

**National Curriculum: Design and Technology**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to:

**Design:**

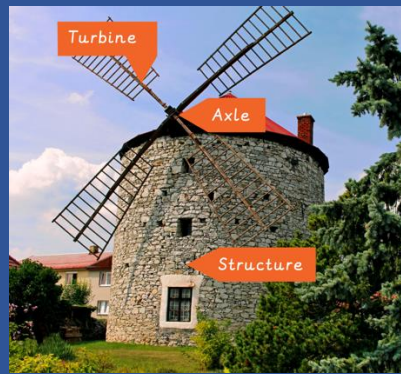
- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

**Make:**

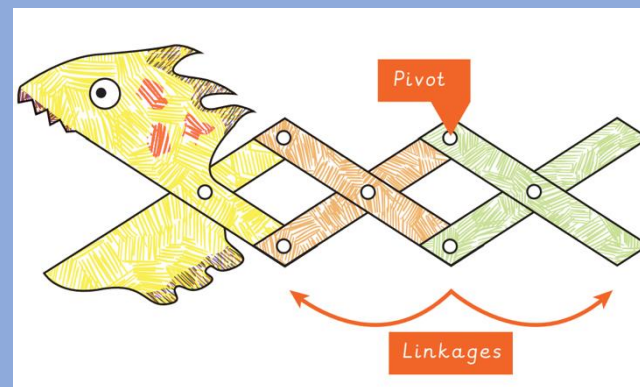
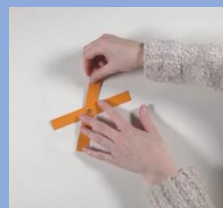
- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]

**Topics**

**Structures: Constructing a Windmill**



**Mechanisms: Making a Moving Monster**



**Textiles: Pouches**



**Key Vocabulary**

**Client** The person you are designing something for.

**Design** To make, draw or write plans for something.

**Design criteria** A set of rules to help you with your ideas and test the success of them.

**Evaluation** When you look at the good and bad points about something, then think about how you could improve it.

**Net** A flat 2D shape, that can become a 3D shape once assembled.

**Stable** Object does not easily topple over.

**Strong** It doesn't break easily.

**Structure** Something that has been made and put together.

**Test** To find out whether something works as it should.

**Weak** It breaks easily.

**Windmill** A structure with sails that are moved by wind.

**Windmill axle** The point from which the turbine or sails move.

**Windmill structure** The part that makes the windmill stand up.

**Windmill turbine** The parts that move in the wind.

**Input** The energy that is used to start something working.

## National Curriculum: Design and Technology

- select from and use a wide range of materials and components, including
- construction materials, textiles and ingredients, according to their characteristics

### Evaluate:

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria Technical knowledge
- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

### Technical knowledge:

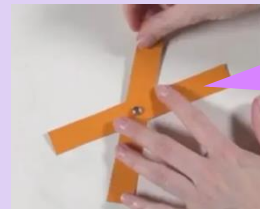
- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

## Key Questions



Can you design the structure of a windmill?

What makes a structure stable?



How do objects move?

Can you design a monster?



Can you make a template?



How can you join two fabrics?



## Key Vocabulary

- Linkage** Lengths of material that are joined together by pivots, so that the links can move as part of a mechanism.
- Mechanism** A collection of parts that work together to create a movement.
- Output** The motion that happens as a result of starting the input.
- Pivot** The central point, pin or shaft on which a mechanism turns or swings.
- Survey** To ask a group of people questions about something and to use their answers to make improvements.
- Accurate** Neat, correct shape, size and pattern with no mistakes.
- Fabric** A natural or man-made woven or knitted material that is made from plant fibres, animal fur or synthetic material.
- Knot** A join made by tying two pieces of string or rope together.
- Pouch** A small bag made to keep objects safe and to be carried easily.
- Running-stitch** A simple style of sewing in a straight line.
- Sew** To join or fasten by stitches made using a needle and thread.
- Shape** The form of an object.
- Stencil** A shape that you can draw around.
- Template** A stencil which you use to help you draw a shape more easily on to different materials.
- Thimble** A small metal cap to cover and protect your finger when sewing.

<b>Topic: Structures - Constructing a Windmill.</b>		<b>Term: Autumn 2023</b>
1	<b>Can you design the structure of a windmill?</b> - To include individual preferences and requirements in my design.	
2	<b>What makes a structure stable?</b> - To make a stable structure.	
3	<b>Can you assemble your windmill?</b> - To assemble the components of my structure.	
4	<b>Would you change anything about your windmill?</b> - To evaluate my project and adapt my design.	
<b>Topic: Mechanisms - Making a Moving</b>		<b>Term: Spring 2023</b>
1	<b>How do objects move?</b> - To look at objects and understand how they move (Pivots, levers and linkages)	
2	<b>Can you make the components of a moving object?</b> - To look at objects and understand how they move.	
3	<b>Can you design a monster?</b> - To explore different design options.	
4	<b>Can you use your design to make your monster?</b> - To make a moving monster.	
<b>Topic: Textiles - Pouches</b>		<b>Term: Summer 2023</b>
1	<b>How do you make a running stitch?</b> - To sew a running stitches	
2	<b>Can you make a template?</b> - To sew a running stitch.	
3	<b>How can you join two fabrics?</b> - To join fabrics using a running stitch.	
4	<b>Can you decorate your pouch?</b> - To decorate a pouch using fabric glue or stitching.	