Topic 7: Speed

What's the science story?

A big idea in physics is force, because it is the key to explaining changes in the motion or the shape of an object. The motion of an object can be explained or predicted if you know the sizes and directions of all the forces that act on it. Understanding forces helps us to predict and control the physical world around us.

REPARE

Previous knowledge:

Yr 7 – Forces 1

Next steps...

KS4
P5 Forces

Keywords

Speed,
Vector,
Time, Distance, Variables, Force
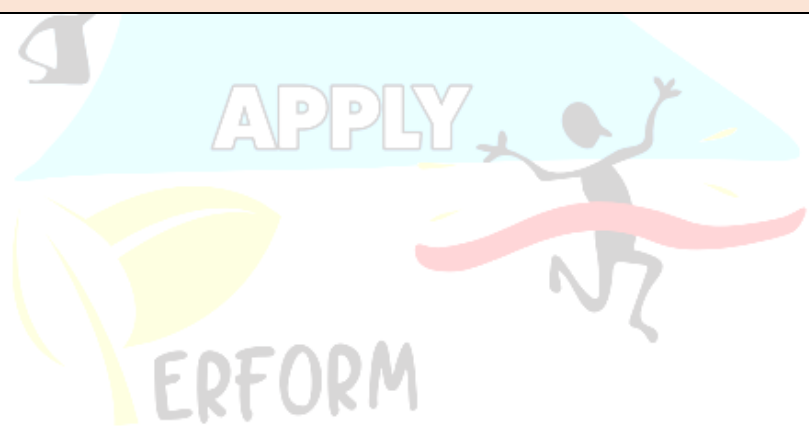
Analyse
Evaluate
Conclusion

Investigate
Pattern
Trends

Lesson No. and Title	Learning objectives	National Curriculum	Working scientifically skills	Practical equipment
1. Speed	ARE - To calculate speed using distance and time. AGD - To rearrange the speed equation to calculate a different subject.	• speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) • the representation of a journey on a distance-time graph • relative motion: trains and cars passing one another		
2. Investigating Speed	ARE – To apply the speed formula triangle to a moving object. AGD – To analyse the results from a scientific investigation.	• speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) • the representation of a journey on a distance-time graph • relative motion: trains and cars passing one another		Falling cupcake cases Metre ruler Cupcake case Stopwatch

4.Speed/distance graphs	ARE – Draw a distance-time graph. AGD - Interpret a distance-time graph.	• speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) • the representation of a journey on a distance-time graph • relative motion: trains and cars passing one another		
4. Considering results	ARE – To draw a conclusion based on your results. AGD - To use your graph to make predictions and estimates	• speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) • the representation of a journey on a distance-time graph • relative motion: trains and cars passing one another		
Assessment 1: Distance-time graphs and speed				

Assessment Criteria

Assessment No. & Title	Working Towards	Age Related Expectations	At Greater Depth
n/a	Define relative motion	Calculate speed using the speed equation	Explain what is meant by relative motion and how it can be calculated
	Use a distance–time graph to describe a journey qualitatively	Calculate speed from a distance–time graph.	Draw distance–time graphs for a range of journeys