DT – Year 2 – Summer 1
Mechanisms: making a moving monster (4 lessons)
Textiles: pouches (lesson 3 and 4)

	Previous Learning / sticky knowledge	<u>Year 1 – mechanisms – making a moving book</u> Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make. Clearly label drawings to show which parts of their design will move and in which direction. Make a picture, which meets the design criteria, with parts that move purposefully as planned. Evaluate the main strengths and weaknesses of their design and suggest alterations. <u>Year 1 – mechanisms – wheels and axes</u> Explain that wheels move because they are attached to an axle. Recognise that wheels and axles are used in everyday life, not just in cars. Identify and explain vehicle design flaws using the correct vocabulary. Design a vehicle that includes functioning wheels, axles and axle holders. Make a moving vehicle with working wheels and axles. Explain what must be changed if there are any operational issues. <u>Year 2 – mechanisms – fairground wheels</u> Design and label a wheel. Consider the designs of others and make comments about their practicality or appeal. Consider the materials, shape, construction and mechanisms of their wheel. Label their designs. Build a stable structure with a rotating wheel. Test and adapt their designs as necessary. Follow a design plan to make a completed model of the wheel. <u>This unit:</u> Identify the correct terms for levers, linkages and pivots. Analyse popular toys with the correct terminology. Create functional linkages that produce the desired input and output motions. Design monsters suitable for children, which satisfy most of the design criteria. Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design. Select and assemble materials to create their planned monster features. Assemble the monster to their linkages without affecting their functionality.	<u>Year 1 – textiles – puppets:</u> Join fabrics together using pins, staples or glue. Design a puppet and use a template. Join their two puppets' faces together as one. Decorate a puppet to match their design. <u>This unit:</u> Sew a running stitch with regular-sized stitches and understand that both ends must be knotted. Prepare and cut fabric to make a pouch from a template. Use a running stitch to join the two pieces of fabric together. Decorate their pouch using the materials provided.	
	Curiosity questions	**Substantive knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**

Wk 1	How does pivots, levers and linkages work?	To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an 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 lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.	Creating a design criteria for a moving monster as a class. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. Evaluating own designs against design criteria. Using peer feedback to modify a final design.	axle design criteria input linkage mechanical output pivot wheel
	<u>Retrieval Practice Questions</u> Last week: Last term: Picture of a fairground wheel. What is this and how does it work? Last year: What is a moving picture?			
Wk 2	How can I make my monster move?	To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an 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 lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.	Creating a design criteria for a moving monster as a class. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. Evaluating own designs against design criteria. Using peer feedback to modify a final design.	input linkage mechanical output pivot
	<u>Retrieval Practice Questions</u> Last week: think of 5 products that have a mechanism with a pivot, which you can remember from last lesson. Last term: true or false – a wheel needs to be square to move smoothly. Last year: How does a slider work?			

Wk 3	Which monster shall I make?	To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an 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 lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.	Creating a design criteria for a moving monster as a class. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. Evaluating own designs against design criteria. Using peer feedback to modify a final design.	design criteria input linkage mechanical output pivot survey
	<u>Retrieval Practice Questions</u> Last week: agree or disagree – paper would be a good material to make a moving monster. Last term: What is a structure? Last year: Which part of a car helps it to move?			
Wk 4	How can I make my moving monster?	To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an 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 lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.	Creating a design criteria for a moving monster as a class. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. Evaluating own designs against design criteria. Using peer feedback to modify a final design.	design criteria evaluation linkage mechanical pivot
	<u>Retrieval Practice Questions</u> Last week: what do you call the pins on the monster? Lever, pivot or linkage? Last term: Why must a structure be stable? Last year: What is an axel?			

Wk 5	How can I join fabric to make my pouch?	To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing.	Designing a pouch. Selecting and cutting fabrics for sewing. Decorating a pouch using fabric glue or running stitch. Threading a needle. Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using a template. Troubleshooting scenarios posed by teacher. Evaluating the quality of the stitching on others' work. Discussing as a class, the success of their stitching against the success criteria. Identifying aspects of their peers' work that they particularly like and why.	Knot Fabric Running stitch Needle Needle threader Sew Thread
	<u>Retrieval Practice Questions</u> Last week: What do you call the bars on the monster? Lever, pivot or linkage. Last term: What is a template? Last year: name the equipment: needle, scissors, thread, felt, safety pin,			
Wk 6	How can I decorate my pouch?	To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing.	Designing a pouch. Selecting and cutting fabrics for sewing. Decorating a pouch using fabric glue or running stitch. Threading a needle. Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using a template. Troubleshooting scenarios posed by teacher. Evaluating the quality of the stitching on others' work.	Fabric glue Decorate

			Discussing as a class, the success of their stitching against the success criteria. Identifying aspects of their peers' work that they particularly like and why.	
	Retrieval Practice Questions Last week: How do I thread a needle? Last term: picture of running stitch. What is this stitch called? Last year: what does joining technique mean?			
	WOW Experience Days	•		