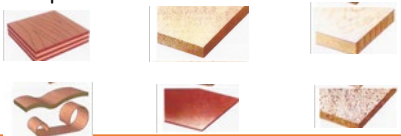


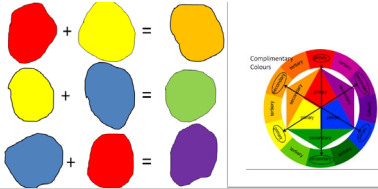
Materials:

Woods- hardwoods- softwoods- manufactured
 Hardwoods- lose their leaves- deciduous
 Soft woods- keep their leaves-evergreen
 Manufactured- man made wood
 Advantages of manmade boards: available in large sheets, environmentally friendly/sustainable material, cost effective (cheap), does not have knots/defects.
 Plastics- thermoplastic-thermoset.
 Thermoplastic- can be recycled- HIPS and Acrylic.
 Thermosetting- can't be recycled and reshaped.



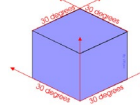
Colour Theory:

Primary-red, yellow and blue
 Secondary-orange, purple and green.



Isometric: a method for visually representing three-dimensional objects in two dimensions in technical and engineering drawings.

Drawn at an angle of 30 degrees.



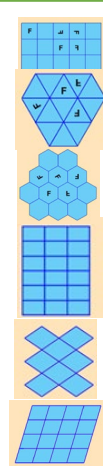
Tessellated shapes:

Arrangements of closed shapes that completely cover plane without overlapping and without leaving gaps.

3 regular geometric shapes- equilateral triangle, square and hexagon.

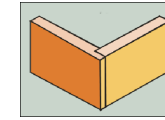
Regular-all sides and internal angles are equal.

Others-parallelograms, rhombus and rectangles



Wood Joints:

Lap joint: a joint made by halving the thickness of each member at the joint and fitting them together.



Production processes:

One off production- wedding rings, bespoke furniture, one product being made
 Manufactured by a skilled craftsperson, very expensive.
 Mass production-cars, cookers, Many similar products are made, manufactured by machines, Affordable prices.
 Continuous production- plastic bottles, food cans, same product made 24/7, there is a constant demand, very high set up costs
 CAD-Computer aided design
 Programs-2D design- a design program that links to a CAMM
 CAM- Computer aided manufacture
 Machine-Heat press- a machine that transfers a design onto a surface using high temperatures and pressure. The images gets transferred through die sublimation.
 Advantages of CAD/CAM: Accuracy, consistency, speed and safer.
 Disadvantages of CAD/CAM: High initial set up costs, staff require training, higher energy costs, not cost effective for manufacturing in small quantities.

Saws:

Ancient saw- dates back to the later stone age
 Biomimicry inspired- nature inspired from the saw fish and wasp
 Egyptian-bronze saws with jewelled teeth
 Prehistoric saw- made from flint with irregular teeth
 Japanese saw- cuts on the pull, butchers cleaver
 Mill saw- driven by wind-power and water power
 Band saw- William Newberry Patented the first
 Cross cut saw- Cuts on both strokes
 Chain saw- Also used by surgeons for bone cutting
 Hack saw-Cuts metal with greater ease

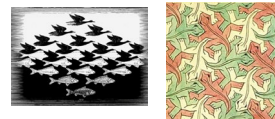
Tools and processes:

Claw hammer- is a tool primarily used for pounding nails into, or extracting nails from, some other object.
 Coping saw- is a type of hand saw used to cut intricate external shapes and interior cut-outs in woodworking.
 Tenon saw- is a type of hand saw used to cut wood straight.
 Bench hook- its purpose is to provide a stop against which the piece of wood being worked can be firmly held.
 File- a steel hand tool with small sharp teeth on some or all of its surfaces; used for smoothing wood or metal.
 Vacuum forming- is a simplified version of thermoforming, whereby a sheet of plastic is heated to a forming temperature, stretched onto a single-surface mould, and forced against the mould by a vacuum (suction of air)

Jigsaw puzzle

M C Escher(1898-1972):

He was born in the Netherlands.
 Over his life he made over 448 Lithographs, woodcuts, wood engravings. Over 2000 sketches and drawings.
 In 1922, on his visit to Spain, he became fascinated with Division Plane, In Switzerland, during WWII, he completed 62 of 137 Regular Division Drawings.
 After this adoration, he read more about math, dealing with plane and projective geometry, non-Euclidean geometry.
 Tessellations: Escher, took his basic problems and applied reflection, glide reflections, translations and rotations.



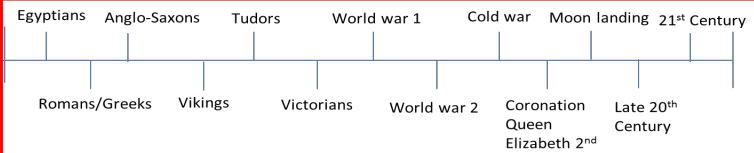
Jigsaw puzzle:

John Spilsbury (1739 – 3 April 1769) was a British cartographer and engraver. He is credited as the inventor of the jigsaw puzzle. Spilsbury created them for educational purposes, and called them "Dissected Maps." Spilsbury created the first puzzle in 1766 as an educational tool to teach geography.



History of Toys:

Vikings- 400 AD
 Queen Victoria reins-1837-1901
 Word soviet would be associated with the dates 1945-1991
 World war 1- 1914-1918
 World war 2-1939-1945 (wider expansion, more materials used across the war, not many materials for toys)
 Tudors- 1485-1603
 A Bomb invented- 1945
 Taefl- played by the Anglo-Saxons
 Egyptians- used papyrus
 Coronation of Queen Elizabeth 2nd -1953
 Dreadnoughts- relates to naval power in World War 1
 Airpower-World War 2
 Hnefatafl- played by the Vikings
 Moon landing- 1969
 Bluetooth invented- 1990s
 Development of injection moulding-1946



Key words:

- PPE
- Biomimicry
- Injection moulding
- Tessellations
- Regular
- Irregular
- Pentagons
- Primary
- Secondary
- Tertiary
- Complimentary
- Equilateral
- Tessellate
- Isometric
- Heat press
- Heat Transfer
- MDF
- Manufactured Board
- Fretsaw
- Try square
- Goggles
- Apron
- Plywood
- Vice
- Bench Hook
- Lap joints
- Tenon saws
- Fabricate
- Adhesive
- Hammer
- Pins
- PVA
- Vacuum former
- HIPS
- Thermo plastic
- Particles
- Molecular
- Glass paper
- Abrasive
- Sanding block
- Wax
- Wet and dry paper
- CAD
- CAM