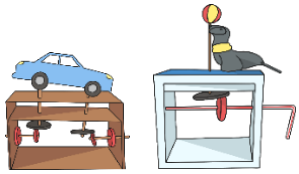
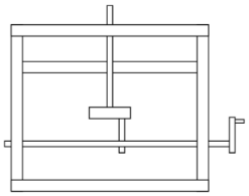
Design Technology

Mechanisms Year 5

National curriculum	Vocabulary
Design To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** To investigate and analyse a range of existing products. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To understand how key events and individuals in design and technology have helped shape the world. **Technology** To understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).	accuracy aesthetic assemble cam evaluate follower gears join mechanism method precautions pulley safety slider specification

Investigate Technical knowledge	Design	Make	Evaluate
Year 5 / 6 – DT Skills			
-Carry out research, using surveys, interviews, questionnaires and web-based resources -Develop a simple design specification to guide their thinking -How mechanical systems such as cams or pulleys or gears create movement	Generate innovative ideas, drawing on research -Make design decisions, taking account of constraints such as time, resources and cost -Produce appropriate lists of tools, equipment and materials that they need -Formulate step-by-step plans as a guide to making	-Accurately measure, mark out, cut and shape materials and components -Accurately assemble, join and combine materials and components -Accurately apply a range of finishing techniques, including those from art and design -Use techniques that involve a number of steps	-Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make -Evaluate their ideas and products against their original design specification
			How successful was your design? How successful was your method? Explain how your mechanism works? Where did you take your influences from?

Learning Objective	Lesson outline
Lesson 1: Investigate **LO:** To research using a range of sources to collect ideas for own product design (fairground ride). **DT Skills:** Carry out research, using surveys, interviews, questionnaires and web-based resources Arial -Develop a simple design specification to guide their thinking	Activity 1- Research on rides, what must they be? What do they need in order to be successful? General ride research completed in mixed ability pairs. Use template in folder. Look at and investigate existing products trial different shapes and movements of the ride. How are they made? How do they move? Decide who their product is for. Use template in folder for children to complete the research. SEN- TA support.

Lesson 2: Practical skills **LO:** To know how the mechanical system of a cams works. **DT Skills:** How mechanical system such as a cam creates movement.	Activity 2- How cams work? Carry out research, using surveys, interviews, questionnaires and web-based resources. Experiment with some existing structures and cams. Practice joining skills; using flaps and glue. Choose their favourite to use in their product. State how they work and how they operate in books. Include measurements of all parts. Create mini frames to see which joins have more support. Rank them in order of sturdieness. SEN- group based research. GD- To develop their knowledge of the different CAM shapes Use template in folder
Lesson 3: Design **LO:** To design a product (fairground ride) with a working cam. **DT Skills:** Generate innovative ideas, drawing on research. -Make design decisions, taking account of constraints such as time, resources and cost. -Produce appropriate lists of tools, equipment and materials that they need. -Formulate step-by-step plans as a guide to making.	Activity 1- Produce a detailed drawing of their ride design and include what each section of the CAM is. GD exploded diagram. Activity 2- Produce appropriate lists of tools, equipment and materials that they need. Formulate step-by-step plans as a guide to making. Activity 3- Create a design criteria for their product using the research from previous lesson. SEN- work in a group to ensure the children know and understand each part of the cam, slider and follower. GD- to produce a detailed drawing of the ride design (exploded diagram). Use template in folder
Lesson 4: Make **LO:** To make a product (fairground ride) with a working cam. **LO:** To evaluate and adapt design as they make to create a better product. **DT Skills:** -Accurately measure, mark out, cut and shape materials and components. -Accurately assemble, join and combine materials and components. -How mechanical systems such as cams or pulleys or gears create movement. -Use techniques that involve a number of steps.	Making product, focus on the mechanism - cams Accurately measure, mark out, cut and shape materials and components following their design carefully. Accurately assemble, join and combine materials and components safely. Mixed ability pairs to create rides. Children to experiment with using the cams. GD- challenged to create a ride with 2 different cams Take photos for folders

Evaluating - Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.	
Lesson 5: Make **LO:** To make and apply finishing techniques to product (fairground ride). **DT Skills:** -Accurately measure, mark out, cut and shape materials and components -Accurately assemble, join and combine materials and components -Accurately apply a range of finishing techniques, including those from art and design. - How mechanical systems such as cams or pulleys or gears create movement. .	Making product, focusing on the aesthetics/ the finished final product.
Lesson 6: Evaluate **LO:** To evaluate their and other people's products against the original design criteria. **DT Skills:** Evaluate their ideas and products against their original design specification.	Critically evaluate the quality of the design, manufacture and fitness for purpose of their product. Evaluate their ideas and products against their original design specification and success criteria. GD- write a detailed description of a cam. What they chose and how it worked.

	End of unit assessment	
Working towards	Working at Age related expectations	Working at a greater depth