Year 6

Design & Technology

Barnton Community Nursery & Primary School
Inspire - Believe - Achieve

All children – regardless of gender, starting point or background – will have the opportunity to engage with a high-quality design technology education. They will be equipped with the knowledge, skills and vocabulary to use creativity and imagination to design and make products that solve real and relevant problems in a variety of contexts. We intend to inspire a sense of enjoyment and curiosity about design technology.

3D Structures – Sledge for Transport

Summer 1

Igniting Prior Knowledge:

Year 4 (Art & Design – 3D Sculptures – Plastic Pollution)

- Natural, man-made and recycled materials can all be used for sculpture.
- Two-dimensional refers to height, width and three-dimensional refers to height, width, depth.
- There is a relationship between two-dimensional and three-dimensional shapes: square to cube, triangle to pyramid, circle to sphere and cylinder.
- Tools can carve and add shapes, texture and pattern to sculpture.
- Time and decay can have an effect on sculptures.
- A maquette is a preliminary model or sketch.
- Tools such as glue guns, pliers, saws, wire cutters and hammers can be used to manipulate and join parts of sculptures.

Year 5 (3D Structures)

- 3D frames can be strengthened, stiffened and reinforced.
- A shelter is a place giving temporary protection from bad weather or danger.

Vocabulary:

components
frame structure
rigidity
triangulation
screws
bolts
rivets
Computer Assisted Design (CAD)

New Knowledge:

- CAD (Computer Assisted Design) is the use of computers to aid creation engineering and design.
- CAD can be used as part of the planning and design process.
- A sledge is a dragged vehicle or carrying device on runners, without wheels.
- A sledge is used to transport heavy loads or people over the snow or ice, often pulled by animals, but can be pulled by machinery or people.
- A sledge is constructed in two main parts. A base, supported by two runners. Handles/ harness' are added to suit design (e.g pulled by animals or people).
- Sledges have runners that are smooth, narrow and curved at the front, to reduce friction.
- There are many techniques that can be deployed to build a frame structure. e.g. paper rolling, joining straws, joining thin sectioned pieces of wood, creating triangles for rigidity.
- Triangulation is the name of the technique used to strengthen a structure.
- Joints can be joined using adhesives, frame joints or fastenings, using screws, bolts or rivets.
- Wood can be shaped by hand, using tools such as saws, rasps and sandpaper. Wood can also be shaped by machinery.