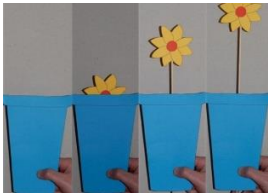




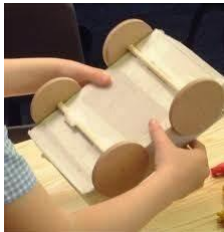
★ Children's prior learning in this area

Sliders – Foundation.

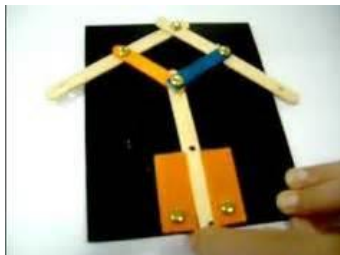
Levers & Sliders – Year 1.



Wheels & axles – Year 2.



Linkages & levers – Year 3.



Recall and retrieve levers, sliders, linkages.

★ Cultural Capital Opportunities

Mechanical advances in 1900



Visit some museums and investigate some inventions from 1900.

I am a mechanical engineer.

What type of jobs do mechanical engineers do?
How do they improve our world?






★ Key vocabulary and glossary



Anchor – mechanism, lever, pivot, pulley.

Goldilocks – slot, system, input, process, output, user, purpose, function

prototype, design criteria, appealing.

Step on – bridge, guide, linear, rotary, oscillating, reciprocating, innovative.

Enquiry Question- Why would you need a crane?	Enquiry Question – What mechanisms are used in a crane?	Enquiry Question – What do I know to help me design a crane?
Concept – Product	Concept – Design.	Concept – Design
 <p>What a crane is, who it's users are and that a cranesworks using pulleys.</p> <p>Pulleys - two wheels that do not lock together - the wheels are joined by a belt. Pulleys can be used to change the speed, direction or force of a movement.</p> <p><u>Investigate the purpose of the product.</u></p> <p><u>Research what impact has this had on our lives.</u></p> <p><u>Research the techniques that the designer may have used to make product – record techniques and explain how this will influence making product.</u></p> <p><u>Use technical vocabulary related to product.</u></p> <p>R&R – linkages.</p> <p>Who invented the pulley (lever)? Greek philosopher Archimedes around the 3rd century BC, who studied the Archimedean simple machines: lever, pulley, and screw.</p> <p>Where do you find pulleys?</p> <p>Investigate different pulleys used in the world around us- cranes, washing lines, ski lifts, hoist, blinds, well, sewing machine, sailing boat, and how they work – investigate mechanism.</p> <p>How does it work? Look at the mechanisms involved - A pulley consists of a grooved wheel with a rope.</p>	 <p>Through product design – children will create a sketch and prototype of a crane using pulleys.</p> <p><u>Generate innovative ideas through research to generate a design criteria for a functional and purposeful product.</u></p> <p><u>Generate innovative and considered ideas through discussion with peers and adults.</u></p> <p><u>Investigate design ideas through experimenting with product design.</u></p> <p><u>Explore ideas using annotated sketches, prototypes, and cross-sectional diagrams.</u></p> <p>R&R – how a pulley works.</p> <p>Give chn a range of components, wheels, string, rods...</p> <p>Investigate –Using what you know about pulleys, can you make a working pulley? A pulley fit for purpose.</p>	 <p>Children will design their pulley using informed ideas and include details of materials, joining techniques and mehcnaism in design.</p> <p><u>Generate innovative ideas through research to generate a design criteria for a functional and purposeful product.</u></p> <p><u>Begin considering resources and plan creation steps.</u></p> <p><u>Record findings and evaluate use - include considered reasoning.</u></p> <p><u>Carrying out and articulating the findings of research carried out.</u></p> <p><u>Evaluate different materials and their suitability for use.</u></p> <p>R&R – joining techniques.</p> <p>Create an annotated drawing</p>

<p>Let's make!</p>	<p>Enquiry Question – What worked? Why?</p>
<p>Concept – Make.</p>	<p>Concept –Evaluate</p>
<p> Children follow their design to make their product using the tools and techniques chosen.</p> <p><u>Know how to measure and cut different materials, including dowel, accurately and safely.</u></p> <p><u>Follow step-by step plans with referral to lists of tools, equipment and materials needed.</u></p> <p><u>Select from and use finishing techniques suitable for the product they are creating.</u></p>	<p> Children will evaluate their product against criteria and peers. Record finding and make considered improvements.</p> <p><u>Evaluate the tools techniques used to make product.</u></p> <p><u>Evaluate their own products and ideas against criteria and user needs, as they design and make.</u></p> <p>Using design criteria – evaluate product.</p>