Home-School Learning Collaboration – Science

Topics in this cycle:	Taught:	Year Group:
Contact forces	Summer 2	7

Key knowledge/concepts to be learnt ('Tell me about….')	Websites/blogs/YouTube links and further reading to deepen and consolidate learning
• **What are forces?** • State the unit of force. • Describe what is meant by an interaction pair. • Describe what happens when the resultant force on an object is not zero. • Use a force diagram to describe situations involving gravity that are in equilibrium. • **How do we calculate speed?** • State and use the formula for speed. • Describe the link between speed and journey time. • Describe how the speed of an object depends on the movement of the observer. • **How do we interpret distance-time graphs?** • State what a straight line or a curved line on a distance-time graph tells you about speed. • Calculate speed from a distance-time graph. • Illustrate a journey with changing speed on a distance-time graph, and label changes in motion. • **What is gravity?** • State the value of g on Earth and the moon. • Describe the difference between mass and weight. • Describe how gravitational force varies with mass and distance. • Use the formula to calculate your weight on different planets. • Explain why objects stay in orbit.	Introduction to forces Introduction to Forces - YouTube Balanced and unbalanced forces Balanced and Unbalanced Forces - YouTube Distance-time graphs Distance-time graphs - KS3 Maths - BBC Bitesize - BBC Bitesize Mass and weight Physics-SchoolUK.com - KS3 Gravity

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Key Vocabulary and Definitions To Be Learnt	
Contact force	Force that acts by direct contact, e.g., friction.
Friction	Force opposing motion which is caused by the interaction of surfaces moving over one another. It is called 'drag' if one is a fluid.
Air resistance	The force on an object moving through the air that causes it to slow down (also known as drag).
Newton	Unit for measuring force (N).
Resultant force	Single force that can replace all the forces acting on an object and have the same effect.
Equilibrium	State of an object when all forces are balanced.
Average speed	The overall distance travelled divided by overall time for a journey.
Relative motion	Different observers judge speeds differently if they are in motion too, so an object's speed is relative to the observer's speed.
Distance-time graph	A graph that shows how far an object moves each second.
Acceleration	How quickly speed increases or decreases.
Gravitational force	A non-contact force that acts between two masses.
Newtonmeter	A piece of equipment used to measure weight in newtons.
Field	The region where other objects feel a gravitational, magnetic or electrostatic force.
Weight (N)	The force of gravity due to Earths (or other planet or moon) on an object, measured in newtons (N).
Mass	The amount of stuff that things are made from.

What Will The Assessment Look Like?

Extended writing – Use the speed formula to explain how a speed camera calculates a car's speed.

End of Unit test: 25 marks

- Short answer questions
- Multiple choice
- Extended writing

Family Learning Opportunities

Identify forces in everyday scenarios

Practical activities to carry out at home from the institute of physics.
Force | IOPSpark

Read along and questioning activity.
Let's talk forces | IOPSpark

Devise a quiz on Forces and test your family.