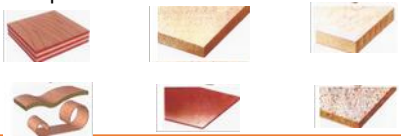


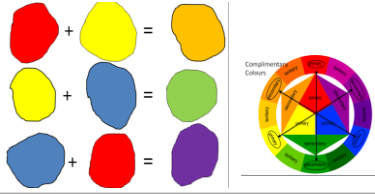
### Materials:

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.



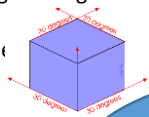
### Colour Theory:

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.



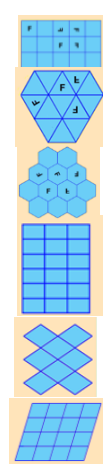
### Tessellated shapes:

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

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

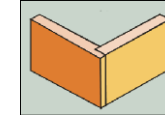
Regular-all sides and internal angles are equal.

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 craftsman, 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

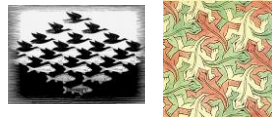
### Tools and processes:

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)

## Year 7 RM Knowledge Organiser 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.



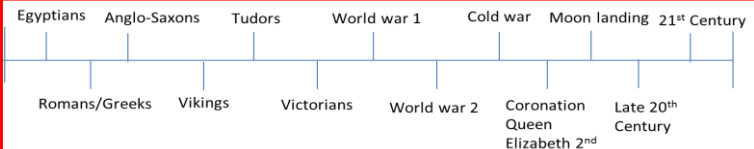
### Jigsaw puzzle:

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 2<sup>nd</sup> -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