

Knowledge Organiser: Year 10 GCSE Three-Dimensional Design: 'Lamps and Lighting'

computer aided design (CAD)

designs created on computer software ensuring accuracy and quick adjustment

computer aided manufacture (CAM)

machinery programmed by or following a design created using CAD

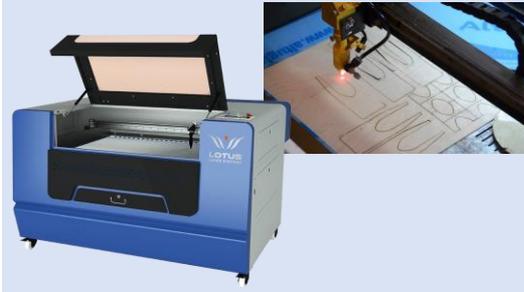
Serif

Inspiring Creativity

DrawPlus^{x5}



CAD software used to design products and translate them for CAM production on the laser cutter.



The **laser cutter** is a type of CAM. It works by using a high-powered laser to cut, etch and engrave material- often corrugated card, laser ply or acrylic. Lasers cut by burning through the material and are incredibly precise. The laser cutter can then be told to do different things with each colour. In our case, red lines represent cut and black lines represent etch lines.

laser cut finger joints

acrylic sheets



A **living hinge** is a thin flexible hinge made from the same material as the two rigid pieces it connects. It is typically thinned or cut to allow the rigid pieces to bend along the line of the hinge. Living hinge designs can be used to create entirely rounded products from flat rigid materials such as laser ply.



Islamic art is not art of a specific religion, time, place, or of a single medium . Instead it spans some 1400 years, covers many lands and populations, and includes a range of artistic fields including architecture, calligraphy , painting, glass, ceramics, and textiles.

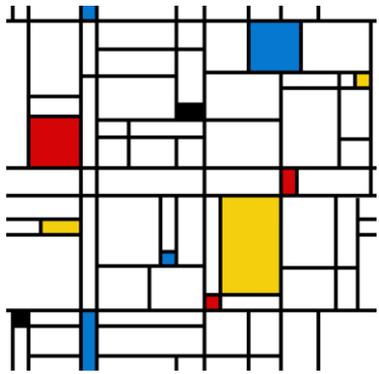
Islamic and arabesque art often focuses on **radial symmetry**. This means the designs span out from a centre point and symmetry can be seen across multiple central axis.



arabesque: an ornamental design consisting of intertwined flowing lines, originally found in ancient Islamic art.

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Abstract art emerged at the beginning of the 20th century. It is based on creating visual effect through use of colour, shape, line, pattern and texture, rather than the accurate portrayal of reality.



Piet Mondrian (1874-1944) was a Dutch artist. He is most famous for forming the 'De Stijl' movement of art, initially inspired by seeing the abstract artwork of Pablo Picasso and Georges Braque. This style of art favoured the use of straight lines and primary colours to give an impression of form and create simple but considered compositions.



Beatriz Milhazes is a Brazilian artist known for her colourful abstract paintings and prints. Swirling with geometric and arabesque shapes, Milhazes's works are kaleidoscopic and inspired by Brazilian and Modernist European design elements. Milhazes has been influenced by the artwork of Henri Matisse, Sonia Delaunay, and Wassily Kandinsky.



Tilde Grynnerup (born 1973) is a Danish artist. She creates art across a range of media including bold wooden wall sculptures inspired by layers of geometric shapes



Sanna Annukka (born 1983) is a British/Finnish artist. She creates geometric prints and ceramic work that are composed of smaller sections and geometric shapes.

