Be the best that we can be.

EBJ Knowledge Organiser
Design Technology
Year 6

Spring 2

Digital World:
Navigating the World

Curriculum Overview

Pupils learn to incorporate key requirements from a client's design request, such as making a product multifunctional and compact, when writing their design brief. They develop programming skills by creating a program with an on-start loading screen that displays arrows showing the cardinal compass directions, and they learn to identify and fix errors in their code through debugging. Pupils evaluate product concepts through simple self- and peer-assessment against design criteria and explore the industries that use 3D CAD modelling and the reasons for its importance. They recall and describe the tools used in Tinkercad, combine multiple objects to create a complete 3D CAD model, and finish by planning a product pitch that includes key information about their design.

Design Criteria

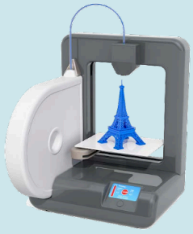
- To write a design brief and criteria based on a client request.
- I can develop design criteria to fulfil the client's request.
- I can consider and suggest additional functions for my navigation tool.
- To write a program to include multiple functions as part of a navigation device.
- I can program an n, e, s and w cardinal compass.
- I can explain the key functions in my program, including any additions.
- To develop a sustainable product concept.
- I can consider materials and their functional properties.
- I can understand the need for sustainability in design.
- I can develop a product idea through annotated sketches.
- To develop 3D CAD skills to produce a virtual model.
- I can identify key industries that utilise 3D CAD modelling and explain why.
- I can place and manoeuvre 3D objects using computer-aided design.
- I can change the properties of or combine one or more 3D objects using computer-aided design to produce a 3D CAD model.

3D Printing

A 3D printer can receive and output a 3D model file as a physical item.

It is very expensive to set up and fill with materials.

The models are restricted by the colour of the material the printer uses, but can be hand-painted after printing to add detail.



Sustainable Materials

Cork

Developed from living trees, without causing them harm. Cork comes from bark that regenerates.

Bamboo

Grows rapidly - some species will reach 3 ft in a single day.

Multi-functioning products

One electronic product with multiple functions could help lighten the load.

Key Vocabulary

Biodegradable	Materials that break down and form part of the soil as part of the natural decomposition process.
Boolean	A form of data, which consists of (true) Is and (false) Os values.
Environmentally friendly	Does not cause harm to nature (animals, plants etc).
Finite	Limited in number, will eventually run out.
If statement	To instruct a program to respond based on two or more conditions (e.g. if it is below 10 degrees celcius turn on the heating; else switch the heating off).
Mouldable	Can be made into any shape.
Product lifecycle	How long an object is expected to last before becoming unusable.
Product lifespan	How long an object will last, before being recycled.
Smart	A device with processing capabilities.
Sustainable	Can be maintained.