



Design technology Component Knowledge

Year 2

Baby bear's chair

National Curriculum

Pupils should be taught 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 learning and Component knowledge

Key Learning:

L1: To explore the concept and features of structures and the stability of different shapes.

Component Knowledge:

- Identify natural and man-made structures.
- Understand what is meant by stability and identify when a structure is more or less stable than another.
- Explain that shapes and structures with wide, flat bases or legs are the most stable.

Key Learning:

L2: To understand that the shape of the structure affects its strength.

Component Knowledge:

- Understand the meaning of the words strength, stiffness and stability.
- Understand there are different ways to fold paper to improve its strength and stiffness.
- Build a strong and stiff structure by folding paper.
- Test the strength of a structure.

Key Learning:

L3: To make a structure according to design criteria.

Component Knowledge:

- Remember that chairs are structures that need to be strong, stiff and stable.
- Create joints and structures from paper, card and tape.

Key Learning:

L4: To produce a finished structure and evaluate its strength, stiffness and stability.

Component Knowledge:

- Identify that the chair designed needs to be strong, stiff, stable and support Teddy.
- Create joints and structures.

- Evaluate a structure according to the design criteria.

Fairground Wheel

National Curriculum

Pupils should be taught 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 learning and Component knowledge

Key Learning:

L1: To explore wheel mechanisms and design a Ferris wheel.

Component Knowledge:

- Describe how axles help wheels to move a vehicle.
- Evaluate different designs.
- Design and label a working wheel.

Key Learning:

L2: To select appropriate materials.

Component Knowledge:

- Understand the properties of different materials.
- Communicate ideas to someone else.
- Select appropriate materials for a wheel.

Key Learning:

L3: To build and test a moving wheel.

Component Knowledge:

- Build a stable structure.
- Test elements of a design.
- Adapt a design as necessary.
- Make the wheel rotate.

Key Learning:

L4: To make and evaluate a structure with a rotating wheel.

Component Knowledge:

- Evaluate a wheel mechanism and adapt it as necessary.

- Ensure that pods stay upright when rotating around a fixed point.

Making a moving monster

National Curriculum

Pupils should be taught 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 learning and Component knowledge

Key Learning:

L1: To look at objects and understand how they move.

Component Knowledge:

- Understand that mechanisms are a collection of moving parts that work together in a machine.
- Understand that there is always an input and output in a mechanism.
- Identify mechanisms in everyday objects.
- Understand that a lever is something that turns on a pivot.
- Understand that a linkage is a system of levers that are connected by pivots.
- Help devise whole-class design criteria for what our moving monster should do.

Key Learning:

L2: To look at objects and understand how they move.

Component Knowledge:

- Understand that mechanisms are a collection of moving parts that work together in a machine.
- Understand that there is always an input and output in a mechanism.
- Understand that a lever is something that turns on a pivot.
- Understand that a linkage is a system of levers that are connected by pivots.

Key Learning:

L3: To explore different design options.

Component Knowledge:

- Understand that linkages use levers and pivots to create motion.
- Think of two points to add to the class design criteria.
- Draw two moving monster designs that meet all points of a design criteria.
- Design the linkage to make a monster move.

Key Learning:

L4: To make a moving monster.

Component Knowledge:

- Make linkages by connecting levers and pivots.
- Understand that materials can be selected according to their characteristics.
- Design and make the features of a monster.

- Evaluate how functional a monster is and whether it meets the Design Criteria.