

### Early modelling- Why it is important to iterative design.

At all stages of designing, designers use paper models, toiles or maquettes to test the feasibility of their work. It is part of the cycle of iterative design. This is different to prototype manufacturing, where a designer or modelmaker will produce a functioning version of the final design.

Early modelling allows the designer to:

- design in three dimensions;
- better understand their own design thinking;
- communicate their ideas to others;
- explore construction considerations;
- explore technical considerations;
- make modifications to their ideas.

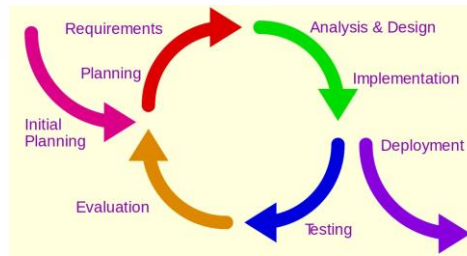
### Product Design

Product designers use paper, card and foam to create models, as well as using CAD software to develop designs without the need for a workshop. Using CAD can also support the use of 3D printers, or rapid prototyping machinery to create three dimensional models. Designers use early modelling to:

- check the ergonomics of a product;
- make calculations to do with the overall size and weight of the product;
- check structural strength;
- develop and modify the aesthetic style of the product.

Furniture Design Working with natural wood and timber products for the finished product, a designer will often use paper and board to produce scale models which are quick and comparatively inexpensive to create. Designers use early modelling to:

- ensure the product is suitable for use (anthropometrics);
- calculate the amount of material required;
- research joining solutions;
- check structural strength;
- check the overall style.



<https://www.youtube.com/watch?v=DgBYjvAQraw>



### Design Dictionary

**aesthetics:** the look or style of a product.

**anthropometrics:** the use of human measurements in relation to our environment - for example, a café chair must be able to allow a range of people, short and tall, to sit down.

**compliant material:** can be shaped, wasted and deformed easily.

**ergonomics:** how a product fits with its user – for example, how comfortable a handle on a hairdryer is depends on its ergonomics.

**fastening:** a temporary or non-bonded way of joining two parts of a product – for example, buttons, nuts and bolts and cable ties.

**maquette:** a scale model made from clay, built with the purpose of examining and developing the form and aesthetics of the product.

**scale model:** a model or prototype which is proportionally identical to the full-sized product, but scaled down to a practical size for initial making.

**toile:** an early version of an item of clothing, made from paper or inexpensive cloth

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse and describe** an already-existing product. **ACCESS FM - Helpsheet**

<b>A</b> is for <b>Aesthetics</b>		<b>Aesthetics</b> means: what does the product look like? What is the Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Size?
<b>C</b> is for <b>Cost</b>		<b>Cost</b> means: how much does the product cost to buy? How much does it Cost to buy? Cost to make? How much do the different materials cost? Is a good value?
<b>C</b> is for <b>Customer</b>		<b>Customer</b> means: who will buy or use your product? Who will buy your product? Who will use your product? What is their Age? Gender? What are their Likes? Dislikes? Needs? Preferences?
<b>E</b> is for <b>Environment</b>		<b>Environment</b> means: will the product affect the environment? Is the product Recyclable? Reusable? Repairable? Sustainable? Environmentally Friendly? Bad for the environment? 8R's of Design: Recycle / Reuse / Repair / Refurbish / Reduce / Refuse
<b>S</b> is for <b>Size</b>		<b>Size</b> means: how big or small is the product? What is the size of the product as customers (small) is this the same size as similar products? Is it comfortable to use? Does it fit? Would it be improved if it was bigger or smaller?
<b>S</b> is for <b>Safety</b>		<b>Safety</b> means: how safe is the product when it is used? Will it be safe for the customer to use? Could they hurt themselves? What is the correct and safest way to use the product? What are the risks?
<b>F</b> is for <b>Function</b>		<b>Function</b> means: how does the product work? What is the product job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?
<b>M</b> is for <b>Material</b>		<b>Material</b> means: what is the product made out of? What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

- <https://www.youtube.com/watch?v=oeWuSraY3y0> simple cube
- <https://www.youtube.com/watch?v=8nb0g2vEnKO> Dice
- <https://www.youtube.com/watch?v=xAxdVWVWQ5rwM> bird box
- <https://www.youtube.com/watch?v=UHMIERW2pS4> mug
- [https://www.youtube.com/watch?v=tphXpiSGIN0&list=PLYa0w\\_YUHHpCb3wkqUmloMMDLmT0Wcao2](https://www.youtube.com/watch?v=tphXpiSGIN0&list=PLYa0w_YUHHpCb3wkqUmloMMDLmT0Wcao2) presentation skills with a marker