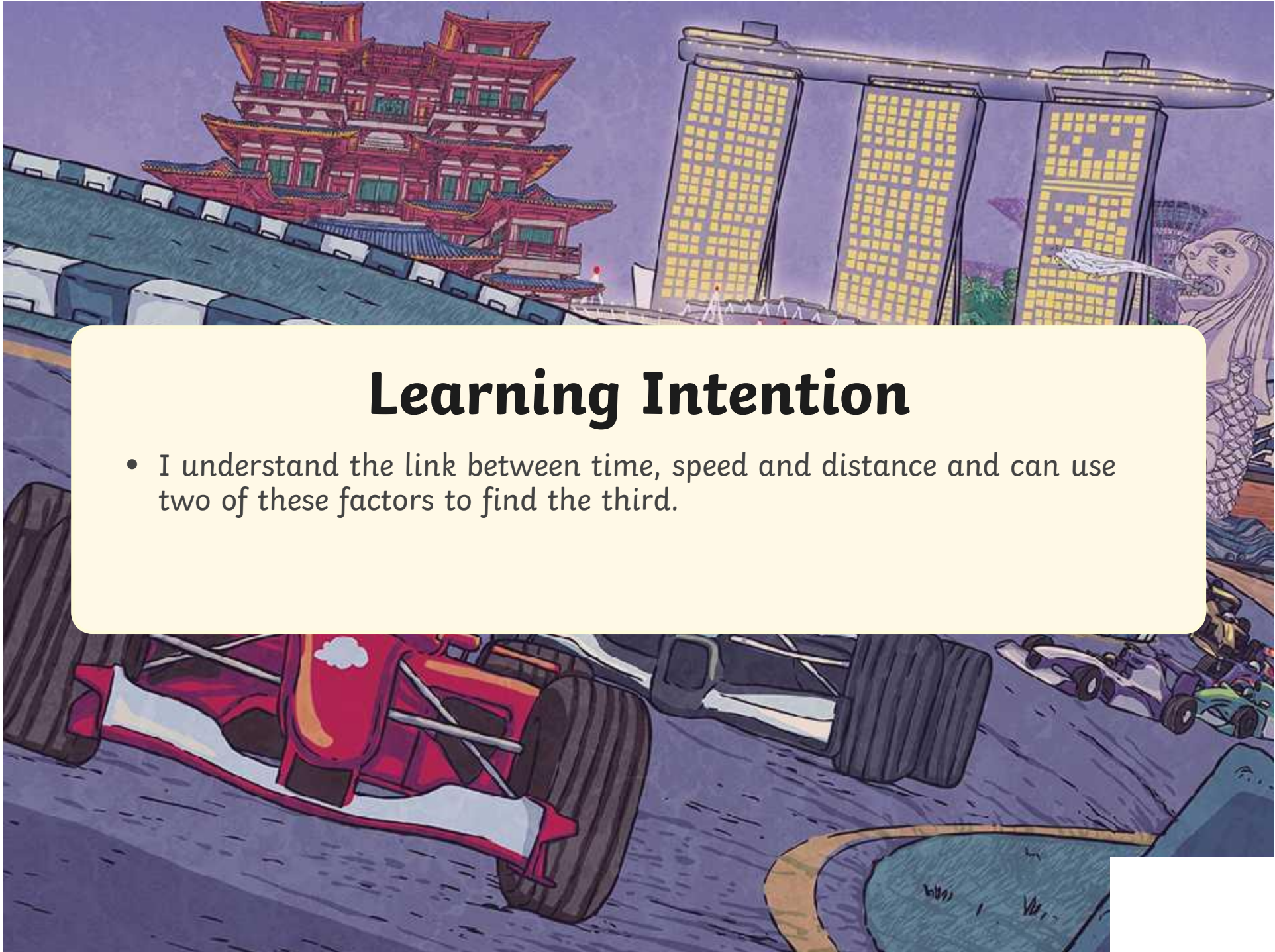




# Time, Speed and Distance



# Learning Intention

- I understand the link between time, speed and distance and can use two of these factors to find the third.

# What Are Time, Speed and Distance?

## Time is...

Time is how long something takes to happen. This can also be called the duration of an event or journey.

## Speed is...

Speed is how fast or slow something travels.

## Distance is...

Distance is how far something travels.

## How are time, speed and distance linked?

If we know two of these factors, we can work out the third.

# How to Calculate Distance

If we know the time and speed of a journey, we can work out the distance that has been travelled. To calculate distance (**D**), we multiply time (**T**) by speed (**S**) or speed by time.

## For example:

Time (How long did you travel for?) = 1 hour

Speed (How fast did you travel?) = 60km per hour or 60km/h

so

Distance (How far did you travel?) =  $1 \times 60\text{km} = 60\text{km}$

Time (How long did you travel for?) = 2 hours

Speed (How fast did you travel?) = 40km per hour or 40km/h

so

Distance (How far did you travel?) =  $2 \times 40\text{km} = 80\text{km}$

# How to Calculate Distance

A car travels at a speed of 70mph. How far will it travel in 3 hours?

$$D = T \times S = 3 \times 70 = 210 \text{ miles}$$

You walk at 3km/h. How far will you walk in 5 hours?

$$D = T \times S = 5 \times 3 = 15\text{km}$$



# How to Calculate Speed

If we know the time and distance of a journey, we can work out the speed. To calculate speed (**S**), we divide distance (**D**) by time (**T**).

## For example:

Time (How long did you travel for?) = 1 hour

Distance (How far did you travel?) = 60km

so

Speed (How fast did you travel?) =  $60 \div 1 = 60\text{km per hour or } 60\text{km/h}$

Time (How long did you travel for?) = 2 hours

Distance (How far did you travel?) = 80km

so

Speed (How fast did you travel?) =  $80 \div 2 = 40\text{ km per hour or } 40\text{ km/h}$

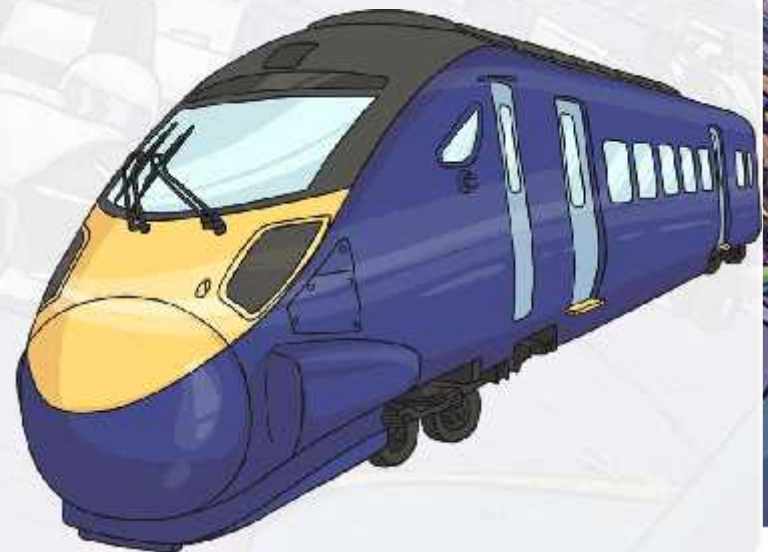
# How to Calculate Distance

I walked 16km in 4 hours, what speed was I walking at?

$$S = D \div T = 16 \div 4 = 4\text{km/h}$$

A train travelled 900 miles in 5 hours. What speed was it travelling at?

$$S = D \div T = 900 \div 5 = 180\text{mph}$$



# How to Calculate Time

If we know the distance and speed of a journey, we can work out the time. To calculate time (**T**), we divide distance (**D**) by speed (**S**). This can also be shown as:  $T = D \div S$

## For example:

Distance (How far?) = 60km

Speed (How fast?) = 60km per hour or 60km/h

so

Time (How long?) =  $60 \div 60 = 1$  hour

Distance (How far?) = 80km

Speed (How fast?) = 40km/h

so

Time (How long?) =  $80 \div 40 = 2$  hours



# How to Calculate Time

I walked 20km at a speed of 4km/h. How long did it take me?

$$T = D \div S = 20 \div 4 = 5 \text{ hours}$$

The lorry travelled 600 miles at an average speed of 60mph. What was the total driving time?

$$T = D \div S = 600 \div 60 = 10 \text{ hours}$$



# Remember...

To calculate distance (**D**), we multiply time (**T**) by speed (**S**) or speed by time.  $D = S \times T$

To calculate speed (**S**), we divide distance (**D**) by time (**T**).  $S = D \div T$

To calculate time (**T**), we divide distance (**D**) by speed (**S**).  $T = D \div S$



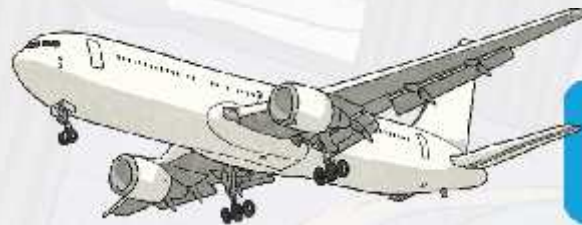
# Questions

Can you work out the time, distance or speed for the following?

Charlie walks at 2mph. He walks for 6 hours. How far has he walked?

Amira completes a 10km race in 1 hour. What was her speed?

A plane flies 6000km in 10 hours. How fast was the plane travelling?



Answers

# Answers

Charlie walks at 2mph. He walks for 6 hours. How far has he walked?

$$D = S \times T = 2 \times 6 = 12 \text{ miles}$$

Amira completes a 10km race in 1 hour. What was her speed?

$$S = D \div T = 10 \div 1 = 10\text{km/h}$$

A plane flies 6000km in 10 hours. How fast was the plane travelling?

$$T = D \div S = 6000 \div 10 = 600\text{km/h}$$

