Year 1	
Autumn	
Autumn 1 **DT Focus** **Mechanisms** **Making a Moving Book**	**Autumn 2** **DT Focus** **Textiles** **Puppets**
Unit Outcomes: Pupils who are **secure** will be able to: • 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. Key Skills: • Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. • Following a design to create moving models that use levers and sliders. • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.	Unit Outcomes: Pupils who are **secure** will be able to: • 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. Key Skills: • Using a template to create a design for a puppet. • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction. • Reflecting on a finished product, explaining likes and dislikes. Key Knowledge: • To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins.

• Reviewing the success of a product by testing it with its intended audience. <u>Key Knowledge:</u> • 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. <u>Key Vocabulary:</u> • sliders • mechanism • adapt • design criteria • design • input • model • template • assemble • test	• To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look. <u>Key Vocabulary:</u> • decorate • design • fabric • glue • model • hand puppet • safety pin • staple • stencil • template

Year 1
Spring
Spring 2 **DT Focus** **Structures** **Constructing a Windmill**

Unit Outcomes:

Pupils who are **secure** will be able to:

- Follow design criteria to meet the needs of a user.
- Make a stable structure.
- Make functioning sails/blades that attach to the supporting structure.
- Improve their windmill.

Key Skills:

- Finding the middle of an object.
- Puncturing holes.
- Adding weight to a structure.
- Creating supporting structures.
- Cutting evenly and carefully.
- Evaluating and improving a product.

Key Knowledge:

- That the sails or blades of a windmill are moved by the wind.
- That windmills are used to generate power and were used for grinding flour.
- That a structure is something built for a reason.
- That stable structures do not topple.

- That adding weight to the base of a structure can make it more stable.

Key Vocabulary:

- axle
- base
- centre
- equal
- evaluate
- middle
- rotate
- rotor
- rotor blades
- sails
- same
- stable
- strong
- structure
- test
- weak
- wind
- windmill

Year 2

Autumn

Autumn 1

DT Focus

Mechanisms

Making a Moving Monster

Unit Outcomes:

Pupils who are **secure** will be able to:

- 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.

Key Skills:

- 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.

Key Knowledge:

- 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.

Key Vocabulary:

- axle
- design criteria
- input
- linkage
- mechanical
- output
- pivot
- wheel

Year 2

Spring

Spring 1

DT Focus

Mechanisms

Fairground Wheel

Unit Outcomes:

Pupils who are secure will be able to:

- 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.

Key Skills:

- Selecting a suitable linkage system to produce the desired motions.
- Designing a wheel.
- Selecting appropriate materials based on their properties.
- Selecting materials according to their characteristics.
- Following a design brief.
- Evaluating different designs.
- Testing and adapting a design.

Key Knowledge:

- To know that different materials have different properties and are therefore suitable for different uses.
- To know the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder.
- To know that it is important to test my design as I go along so that I can solve any problems that may occur.

Key Vocabulary:

- design
- design criteria
- wheel
- Ferris wheel
- pods
- axle
- axle holder
- frame
- mechanism

Year 2

Summer

Summer 1

DT Focus

Structures

Baby Bear's Chair

Unit Outcomes:

Pupils who are **secure** will be able to:

- Identify man-made and natural structures.
- Identify stable and unstable structural shapes.
- Contribute to discussions.
- Identify features that make a chair stable.
- Work independently to make a stable structure, following a demonstration.
- Explain how their ideas would be suitable for Baby Bear.
- Produce a model that supports a teddy, using the appropriate materials and construction techniques.
- Explain how they made their model strong, stiff and stable.

Key Skills:

- Generating and communicating ideas using sketching and modelling.
- Learning about different types of structures, found in the natural world and in everyday objects.
- Making a structure according to design criteria.
- Creating joints and structures from paper/card and tape.
- Building a strong and stiff structure by folding paper.
- Exploring the features of structures.
- Comparing the stability of different shapes.
- Testing the strength of their own structures.

- Identifying the weakest part of a structure.
- Evaluating the strength, stiffness and stability of their own structure.

Key Knowledge:

- To know that shapes and structures with wide, flat bases or legs are the most stable.
- To understand that the shape of a structure affects its strength.
- To know that materials can be manipulated to improve strength and stiffness.
- To know that a structure is something which has been formed or made from parts.
- To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.
- To know that a 'strong' structure is one which does not break easily.
- To know that a 'stiff' structure or material is one which does not bend easily.

Key Vocabulary:

- design criteria
- man-made
- natural
- properties
- structure
- stable
- shape
- model
- test