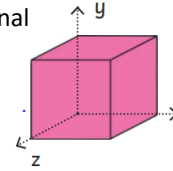| Design and Technology Knowledge Organiser	Southwold Primary School
Topic: What skills will I use in computer aided design to create an avatar? **LKS2** **Strand: Computer Aided Design**	

What should I already know?

- That packaging serves a variety of purposes.
- How graphics are used to create effects.
- The graphics on a product reflect who and what the packaging is designed for.
- About the animation design of Yoichi Katabe.
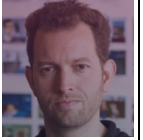- How to create a product online using computing skills.

Design– What is 3D Modelling?

3D modelling is a way of creating a representation of a three-dimensional object. Three-dimensional objects are characterised by height, width and depth. A 3D model can be looked at from different angles or viewpoints. 3D models can be made using materials, such as paper or wood, or they can be printed using a 3D printer. 3D modelling is used in many different industries, it allows designers to try out ideas, be creative and solve problems without using up expensive resources in the real world.
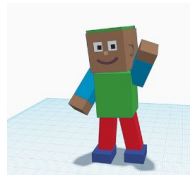
Innovator & Designer

Jacob 'Ba' Blackstock is the illustrator and creator of Bitmojis. He started animating at age 6, and has years of experience making comics, animation, movies, games and apps. "I wanted to make all kinds of cool, crazy stuff, with entertainment and art.''

What will I know by the end of this unit?

- What an avatar is.
- How to use vocabulary to express ideas.
- How to create a 2D representation of a character.
- How to use Tinkercad to create a 3D representation of a character.
- How to use mathematical computation to solve real-world problems.

What will I be able to do by the end of this unit?

Design:
- Use drawings and vocabulary to express my ideas.
- Design a 2D representation of a character using papercraft materials.

Make:
- Follow my design to create a 3D avatar of myself or a fictional character.
- Use orthographic projection to break down a design and study it. (Drawing an object from each of its sides).
- Use CAD (Tinkercad) to create a product.

Evaluate:
- Evaluate my own finished product and those of my peers.
- Suggest ways in which I could improve their work.
- Present my work to the rest of the class.

Vocabulary

avatar	An electronic image that represents and may be controlled by a computer user.
dimension	The measure of a size such as length or width.
edge	The straight line where two flat faces of a 3D shape meet.
face	A flat surface on a 3D shape.
handle	A point on a 3D model where it can be modifies by clicking and dragging.
modify	To make a small change to something.
object	A shape or line that can be moved, resized or modified.
perspective	In 3D modelling softwdre, a three-dimensional view.
workplane	The area used to place objects in Tinkercad.
viewpoint	The position from where you look at something.

What is Tinkercad?

Tinkercad is a free web app that can be used for 3D design, electronics and coding.
Simply go to www.tinkercad.com, create an account and start tinkering.
In the 3D Design mode, 3D shapes and objects can be selected and dropped onto a surface called a Workplane. The 3D shapes can be modified and combined.
Tinkercad encourages creativity, design skills, logical thinking and problem-solving. 3D models designed in Tinkercad can be printed using a 3D printer.