



MANUFACTURING AND ENGINEERING

Learning Resource



SECONDARY LEVEL

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This resource supports learning at home for secondary school learners. The six themes cover different curricular areas: Art of Empowerment, Science of Colour, Wellbeing, Victorians, Manufacturing and Engineering and Natural Environment.

Manufacturing and engineering are important in art and design. Artists and designers use a variety of materials and methods in their creative process. The following artworks and activities will help you explore this.



Google Classroom code: **5n52bgj**

This artwork by Junko Mori is called *A Small Propagation Project*. Junko Mori studied design in Tokyo then worked as a welder before studying silversmithing and metalwork in London. This sculpture is made of many separate forged steel parts that are attached to each other but can be individually moved and rearranged to form a variety of shapes.

You can see Junko Mori in her workshop talking about her work in these short films:



[Making Beauty: Junko Mori](#)

[Working with Silver: Contemporary Artist Junko Mori](#)

When you look at this sculpture, what does it make you think of? What do you think it would feel like if you could touch it?

Even man-made materials, such as metals, can be manipulated to create something that looks organic.



A Small Propagation Project, 2004, © Junko Mori

Activity

You can create your own sculpture using materials such as paper, cardboard, paper straws, wire and glue. Use the links below to see how you can manipulate paper and card to create different shapes. The more shapes you add to your construction, the stronger it can become – so experiment!



You can see some simple paper folding techniques in this short video [Click Here](#)

And some simple card construction techniques [Click Here](#)

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This sculpture, called *Head of Francis Bacon, Study No 6 (Head and Teeth)*, is by artist Clive Barker. Barker used casts made from a real set of teeth and ribbed tubing to show the windpipe in this representation of his friend the artist Francis Bacon. Barker worked on the assembly line at Vauxhall Motors, which inspired him to use ready-made and unconventional materials such as leather, chrome, plated steel and brass in his sculptures.

Activity



Which parts of this sculpture do you think have been exaggerated?

Create your own version of a constructed head using paper, card, and recycled materials. Think about how you will build the head and features you want to exaggerate. Watch construction techniques [Click Here](#)

Many sculptures are created using a bronze cast method, which is a process of using a wax or plaster mould to create a sculpture which is then cast in bronze. Watch the process [Click Here](#)



Learn

In this clip from the National Theatre's production of *Frankenstein*, you can see how artistry and engineering come together in the set design for a steam engine on stage. [Click Here](#)



Head of Francis Bacon, Study No 6 (Head and Teeth),
Clive Barker, 1978© Whitford Fine Art, London (2007)