



Year 6

3D Modelling

Key Learning

- To explore and develop simple 3D models using CAD software.
- To explore the effect of moving points when designing.
- To plan, design and begin creating packaging to meet a design brief.
- To refine, assemble and evaluate the finished packaging prototype.

Key Resources



2Design and Make

Key Vocabulary

3D Printing

The process of making a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession.

Design Brief

A set of instructions or a challenge that explains what needs to be designed.

Prototype

A first version of a design that is made to test out ideas.

Computer Aided Design (CAD)

Using computer software to help create designs. CAD is used by engineers, architects, and product designers to make accurate models before building them in real life.

Model

A digital or physical version of an object that shows what it looks like.

Three-Dimensional (3D)

A solid shape that has length, width, and depth.

Net

A flat, 2D pattern that folds up to make a 3D shape.

Two-Dimensional (2D)

A flat shape that only has length and width.

Points

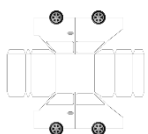
A corner of a 2D or 3D shape that can be moved during CAD.



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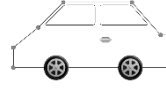
Key Images



Net view



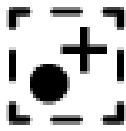
3D view



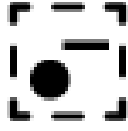
Points view



Pattern fill tool



Add point



Remove point



Change width



Download STL file

Key Questions

What is CAD and why is it useful?

CAD (Computer Aided Design) is software that allows designers to create accurate 2D and 3D models. It is useful because it helps test ideas, make quick changes, view designs from different angles and spot any problems before building.

Why is packaging important in product design?

Packaging protects products from damage, dirt, or spills, while also keeping food fresh. It provides information such as ingredients and recycling instructions. It also promotes the product through logos, colours and images to encourage customers to buy it.

How can moving points change a 3D model?

By dragging points on a shape, designers can reshape and adapt models. Moving points changes the net and the 3D appearance, allowing more creative designs. This flexibility lets prototypes be customised to meet a design brief.

What is a prototype and why do designers use it?

A prototype is a first version of a design. Designers use prototypes to test ideas, check strength and appearance and make improvements before producing the final version.