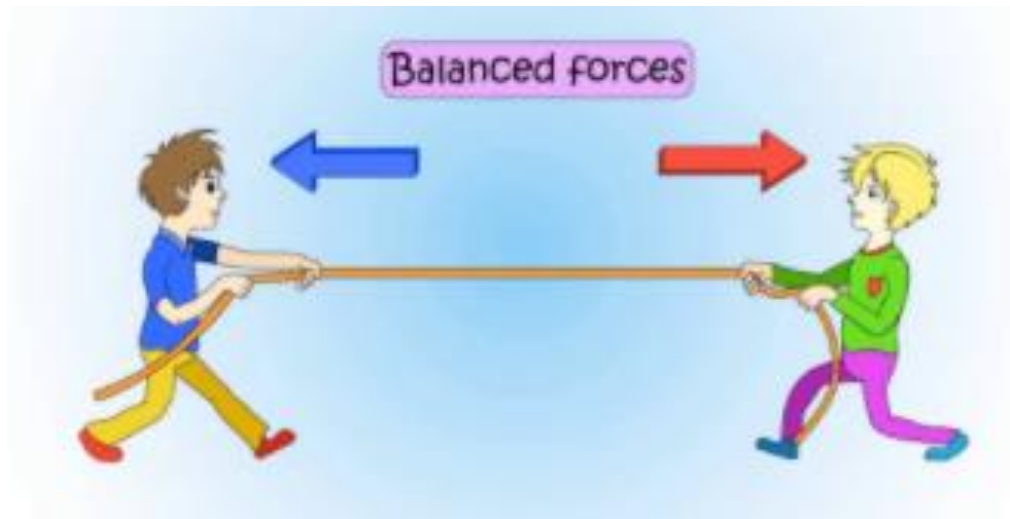


# Forces - Lesson 1

# Forces are pushes and pulls in a particular direction

## ► Balanced forces

If two forces are balanced, it means the forces are the same size but are acting in opposite directions. If two balanced forces are acting on an object, that object will not change its motion. If it is still, the object will stay still or if it is moving, it will continue moving in the same direction and at the same speed.



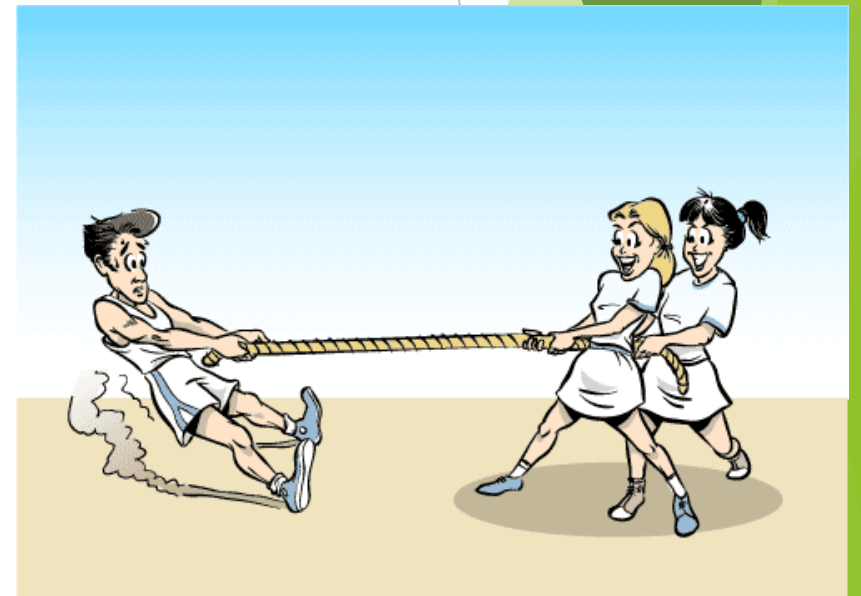
# Forces are pushes and pulls in a particular direction

## ► Unbalanced forces

When two forces acting on an object are not equal in size, we say that they are unbalanced forces. Unbalanced forces do change the way something is moving. They can make objects start to move, speed up, slow down or change direction.

Watch the video to find out more

<https://www.bbc.co.uk/bitesize/topics/zvpp34j/articles/zywcrdm>



Do you think these forces are a push or a pull force?



shutterstock.com • 127492400



# Gravity is a type of force

- ▶ Gravity attracts all objects towards each other. Gravity has been around since the very beginning of the universe, and it works the same way everywhere in the universe, on all kinds of different objects, of all different sizes (larger than atoms - those are held together by atomic forces instead).
- ▶ How much gravity an object has depends on how big it is (or to be specific, how much mass it has). It also depends on how close you are to the object; the closer you are, the stronger the gravity.
- ▶ Gravity is very important to our everyday lives. Without Earth's gravity we would fly right off our planet! We'd all have to be strapped down all the time and if you kicked a ball, it would fly off forever. While it might be fun to try for a few minutes, we certainly couldn't live life on Earth without gravity.
- ▶ Gravity also is important on a larger scale. It is the Sun's gravity that keeps the Earth in orbit around the Sun. Life on Earth needs the Sun's light and warmth to survive. Gravity helps the Earth to stay just the right distance from the Sun, so it's not too hot or too cold.



# Friction is another type of force

- ▶ Friction is a 'sticking' force - the resistance that a surface or object encounters when moving over another surface or object. Friction both stops and makes things move: it causes things to stick and rub against each other, and also causes slipping and sliding



Here are the different types of contact forces.

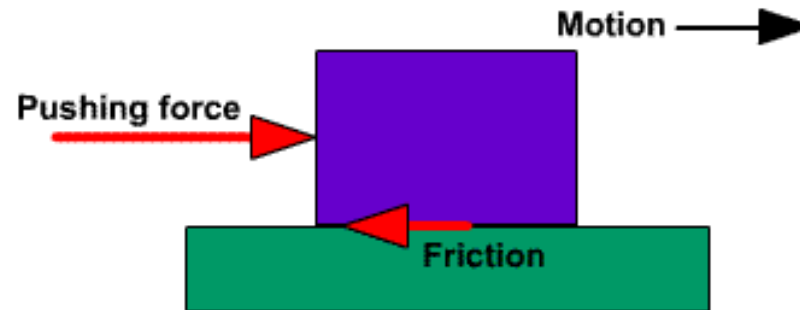
## Impact forces

When objects collide



## Frictional forces

When 2 objects rub against one another



## Strain forces

When an elastic material is stretched or squashed



# Activity:

- ▶ Activity 1 - Push one hand against the other. What forces are in action?
- ▶ Activity 2 - Crouch down and then jump up into the air. What forces are in action? (there are two!)
- ▶ Activity 3 - Have a look around your house and in your garden and see what different examples of forces you can see. What about opening your wardrobe? Opening a door? Make a list of push and pull forces in your home-working book that you have found.
- ▶ **Challenge - What would be different in different weathers? For example, would the slide be more slippery if it was snowing?**

