



Discoverers: Year R/1/2

		2024/2025	2025/2026
		Making a Moving Storybook	Making a Moving Monster
Skills	Design	- Selecting stories which suit these mechanisms - Explaining how to adapt mechanisms, using bridges or guides to control the movement. - Designing a moving story book for a given audience in accordance with a design criteria.	- Design features of a moving monster design. - Creating a class design criteria for a moving monster. - Designing a moving monster for a specific audience in accordance with a design criteria.
	Make	- Creating moving models that use levers and sliders. - Following a design - Experimenting with adjusting the widths, lengths and thicknesses of card used.	- Cutting and assembling components neatly. - Making linkages using card for levers and split pins for pivots. - Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.
	Evaluate	- Testing a finished product - Seeing whether a finished product moves as planned and if not, explaining why and how it can be fixed. - Reviewing the success of a product by testing it with its intended audience. - Using peer feedback to modify a final design. - Evaluating own designs against design criteria.	- Testing a finished product - Seeing whether a finished product moves as planned and if not, explaining why and how it can be fixed. - Reviewing the success of a product by testing it with its intended audience. - Using peer feedback to modify a final design. - Evaluating own designs against design criteria.
Knowledge		- To know that a mechanism is the parts of an object that move together. - To know that a slider mechanism moves an object from side to side. - To know that a slider mechanism has a slider, slots, guides and an object. - To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. - To know that in Design and technology we call a plan a 'design'. - To know some real-life objects that contain mechanisms. - To know that a lever is something that turns on a pivot.	- To know that a mechanism is the parts of an object that move together. - To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. - To know that a lever is something that turns on a pivot. - To know that there is always an input and output in a mechanism. - To know that an input is the energy that is used to start something working. - To know that an output is the movement that happens as a result of the input. - To know that a linkage mechanism is made up of a series of levers. - To know some real-life objects that contain mechanisms.

*Year 1 and 2 only

*Year 2 only



Adventurers: Year 3/4

		2025/2026	2024/2025
		Pneumatic toys	Making a slingshot car
Skills	Design	- Designing a toy which uses a pneumatic system. - Developing design criteria from a design brief. - Generating ideas using thumbnail sketches and exploded diagrams. - Learning that different types of drawings are used in design to explain ideas. - Choosing shapes in the toy that assist the pneumatic mechanism.	- Designing a shape that reduces air resistance. - Drawing a net to create a structure from. - Personalising a design. - Choosing shapes that increase or decrease speed as a result of air resistance.
	Make	- Creating a pneumatic system to create a desired motion. - Building secure housing for a pneumatic system. - Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. - Selecting materials due to their functional and aesthetic characteristics. - Manipulating materials to create different effects by cutting, creasing, folding and weaving with increasing accuracy.	- Selecting materials due to their functional and aesthetic characteristics. - Making a model based on a chosen design. - Measuring, marking, cutting and assembling with increasing accuracy.
	Evaluate	- Using the views of others to improve designs. - Testing and modifying the outcome, suggesting improvements. - Understanding the purpose of exploded-diagrams through the eyes of a designer and their client. - Evaluating the effectiveness of the pneumatic design and how to improve it.	Evaluating the speed of a final product based on: the accuracy of workmanship on performance and the effect of shape on speed.
Knowledge		- To understand how pneumatic systems work. - To understand that pneumatic systems can be used as part of a mechanism. - To know that pneumatic systems operate by drawing in, releasing and compressing air. - To understand how sketches, drawings and diagrams can be used to communicate design ideas. - To know that exploded-diagrams are used to show how different parts of a product fit together. - To know that thumbnail sketches are small drawings to get ideas down on paper quickly. - To know that a birds-eye view means a view from a high angle (like a bird above). - To know that it is important to assess and evaluate design ideas and models against a list of design criteria. - To know that aesthetics means how an object or product looks in design and technology.	- To understand that all moving things have kinetic energy. - To understand that kinetic energy is the energy that something (object/person) has by being in motion. - To know that air resistance is the level of drag on an object as it is forced through the air. - To understand that products change and evolve over time. - To know that a template is a stencil you can use to help you draw the same shape accurately. - To know graphics are images which are designed to explain or advertise something. - To know that air resistance is the level of drag on an object as it is forced through the air. - To understand that the shape of a moving object will affect how it moves due to air resistance. - To know that a birds-eye view is a view from a high angle (like a bird above). - To know that it is important to assess and evaluate design ideas and models against a list of design criteria. - To know that aesthetics means how an object or product looks in D&T.

Year 4 only



Navigators: Year 5/6

		2025/2026	2024/2025
		Making a pop up book	Steady hand game
Skills	Design	- Designing a pop-up book which uses a mixture of structures and mechanisms. - Naming each mechanism, input and output accurately. - Storyboarding ideas for a book. - Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. - Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design.	- Designing a steady hand game - identifying and naming the components required. - Drawing a design from three different perspectives. - Generating ideas through sketching and discussion. - Modelling ideas through prototypes. - Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.
	Make	- Following a design brief to make a pop up book, neatly and with focus on accuracy. - Making mechanisms and/or structures using sliders, pivots and folds to produce movement. - Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. - Producing lists of equipment, materials and tools that they need for a task. - Selecting materials, components or ingredients based on research or user needs. - Explaining their choices, referring to their research.	- Constructing a stable base for a game. - Accurately cutting, folding and assembling a net. - Decorating the base of the game to a high-quality finish. - Making and testing a circuit. - Incorporating a circuit into a base.
	Evaluate	- Evaluating the work of others and receiving feedback on own work. - Suggesting points for improvement. - Providing feedback that is helpful, specific and encouraging. - Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. - Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.	- Testing own and others finished games, identifying what went well and making suggestions for improvement. - Gathering images and information about existing children's toys. - Analysing a selection of existing children's toys. - Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. - Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.
Knowledge		- To know that mechanisms control movement. - To understand that mechanisms can be used to change one kind of motion into another. - To understand how to use sliders, pivots and folds to create paper-based mechanisms. - To know that a design brief is a description of what I am going to design and make. - To know that designers often want to hide mechanisms to make a product more aesthetically pleasing. - To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.	- To know that batteries contain acid, which can be dangerous if they leak. - To know the names of the components in a basic circuit, including a buzzer. - To know that 'form' means the shape and appearance of an object. - To know the difference between 'form' and 'function'. - To understand that 'fit for purpose' means that a product works how it should and is easy to use. - To understand the diagram perspectives 'top view', 'side view' and 'back'. - To know that form over purpose means that a product looks good but does not work very well. - To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.

*Year 6 only