

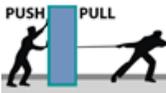
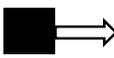


Foundational Knowledge: (KS2)				Sequenced Learning			
1	Force		A push or a pull between 2 objects	11	Measuring forces		Use a force meter (Newton meter). The unit of force is called the newton (N)
2	Contact force		Where objects must touch each other to exert a force	12	Streamlining		Reduces air resistance which slows objects down
3	Non-contact force		Where objects do not need to touch each other to exert a force	13	Friction		Can be useful (e.g. tyres on the road) but can be a problem (e.g. a rusty bike chain is hard to pedal)
4	Gravity		Pulls objects down towards the Earth	14	Gravity		a force which acts between any two objects. The effect is stronger when objects are heavier and closer together
5	Levers, pulleys and gears		These 'machines' allow a small force to have a greater effect	15	Weight		a force which acts downwards towards the centre of the Earth. It depends on the mass and the gravity force. Weight (N) = mass(kg) x gravity force (N/kg)
Core Knowledge				16	Force diagram		Forces can be shown with arrows in a force diagram . Each arrow is labelled and shows the size and direction of each force. Force diagrams help you to find out if forces are balanced or unbalanced .
6	Forces		Can change the speed, direction and / or shape of an object	17	Newton's 1 st law of motion		When all of the forces acting on an object are balanced, there is no change in motion
7	Balanced forces		Cause no change in motion	18	Resultant force		When all of the forces acting on an object do not add up to zero (Forces are unbalanced).
8	Unbalanced forces		Produce a resultant force that can change an objects motion	19	Newton's 2 nd law of motion		Unbalanced forces acting on an object cause an acceleration. This acceleration is larger for smaller masses and larger unbalanced forces Force(N)=mass (kg) x acceleration (m/s ²)
9	Distance – time graphs		Show how the distance moved by an object changes with time A = Stationary B = Constant speed	19	Speed		... tells us how fast an object is moving. Speed (m/s) = distance (m) ÷ time (s). Average speed = total distance ÷ total journey time. Instantaneous speed is the speed at a particular moment.
10	Acceleration		How quickly the speed of an object gets faster	20	Moment		a turning force. Forces can make objects turn if there is a pivot .
				21	Hooke's Law		if the force applied to stretch a spring is doubled, the extension doubles.



VOCABULARY

**Excellence.
No Excuses.**

Science Year 8 AC1					
Word	Definition	Synonyms	Examples	Etymology	
22 Force 	Forces are pushes or pulls. They can be balanced or unbalanced. If unbalanced they can change the shape of objects and change the way they are moving.	Push, Pull, Effort, Load	Tension, friction, reaction, upthrust, thrust, weight, air resistance	Based on the Latin word <i>fortis</i> , meaning 'strong'	
23 Balanced 	Balanced forces are two forces acting in opposite directions on an object, and equal in size. They do not cause a change in motion.	Equilibrium, stabilised,	A book sitting on a desk. A car travelling at a constant speed	Based on late Latin (<i>libra</i>) <i>bilanx</i> '(balance) having two scale pans	
24 Unbalanced 	Forces that cause a change in the motion of an object are unbalanced forces. Unbalanced forces are not equal and opposite.	Not in equilibrium	A car accelerating away from traffic lights. A cyclist braking.	Based on late Latin (<i>libra</i>) <i>bilanx</i> '(balance) having two scale pans. 'Un' is an old English word for 'not'	
25 Resultant 	The overall (net) effect of two or more forces on an object	Net	The air resistance subtracted from the thrust force for a moving car	Early 15c from French <i>résultant</i> and from Medieval Latin <i>resultantem</i> . It is the present participle of <i>resultare</i> (outcome / effect)	
26 Stationary 	Not moving	At rest, Still, Not moving, Motionless	A sprinter at the start of a race. A train at a station	"having no apparent motion" (in reference to planets), from the French <i>stationnaire</i> "motionless"	
27 Constant 	A quantity that does not change	Uniform, Steady, Unchanging, Same, Fixed	Constant speed means that the speed stays the same	From the Latin <i>constantem</i> , meaning "standing firm, stable, steadfast, faithful,"	
28 Moment 	The turning effect of a force around a pivot (the turning point).	Turning effect Torque	Seesaw, a spanner turning a nut, a door opening	From the Latin verb <i>movere</i> which means 'to move'	