Novel Pencil Rack Design

Iterative design development

This design exercise will develop your iterative designing capability.

Iterative design development is the process of analysing, evaluating and modifying designs, then repeating the process until a suitable design is found.
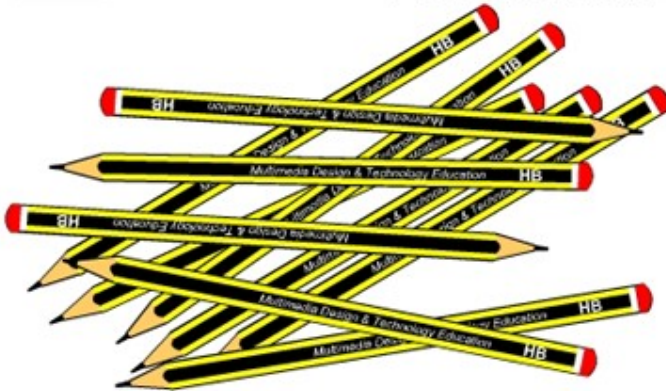

You will start with an existing design and develop the design into something new and better.

A typical pencil rack is illustrated below. Your challenge is to design a pencil rack based on a novel shape or form.
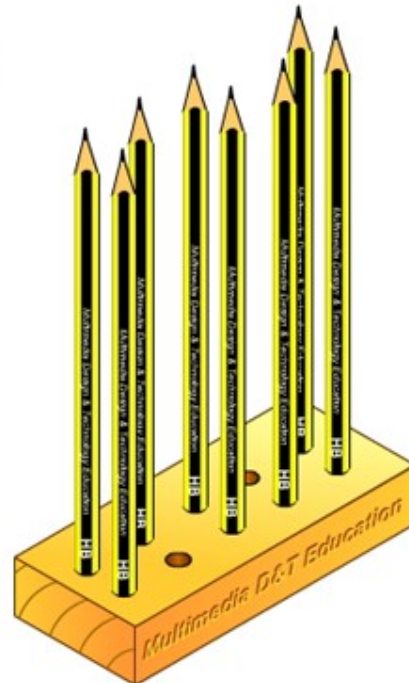

Pencil Rack Design

Pencil racks are typically rectanglular.

Design a pencil rack based on a novel shape, e.g.

- an ellipse
- a spiral
- a polygon
- an irregular shape
- an irregular form.

Design Brief

Design a pencil rack based on a novel shape or form.

Design specification

The pencil rack must:

- hold at least 6 pencils so that they do not wobble about but the pencils must be easy to remove from the pencil rack
- be made from solid wood (i.e. not a manufactured board)
- have a novel shape or form
- have holes that are spaced equal distances apart
- have holes that are all the same depth
- be stable and not fall over easily
- be smooth to touch
- have a "finish" applied to it, i.e. the pencil rack must be varnished, lacquered, painted or waxed etc.

Recording your ideas

Use notes and sketches to record your ideas as they develop. Each of your ideas and designs should be analysed and evaluated to check if an improvement can be found. Each improvement should be recorded, then analysed and evaluated again.

Your final design must be drawn to scale using orthographic projection.