Dereham Church Infant and Nursery School- Science

	Year group: Reception	Area/topic: Forces
	(objectives from NC/ELG/Development matters) *Explore the natural world around them. (Understanding the world) *Describe what they see, hear and feel whilst outside. (Understanding the world)	

Prior learning	Future learning
*Explore how things work. (Nursery) *Explore and talk about different forces they can feel. (Nursery) *Talk about the differences between materials and changes they notice. (Nursery)	*Compare how things move on different surfaces. (Y3 – Forces and magnets) *Observe how magnets attract or repel each other and attract some materials and not others. (Y3 – Forces and magnets) *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. (Y3 – Forces and magnets) *Describe magnets as having two poles. (Y3 – Forces and magnets) *Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 – Forces and magnets) *Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Y5 – Forces) *Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. (Y5 – Forces)

Working scientifically & encouraging scientific enquiry

Comparative testing

*How many cubes/small plastic animals can fit in different 'boats'?
*Compare how cars move down ramps/gutters.
*Compare how wheels turn when sand or water is poured through.
*Compare how objects fall. • Compare how objects fall with and without parachutes.
*Compare how different balls bounce.
*Compare how things move when blown.

*Compare how a marble moves through different liquids.
*Compare how different paper aeroplanes fly.

What pupils need to know or do to be secure

Key knowledge and skills

Children will be taught to:

*Think about how objects can be changed to make them float or sink.
*Count and record how many small objects different boats can hold before they sink.
*Use ramps and gutters to make cars etc. move.
*Think about and explain how they can change how cars roll down ramps/gutters.
*Talk about what happens when they pour sand/water through wheels and down gutters and how they could change this.
*Compare how objects fall, with or without parachutes.
*Explore how different balls bounce and discuss how they can change the way they bounce.
*Make aeroplanes and compare how far they fly by marking where they land.
*Notice and talk about how objects move in the wind.
*Explore and talk about what they observe when turning bottles filled with different liquids and a marble upside down.
*Ask questions about forces such as 'What happens if I...?'

Possible evidence

*Can talk about how they changed objects to make them float or sink.
*Can talk about how they changed how cars move down ramps or gutters.
*Can talk about how they changed how wheels turn when sand or water is poured through them.
*Can talk about how they changed how balls bounce.
*Can compare how different boats and aeroplanes performed.
*Can describe how objects fall with and without a parachute.
*Can describe how a marble moves through different liquids.

Key vocabulary

Float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce

Expose children to supplementary vocabulary such as:
Force, rotate, solid, liquid, gravity

Common misconceptions

*All light objects float and all heavy objects sink.
*Objects made of the same material will always float or sink.

Books linking to this area

Traditional stories and nursery rhymes
*Billy Goats Gruff
*Gingerbread Man (making boats to cross the river)

	Other texts *Mr Gumpy's Outing by John Burningham *Mr Archimedes' Bath by Pamela Allen *Who sank the boat? by Pamela Allen *Stickman by Julia Donaldson *Flotsam by David Wiesner *Blown Away by Rob Biddulph
Memorable first hand experiences	Opportunities for communication
*Children to be visited by a builder or plumber. *Bring toys to school to share with others.	*Children to be given opportunities for communication with partners, groups and whole class to discuss as completing practical activities and also to share findings. *Adults to model and encourage discussion during play. *Through the use of Explorify.

DCINS Reasonable adjustments for pupils with SEND

Communication and Interaction	Cognition and Learning
*Visual aids, pictures of equipment with words labelled, word mats with pictures for key words in that lesson. *Freedom to explore scientific equipment and investigate in own way. *Hands on experiences to encourage communication and interaction with others. *Pre teaching any new vocabulary.	*Opportunity for lots of hands on exploration and verbally sharing thoughts and ideas. *Freedom to explore scientific equipment and processes. *Pre teaching new vocabulary or concepts. *Activities adapted if needed for safety and ease. *Visual aids, pictures of equipment, mats with key words and pictures *Learning recorded through photos and adult quotes, children not expected to write for recording their understanding. *Using working walls to aid learning and remind of previous learning.
Social, Emotional and Mental health	**Sensory and Physical**
*Awareness of individual needs, any potential triggers within the curriculum and the child's background. *Pre prepare children for any activity they could find triggering or difficult in some way. *Practical activities or experiments to be completed within a smaller group or 1:1 if needed. *If the class are sharing their learning within a large group, take the child in a smaller focus group if they struggle with social situations. *Adjustments made where needed to suit individual.	*Adult support with any practical activities. *Awareness of the individual's likes or dislikes and their own reactions to sensory activities. *If a child enjoys sensory activities, then plan for this wherever possible within the lesson.