



Design technology Component Knowledge

Year 4

Pavilions

National Curriculum

Pupils should be taught to:

- Produce a range of free-standing frame structures of different shapes and sizes.
- Design a pavilion that is strong, stable and aesthetically pleasing.
- Select appropriate materials and construction techniques to create a stable, free-standing frame structure.
- Select appropriate materials and techniques to add cladding to their pavilion.

Key learning and Component knowledge

Key Learning:

L1: To create a range of different shaped frame structures.

Component Knowledge:

- Make a variety of different frame structures.
- Know what the structure (pavilion) is used for.

Key Learning:

L2: To design a structure.

Component Knowledge:

- Understand that different materials can create different effects.
- Understand how to make a stable structure.
- Design a structure that is stable and aesthetically pleasing.

Key Learning:

L3: To build a frame structure.

Component Knowledge:

- Build a free-standing structure.
- Select appropriate materials to build a strong structure.
- Use knowledge of how to reinforce corners to strengthen structure.
- Refer to a design sheet to create a pavilion.

Key Learning:

L4: To add cladding to a frame structure.

Component Knowledge:

- Select appropriate materials for a cladding.
- Add cladding which reflects a design.
- Create different textural effects with a chosen material.

Making a slingshot car

National Curriculum

Pupils should be taught to:

- Work independently to produce an accurate, functioning car chassis.
- Design a shape that is suitable for the project.
- Attempt to reduce air resistance through the design of the shape.
- Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed.
- Construct car bodies effectively.
- Conduct a trial accurately and draw conclusions and improvements from the results.

Key learning and Component knowledge

Key Learning:

L1: To build a car chassis.

Component Knowledge:

- I understand that car designs have developed over many years.
- I know that a chassis is the frame of a car on which everything else is built.
- I know that all moving things have kinetic energy.
- I know that kinetic energy is the energy that something (an object or person) has by being in motion, e.g., the energy that a swing has to keep moving; any object in motion uses kinetic energy.

Key Learning:

L2: To design a shape that reduces air resistance.

Component Knowledge:

- Draw a net to create a structure from.
- Choose shapes that increase or decrease the speed of the car as a result of air resistance.
- Add graphics to personalise a design.

Key Learning:

L3: To make a model based on a chosen design.

Component Knowledge:

- Remember that nets are flat shapes that can be turned into 3D structures.
- Measure, mark and cut the panels (nets) against the dimensions of a chassis.
- Including tabs on a net to secure them to the panels of a chassis
- Decorate the panels.

Key Learning:

L4: To assemble and test my completed product.

Component Knowledge:

- Assemble the panels of the body to the chassis correctly.
- Remember that smaller shapes create less air resistance and can move faster through the air.
- Evaluate the speed of a design based on the understanding that some cars are faster than others as a result of the following:

- Body shape.
- Stored energy in the elastic band.
- Accuracy of the angle in the chassis and axle.

Torches
National Curriculum
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • Identify electrical products and explain why they are useful. • Help to make a working switch. • Identify the features of a torch and how it works. • Describe what makes a torch successful. • Create suitable designs that fit the success criteria and their own design criteria. • Create a functioning torch with a switch according to their design criteria.
Key learning and Component knowledge
<p>Key Learning:</p> <p>L1: To learn about electrical items and how they work.</p> <p>Component Knowledge:</p> <ul style="list-style-type: none"> • I can identify electrical products. • I know what electrical conductors and insulators are. • I know that a battery contains stored electricity and can be used to power products. <p>Key Learning:</p> <p>L2: To analyse and evaluate electrical products.</p> <p>Component Knowledge:</p> <ul style="list-style-type: none"> • I can identify the features of a torch. • I understand how a torch works. • I can say what is good and bad about different torches. • I understand what is important in torch design. <p>Key Learning:</p> <p>L3: To design a product to fit a set of specific user needs.</p> <p>Component Knowledge:</p> <ul style="list-style-type: none"> • I can factor in who my product is for in my design criteria. • I can design a torch which satisfies both the design and success criteria. <p>Key Learning:</p> <p>L4: To make and evaluate a torch.</p> <p>Component Knowledge:</p> <ul style="list-style-type: none"> • Make a working circuit with a switch. • Use appropriate equipment to cut and attach materials. • Assemble a torch according to a design criteria. • Assemble a torch which satisfies the success criteria. • Test a torch to evaluate its success.

