

FOCUS ON MOVING PARTS

		EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Curriculum Statements		<p>0-3 Develop manipulation and control. Explore different materials and tools.</p> <p>3-4 Use one-handed tools and equipment, for example, making snips in paper with scissors.</p> <p>FS2 Develop their small motor skills so that they can use a range of tools competently, safely and confidently</p> <p>ELG With support begin to incorporate moving parts in to models. For example, use split pins to make body parts move.</p>	<ul style="list-style-type: none"> With some support, begin to explore and use simple mechanisms. For example, use sliders in moving pictures, hinges into models etc. 	<ul style="list-style-type: none"> With some independence explore and use winding mechanisms. Begin to incorporate wheels and axles into their products. 	<ul style="list-style-type: none"> Begin to develop an understanding that mechanical systems such as levers and linkages or pneumatic systems can create movement. Begin to incorporate levers and linkages into their products. 		<ul style="list-style-type: none"> Begin to understand how mechanical systems such as cams create movement. Design and make a product that incorporates a cam mechanism. 	<ul style="list-style-type: none"> Develop a greater understanding of how cams, pulleys or gears create movement. Create and use prototypes. Design and make products with greater independence
	Moving Parts	Summary	Children will be exposed to a variety of moving toys so that they begin to experience a range of mechanisms that create movement.	Children will be introduced to a variety of simple mechanisms to create a moving picture based upon a traditional tale.	Children will be introduced to wheels and axles and be able to construct these using simple and known materials. Children will apply this knowledge to the construction of a moving fire engine.	MINI UNIT – SHADUF Children will develop their understanding of levers and pulleys and will understand the impact of load and pivot point upon the success of a design. Children will use these skills to design and construct an effective shaduf.	Building upon the learning in Year 1, children will create their own pop up book using a variety of techniques which are more complex and sophisticated than those learned in Year 1.	Children will further develop their understanding of mechanical systems. Children learn about controlling movement with a cam mechanism as part of an automata animal. They make a simple cam mechanism to formulate an understanding of how different shaped cams can be used to produce different movements.
		Toys	Moving pictures	Fire Engine	Shaduf	Pop Up books	Automaton Animals	Fairground Rides

Moving Parts		Toys	Moving pictures	Fire Engine	Shaduf	Pop Up books	Automaton Animals	Fairground Rides
	S Learning Objectives and Outcomes For Success	<p>TO KNOW</p> <ul style="list-style-type: none"> ✓ Toys can move ✓ There are different kinds of toys ✓ The toys need an action from us to make them work ✓ The objects move when they are pushed, pulled or twisted. These are all forces. ✓ A push or pull can move an object, start to move, or stop it from moving ✓ A push or pull can make an object speed up or slow down ✓ A push or pull can make an object change direction ✓ Actions to make toys also move include winding up, pulling back friction toys, pressing or squeezing, pneumatics, using magnets to move things. <p>TO MAKE</p> <ul style="list-style-type: none"> ✓ With support begin to incorporate moving parts in to models. For example, use split pins to make body parts move. 	<p>Designing</p> <ul style="list-style-type: none"> ✓ To explore and evaluate an existing product. ✓ To design a working product thinking about who it is for and what it needs. ✓ To make a simple drawing as a plan for making <p>Making</p> <ul style="list-style-type: none"> ✓ To use a mechanism in a product. ✓ To make a lever and use it in a product. ✓ To make a wheel mechanism and use it in a product <p>Evaluating</p> <ul style="list-style-type: none"> ✓ To evaluate my product against design criteria. ✓ To compare a finished product with an initial design ✓ T say what could be improved (with the help of an adult or peer) <p>Technical Knowledge</p> <ul style="list-style-type: none"> ✓ To recognise a lever and wheel mechanism and being to explain how these work. 	<p>Designing</p> <ul style="list-style-type: none"> ✓ To talk about the purpose of a wheel. ✓ To talk about their own experience of vehicles with wheels. ✓ To talk about designs for vehicles to carry a toy. ✓ To make a drawing of a design for a four-wheel vehicle to carry a toy. <p>Making</p> <ul style="list-style-type: none"> ✓ To experiment with construction kits to make an object that moves. ✓ To attach wheels to a chassis using an axle with cotton reels and dowels. ✓ To attach wheels to a chassis using an axle with straws and paper wheels/ circles. <p>Evaluating</p> <ul style="list-style-type: none"> ✓ To suggest reasons why a wheel and axle wobbles based on hole position. ✓ To talk about why their vehicle moves. ✓ To say what is similar about their and another vehicle. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ✓ To recognise the different between fixed and freely moving axles. To understand what a wheel, chassis and axle is. 	<p>Designing</p> <ul style="list-style-type: none"> ✓ To use research and historical knowledge to inform designs for a Shaduf. ✓ To use labelled sketches and instructions to plan a design for a Shaduf. ✓ To test different levers and pulleys for weight bearing. <p>Making</p> <ul style="list-style-type: none"> ✓ To make levers and pulleys that can lift different loads from a surface. ✓ To vary the position of the pivot point to lift a load using a lever. ✓ To strengthen structures using previous learning. <p>Evaluating</p> <ul style="list-style-type: none"> ✓ To compare Egyptian Shaduf designs with their own. ✓ To contrast Egyptian Shadufs with modern designs that use pulleys and levers. ✓ To evaluate how well their design lifts varying loads. ✓ To suggest ways their Shaduf could be altered to improve efficiency with the support of their peers. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ✓ To recognise the difference between a lever and a pulley. ✓ To understand how to adapt a lever and a pulley based on load weight. ✓ To understand how pulleys and levers create movement. 	<p>Designing</p> <ul style="list-style-type: none"> ✓ To explore and evaluate an existing product. Commenting upon the mechanisms used and their effectiveness and impact ✓ To design a working product thinking about who it is for, what it needs and how mechanisms can be used for maximum effect ✓ To make detailed plans for construction being able to explain and justify choices <p>Making</p> <ul style="list-style-type: none"> ✓ To use a variety of mechanisms to create movement ✓ To independently choose and create mechanisms ✓ To compare a finished product with an initial design ✓ To say what could be improved (with the help of an adult or peer) <p>Technical Knowledge</p> <ul style="list-style-type: none"> ✓ To explain the variety of mechanisms used in construction ✓ To explain how the various mechanism create movement 	<p>Designing</p> <ul style="list-style-type: none"> ✓ To use the Internet and information books to research endangered and vulnerable animals. ✓ To gather ideas and explain how they move to inform my design. ✓ To test the movement of different shaped cams. <p>Making</p> <ul style="list-style-type: none"> ✓ To select materials according to their functional properties. . ✓ To select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities ✓ To build a framework, accurately using a wider range of tools and equipment. <p>Evaluating</p> <ul style="list-style-type: none"> ✓ To compare moving toy designs with their own. ✓ To evaluate how well their design moves ✓ To suggest ways their toy could be altered to improve smooth and controlled <p>Technical Knowledge</p> <ul style="list-style-type: none"> ✓ To explain how simple cam mechanisms work. ✓ To understand and use a mechanical system. 	<p>Designing</p> <ul style="list-style-type: none"> ✓To explore and discuss different fairground rides ✓ To think about how rides move, what are the components that join them together and the mechanisms that make them work ✓ To test the movement of pulleys and belts using a motor ✓ To investigate how the size and configuration of pulleys and the placements of belts can affect the movement created <p>Making</p> <ul style="list-style-type: none"> ✓ To work accurately and safely with a variety of tools, materials and electrical components ✓ To select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities ✓ To build a framework, accurately using a wider range of tools and equipment. <p>Evaluating</p> <ul style="list-style-type: none"> ✓ To compare moving fairground designs with their own ✓ To evaluate how well their design moves ✓ To suggest ways their ride could be altered to improve the movement. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ✓ To explain how to strengthen and reinforce structures ✓ To explain the components of a safe and working electrical system ✓ To understand and explain how pulleys and belts have been effectively used to create movement.