

A prototype is where you construct a physical example of your design.



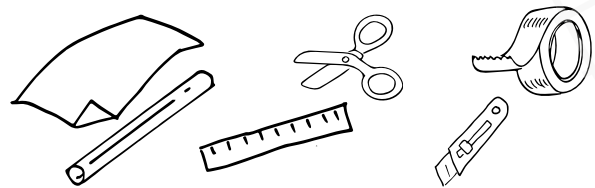
Constructing a prototype

Prototypes are for validating a design or a hypothesis. A prototype is used for testing whether the design will work as expected or not. Usually new insights are gained once the engineers and scientists get to experiment with the physical product.

Prototypes are for learning, so it is a good idea to keep them as simple as possible.

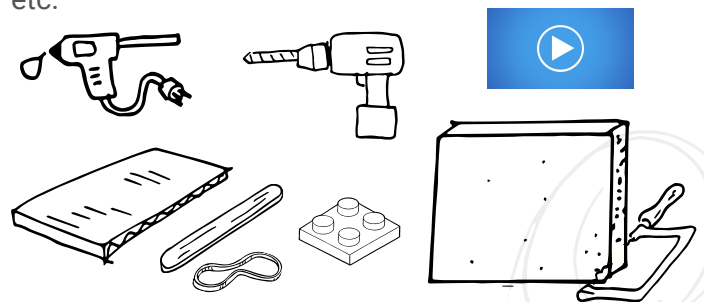
Different kinds of prototypes

1. **Paper prototypes** - 'thinking in paper' are super quick to make and help us to visualise our ideas, especially those that are hard to sketch. They are most often used in the early stages of design. Typical materials include;

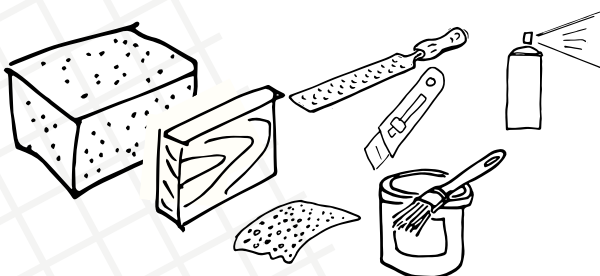


2. **Rough prototype** - a proof of concept is a working prototype that proves a device or system works. It does not need to look like your final design, and will be constructed as quickly as possible. Sometimes just one part of your design is prototyped to demonstrate it works. This rough build is sometimes called a 'mock-up'.

Materials may include MDF sheet, Coreflute panel, corrugated cardboard, hot glue, acrylic, aluminium rod, screws, nuts and bolts, plastic bricks, elastic bands, springs, microcontroller, motors, sensors etc.



3. **Appearance prototype** - a static model is used to show the final look and feel of a design, especially for products that must have visual (aesthetic) appeal. 3D printed parts are often smoothed and painted for this purpose. Materials may include balsa wood, plaster, blue foam, styrofoam, wood, undercoat/sealer and brush, spray paint, abrasive paper etc



4. **Engineering prototype** - is a working example of a design but also has the appearance, size and the same materials found in the design/blueprint. This type of prototype can be very expensive to make because it requires specialist knowledge and equipment.