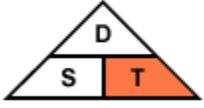


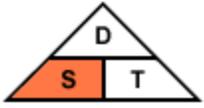
# 8 Application of Forces & Speed



$$\text{Distance} = \text{Speed} \times \text{Time}$$



$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$



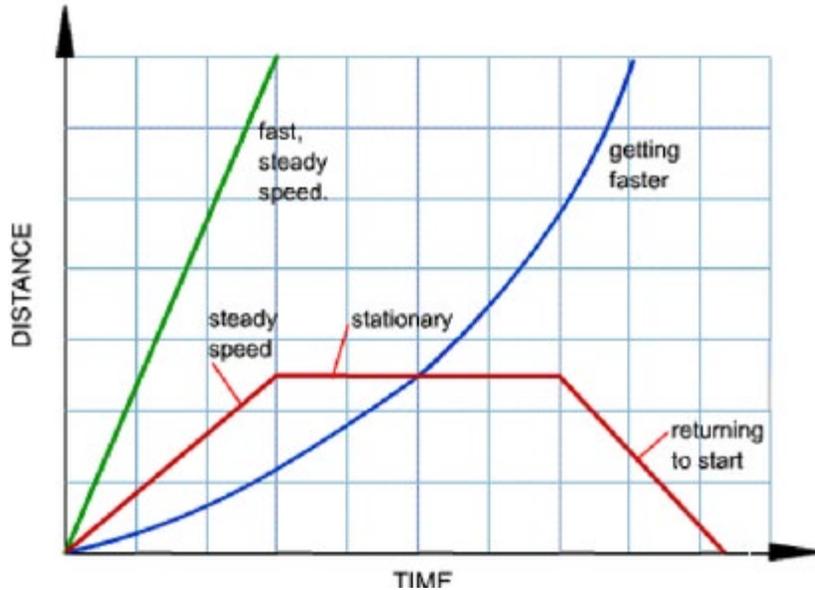
$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Speed is a measure of how far you travel in a set amount of time.

The formula allows you to calculate values for speed, distance and time.

A distance time graph shows the distance travelled by an object over time.

You can tell the motion of an object by looking at the shape of the graph.



If you have travelled in a car on the motorway, you may have noticed that other cars passing by appear to move slowly past you, even though you know the actual speeds of the two cars are very high. This is because of their [relative motion](#) to each other.

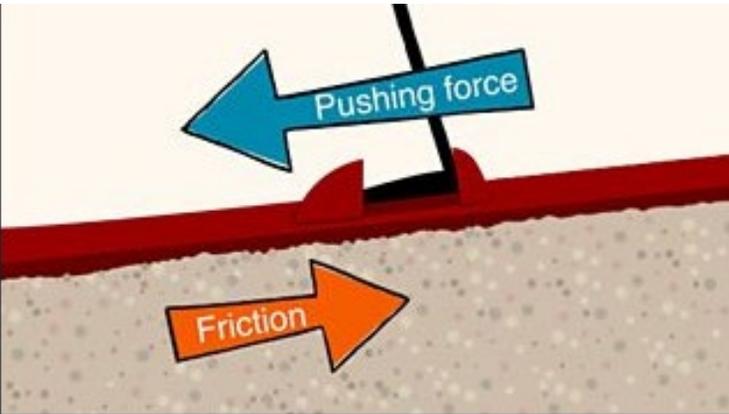
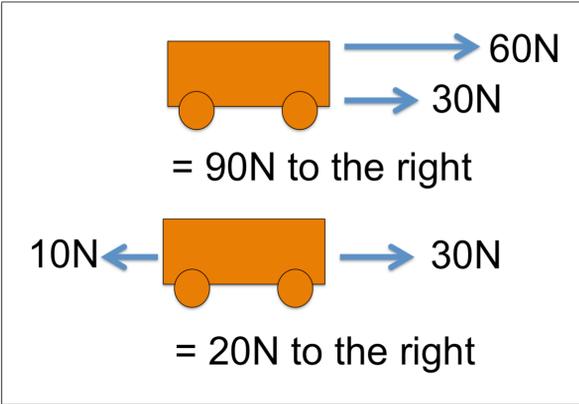
Situation	Relative speed
Objects moving in the same direction towards, or away from, each other	Fastest speed – slowest speed
Objects moving in opposite directions towards, or away from, each other	Add the two speeds together

# Forces

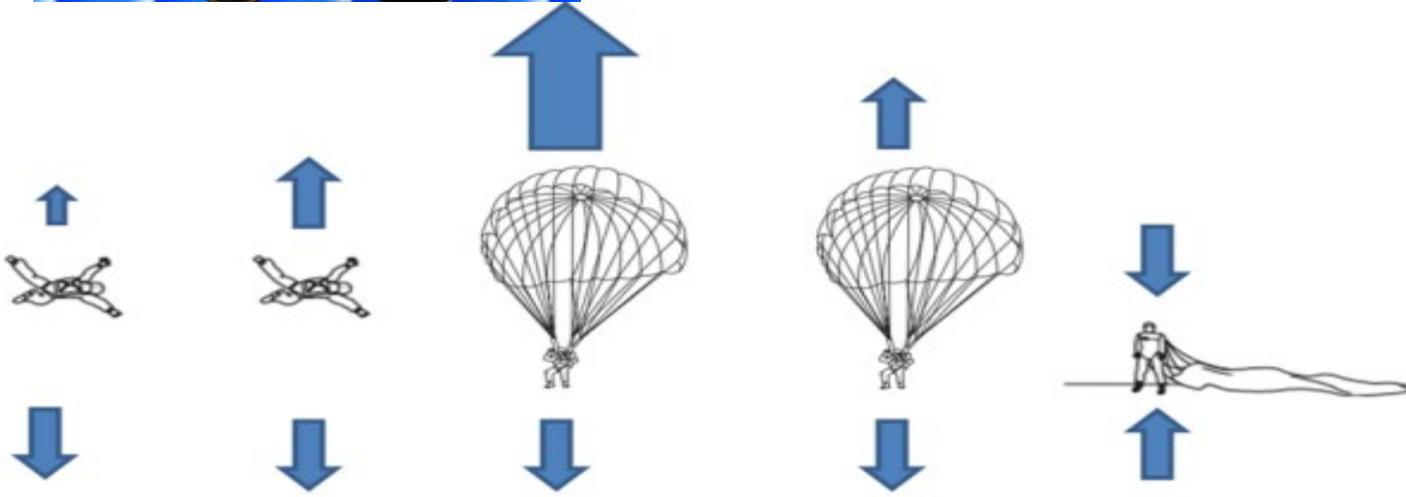
- Forces are pushes or pulls that occur when two objects interact
- Forces can't be seen, but the effects can be seen
- Forces are measure in newtons (N)
- They usually act in pairs
- The always act in a certain direction
- A newton meter is used to measure forces

Balanced forces produce no change in movement.

Unbalanced forces change the speed and/or change the direction of moving objects.



Friction is a force that always acts in the opposite direction to movement. It can be a good thing as it allows objects to start and stop, however it can slow you down.



# 8 Application of Forces & Speed Quiz

1. What is speed?
2. What is the formula to calculate speed?
3. If a car travels at 15m/s for 100s how far will it travel? Show your working.
4. On sports day you run 100m in 20s. What is your speed?
5. What does the gradient show on a distance-time graph?
6. What does a straight flat line mean on a distance time graph?
7. How would you calculate the relative speed of two trains travelling in the same direction?
8. If forces cannot be seen how do we know that they are there?
9. What five things can forces do to objects?
10. What do balanced forces produce?
11. What do unbalanced forces produce?
12. What is friction?
13. Give two good points of friction.
14. Give two bad points of friction.
15. What is air resistance?
16. When a sheep jumps out of a plane what happens to its speed?
17. As the sheep moves faster what happens to its air resistance?

