

Curriculum statements ages	Explorify activities – see codes below	Suggested use
MAGNETS		
Compare how things move on different surfaces	<u>Relaxed roll</u> PS	Inspire a whole lesson of investigation. Children could use ramps and toy cars to explore how far they travel over different surfaces. Links to Earth and Space.
Notice that some forces need contact between two objects, but magnetic forces can act at a distance	<u>Magnets</u> WGO	Discussion prompt at the start of topic. Sparks interest and curiosity. Children could explore how this works by making a magnet game that works at a distance using thick cardboard (cut from a cardboard box), a magnet and a paperclip.
Observe how magnets attract or repel each other and attract some materials and not others	<u>Mighty Magnets</u> WGO	Discussion prompt at any time.
Describe magnets as having two poles	<u>Pull together</u> OOO	Useful for assessing depth of understanding, midway or later through the topic.
Predict whether two magnets will attract or repel each other, depending on which poles are facing		
Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials	<u>Attracting objects</u> MB	Takes a little preparation (putting objects into a mystery bag) but can be tailored to meet the needs of your class. Sparks interest and hones observation skills. Children could then classify materials by whether they are magnetic or not. Or try this .
Everyday uses for magnets	<u>What if you had magnets for fingers?</u> WI	Get your children thinking of a Positive, Minus or Interesting outcome. Useful to assess learning midway or later through topic.
	<u>Scan this over</u> LWCYH	Capture interest and encourage focus by listening to this sound, then discuss. Good lesson starter midway through topic or later.
	<u>Marvellous magnets</u> OOO	Explore three unusual applications for magnets, then, after discussing other more common applications for magnets, children could search for magnets in their own homes in objects like fridges or purse clips.
GRAVITY		
Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	<u>What goes up must come down</u> OOO	Sparks interest and curiosity. Links to Earth and Space. Could be used as a lesson starter prior to investigating parachutes or rockets, for instance. Check out Straw Planes on the PSTT Starters for Science page.
	<u>Rocket launchers</u> PS	An exciting starter for an afternoon of investigation and making.

	<u>Apple of your eye</u> LWCYH	Capture interest and encourage focus by listening to this sound, then discuss. A different way to start a lesson.
	<u>Weight a minute!</u> ZIZO	Links to Earth and Space and will provide a useful discussion/assessment point perhaps at the end of a lesson.
	<u>Water trick</u> WGO	Short demo of a classic experiment, upturning a glass of water. Fun (and dry!) way to spark curiosity and interest.
	<u>Standing on eggshells</u> WGO	Who would have thought two trays of eggs could support the weight of a human? Possible links to Maths and D.T.
	<u>What if there was no gravity?</u> WI	A simple, focused conversation starter that might be followed up watching one of these amazing films made by astronauts on the Space Station, available here .
	<u>Blocks</u> WGO	Two blocks dropped on three surfaces, shown in captivating slow motion. Sure to spark curiosity and conversation. Follow up by linking to the feather and hammer drop on the Moon , or to the same experiment in the world's biggest vacuum

BALANCED FORCES

	<u>There's a hole in my bottle</u> WGO	Warning: can't imagine anyone watching this and not wanting to try it! Sure to fire children's interest.
	<u>Fantastic gymnastics</u> WGO	Here's a different way to kick off a conversation and perhaps even your entire topic on forces. Beautiful to watch.
	<u>Bounce and turn</u> WGO	Engaging video showing high trampoline bounces. Sure to spark conversation at any time.

AIR RESISTANCE

Identify the effects of air resistance , water resistance and friction, that act between moving surfaces	<u>Fancy Footwork</u> WGO	This film invites a comparison as children watch three types of ball kicked in slow motion. An engaging lesson starter.
	<u>Build an egg parachute</u> PS	This will certainly lead to an afternoon or morning's investigative science, designing parachutes for eggs.
	<u>Soft landing</u> WGO	Interesting prompt for discussion during a lesson on air resistance. We meet a scientist testing a parachute to use on Mars.
	<u>Shoot the breeze</u> 000	A parachute used to slow a dragster is contrasted with a hot air balloon and a parachute in this lesson starter.
	<u>Moving propellers</u> 000	Three craft propelled by rotary propellers in different ways. Another excellent, discussion-based lesson opener.
	<u>Tabletop hovercraft</u> WGO	Distraction-free demo of a classic experiment. CDs are harder to come by these days but make great hovercrafts. There are fabulous pneumatic (and hydraulic) activities here on SSERC.
	<u>On target</u> LWCYH	Capture interest and encourage focus by listening to an archer fire arrows, then discuss. A different way to start a lesson. You could go on to make catapults here.
	<u>Defying gravity</u> 000	Three objects that fly through the air are contrasted: bubbles, dandelion seeds and

		an aircraft. A definite discussion starter, which you might follow up by making and flying Tumblewings .
	<u>Blowing in the wind</u> OOO	A kite, wind chimes and an air sock all depend on air resistance to work, but what differences will the children find? See also Straw Planes , mentioned above.
WATER RESISTANCE		
	<u>Butterfly swimming</u> WGO	A single stroke is slowed down in this film of swimmers in action. What makes the butterfly stroke so effective?
	<u>Backstroke swimming</u> WGO	Children are invited to consider how swimmers reduce drag in this film observing a single stroke: the back stroke.
	<u>Sleek Designs</u> OOO	An ideal opener for water resistance, inviting children to compare a diving swimmer and penguin with a fast boat.
FRICTION		
Identify the effects of air resistance, water resistance and friction , that act between moving surfaces	<u>All ground up</u> ZIZO	Close-up on a rubber running track surface will surely lead to an interesting class discussion on the topic of friction. Children could explore friction by comparing the grip of different shoes, making measurements with a force meter or practise their W/S skills with this .
	<u>Floating bottle</u> WGO	A curious demo that might come at the end of a lesson, allowing you to assess children's progress formatively, or they could have a go themselves!
	<u>Best foot forward</u> OOO	Three images of footwear – one a pair of skates – will get the conversation started and indicate pre-existing knowledge.
	<u>What if brakes were automatic?</u> WI	This question might be tackled in pairs with children looking for Positive, Minus and Interesting outcomes for this scenario.
	<u>Moving large stones</u> PS	This problem will lead to a practical session and might also link well to work on levers and other simple mechanisms.
	<u>Marbles</u> MS	A starter for an afternoon or even a day of practical work creating a marble run, making it as frictionless as possible.
	<u>Pottery</u> WGO	A charming short film of a boy potter (no, not that one!) learning to throw clay on a wheel and about the effects of friction.
	<u>Roll up, roll up</u> ZIZO	A close-up on the wheels of inline skates (rollerblades) will invite talk and perhaps also reveal pre-existing knowledge.
	<u>Big hitters</u> OOO	Children are invited to consider how an ice hockey puck, golf ball and shuttlecock are required to move in different ways.
	<u>Black bobbles</u> ZIZO	Great starter for a lesson about friction as children identify a worn cycle tyre from a close-up photo.
	<u>Manoeuvring on the Moon</u> WGO	Rovers on Mars or the Moon are required to cope with varied terrain as this excellent, short video clearly shows.
LEVERS		

Recognise that some mechanisms, including levers , pulleys and gears, allow a smaller force to have a greater effect	<u>Shiny teeth</u>	ZIZO	We zoom in on the teeth of a traditional can opener, inviting discussion as to exactly how such a tool works.
	<u>Pole position</u>	WGO	This slowed-down film of pole vaulters in action will encourage higher level thinking around how such high jumps are achieved.
	<u>Levers in action</u>	OOO	The simplest of everyday levers are shown and contrasted here as a lesson starter: a seesaw, scissors and a screwdriver opening a can of paint. Children could investigate this last lever themselves and compare how much harder it is to do with a coin instead.
	<u>Force for good</u>	OOO	Three more contrasting, everyday uses of levers: nail clippers, a wheelbarrow and (children's favourite!) another seesaw.
P U L L E Y S			
Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	<u>Excellent equipment</u>	LWCYH	With more on pulleys coming to Explorify, we listen here to the sound of two contrasting pulleys and to a can opener. You could follow up with this activity from Practical Action .
G E A R S			
Recognise that some mechanisms, including levers, pulleys and gears , allow a smaller force to have a greater effect	<u>Whirring wonders</u>	WGO	Get close-up to bicycle gears changing in this short film, which will draw out children's own experience in a discussion.
	<u>Tour de force</u>	LWCYH	Capture interest and encourage focus by listening to a bicycle's sound. Will children identify what they hear or surprise you?
	<u>Take a whisk</u>	WGO	This film contrasts four ways to whisk an egg and shows the time each takes – providing a link to learning about time.
O T H E R S I M P L E M A C H I N E S			
	<u>Take your turn</u>	OOO	A water wheel and two types of windmill are shown in this lesson starter, which should get a discussion started at any time. A selection of activities for exploring simple machines can be found here , and don't miss trying Chain Reactions here .
T E N S I O N + C O M P R E S S I O N			
	<u>The big squeeze</u>	WGO	A personal favourite Explorify demo, far too messy to perform inside a classroom, we watch a melon compressed too far!
	<u>Rainbow explosion</u>	WGO	Another super demo of something your kids will not be able to resist trying, so watch out!
	<u>Build a bridge</u>	PS	An invitation to try a classic activity that could take an afternoon or even a whole day with links to Maths, History and more.
P R E S S U R E - B U O Y A N C Y / F L I G H T			
	<u>Sturdy pads</u>	WGO	This film invites close observation of a giant lily pad and, with links to Maths (mass) could lead to practical investigation.
	<u>Funky junky boats</u>	PS	The image shows a cardboard boat and the task suggests children use junk materials to create their own boats.

	<u>Strange stripes</u> ZIZO	This close-up image of a feather is a simple, engaging lesson starter. Could link to learning about Evolution in Year Six.
	<u>Egg in bottle</u> WGO	A sure-fire way to capture children's attention and spark curiosity as a boiled egg is sucked inside a bottle.
	<u>Heating a can</u> WGO	Captivating demo involving a heated aluminium can crushed by air pressure alone. Safer to watch than to set up!
	<u>3..2..1 lift off!</u> WGO	If you haven't any film cannisters to hand, this film shows the explosive reaction of bicarbonate of soda and vinegar.
	<u>Dancing raisins</u> WGO	This film might be shown after children have observed this phenomenon for themselves with smaller containers. It's slowed down and close-up and uses a large clear-plastic drink bottle.
	<u>Sync or swim</u> WGO	Synchronised swimmers are shown in this film, which children might not have seen before, capturing interest and curiosity.

EXPLORIFY ACTIVITY CODES

ZIZO = Zoom in, zoom out Visually-engaging close-up photos...	OOO = Odd One Out Find similarities and differences...
WGO = What's going on? Short, distraction-free videos...	MB = Mystery Bag Use senses to work out contents...
TBQ = The Big Question Plan an investigation...	PS = Problem Solvers Think critically and creatively...
LWCYH = Listen, what can you hear? Identify by sound alone...	MS = Mission Survive Fun, imaginative, hands-on challenges...
WI = What if? Place ideas in new contexts...	

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