

	<p>Year group: Nursery</p>	<p>Area/topic: Forces</p>
<p>(objectives from NC/ELG/Development matters)</p> <ul style="list-style-type: none"> *Explore how things work. (Understanding the world) *Explore and talk about different forces they can feel. (Understanding the world) *Talk about the differences between materials and changes they notice.(Understanding the world) 		

Prior learning	Future learning
<ul style="list-style-type: none"> *Repeat actions that have an effect. (Birth to three) 	<ul style="list-style-type: none"> *Explore the natural world around them. (Reception) *Describe what they see, hear and feel whilst outside. (Reception) *Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials) *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) *Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (Y5 - Forces)
<p>Working scientifically & encouraging scientific enquiry</p>	
<p>Comparative testing</p> <ul style="list-style-type: none"> *Compare the path of different wind-up toys. *Compare how far different wind-up toys move. *Compare the speed and direction of gears. *Compare how easy or hard it is to lift an object with or without a pulley. *Compare how easy it is to ride a scooter or bike on different surfaces. 	

Classification

- *Sort objects according to whether they float or sink.
- *Sort objects/materials according to whether their shape can be changed.

What pupils need to know or do to be secure	
Key knowledge and skills	Possible evidence
<p>Children will be taught to:</p> <ul style="list-style-type: none"> *Push floating objects under the water and encouraged by an adult to talk about how it feels the further they push the object. E.g. Balloons, tennis balls etc. *Explore what happens if they release an object under water. *Explore how objects/materials can change through pulling, pushing, twisting, bending etc. *Join materials. *Explore magnets of different shapes and sizes. *Talk about how magnets push away or pull towards each other. *Use bikes and scooters on different surfaces and ramps. *Explore using springs of different sizes, both compression and extension springs. *Predict if items will float or sink. *Talk about how the shape of objects can be changed. *Talk about how materials can be joined together. *Talk about how toys containing springs, wind-up toys, pulleys and gear toys work. *Encouraged to ask questions about forces such as 'What happens if I...?' 	<ul style="list-style-type: none"> *Can identify objects that float and sink. *Can identify objects whose shape can be changed and talk about how they changed their shape. *Can describe what they feel when exploring magnets. *Can describe what they feel and see when pushing, pulling, bending and twisting objects e.g. springs, elastics, wind-up toys, gears, pulleys etc. *Can describe what they feel when riding bikes and scooters on different surfaces and ramps.
Key vocabulary	
<p>Object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow</p> <p>Expose children to supplementary vocabulary such as: Rising, falling, attract, repel, faster, slower, pulley, gear, elastic</p>	
Common misconceptions	Books linking to this area
<p>Some children may think:</p> <ul style="list-style-type: none"> *Big objects sink *Heavy objects sink *An object such as an ice cube which is partially submerged is floating and sinking at the same time. 	<p>Traditional stories and nursery rhymes</p> <ul style="list-style-type: none"> *Wind the Bobbin Up <p>Other texts</p> <ul style="list-style-type: none"> *And Everyone Shouted "Pull" by Claire Llewellyn *Oscar and the Cricket by Geoff Waring *Newton and Me by Lynne Mayer *Astrokittens: Cosmic Machines by Dominic Walliman & Ben Newman *The Little Red Train: The Runaway Train by Benedict Blathwayt *Dig, Dig, Digging by Margaret Mayo *It's Only Stanley by Jon Agee

<p><i>Memorable first hand experiences</i></p> <ul style="list-style-type: none"> *Children to be visited by a builder or plumber. *Bring toys to school to share with others. 	<p><i>Opportunities for communication</i></p> <ul style="list-style-type: none"> *Children to be given opportunities for communication with partners, groups and whole class to discuss as completing practical activities. *Adults to model and encourage discussion during play.

Dereham Church of England Infant and Nursery Academy

Reasonable adjustments for pupils with SEND

Communication and Interaction

- *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.

Cognition and Learning

- *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

- *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.

Sensory and Physical

- *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.