Designing

Design	a plan or drawing produced to show the look and function or workings of an object before it is made. To imagine and
Functionality	**The suitability of a product, how the purpose of the product affects**
Tolerance	the allowable difference between the intended size of a design and the final

Explore — Properties of metals

Materials	the things that can be observed in materials, e.g. colour or weight
Working properties	the things that can be tested in materials, e.g. strength, and also the way that materials can be shaped using tools and processes
Process	any manufacturing method, e.g. sawing, drilling, filing.
Rust	the orange/brown flaky/dusty surface that forms on ferrous metals when in contact with moisture for long periods of time
Oxidisation	the formation of a dull surface coating on non-ferrous metals.
Malleable	a property that allows a metal to be bent or hammered into a shape
Ductile	a property that allows a metal to be formed into a thin wire by pulling it through a small hole (drawing)

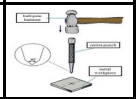
Materials

Ferrous Metals	Any metal that contains iron. Ferrous metals rust when left in contact with moisture, and are magnetic	***Iron, steel***
Non-Ferrous metals	A pure metal that does not contain iron. Non-Ferrous metals are not magnetic and do not rust, but they go dull (**tarnish**) forming a protective layer. This is called **oxidization.**	***Aluminium, copper, lead***
Alloys	a mixture of two or more metals to change the material **properties** in some way. Brass is an alloy of **copper**	***Titanium , brass, solder are examples***
Aluminium	A non-ferrous metal (element) which is light grey in colour, **malleable** and **ductile.** . It is made into drinks cans, and can be recycled over and over	*Aluminium is the most abundant metal on*

Functionality

Shaping by waste	**Cutting with a saw or filing materials to change their shape**	
Drilling	Making a circular hole in materials using a pillar drill	
Polishing	Using an abrasive paper to remove surface scratches, and create a shiny surface on metal and plastic materials	

Manufacture

Marking out	using a pencil to show where you are going to cut or shape the material you are working in.	
Metal Vice	a holding device used with metal to keep the material secure while working on it (e.g. cutting or filing)	
Dot Punch	a hard, steel spike with a sharp end used with a **hammer** to make s small dent in metal, before **drilling**	
Drill bit	the sharp metal tool used in a pillar drill to make the hole. Drill bits come in lots of different sizes, to make different sized holes.	
Coping saw	A saw that has a wide frame which holds a thin saw blade under **tension**, used to cut curved shapes in materials such as metal and wood.	
File	a tool with a long abrasive surface used to smooth rough edges of materials	
Wet and Dry paper	a dark grey abrasive paper used to polish metals and plastics. Can be used wet or dry and	

Critique

Design Criteria	**A list that you create or use when making a product, which outlines what the product must do, look like or be made from**
Specification	**A detailed list that clearly outlines the criteria for specific products**
Evaluation	**You should use your specification when evaluating products. This is to make sure you have made your product successfully. You should get other peoples' opinions about your product**

Vocabulary used in product design - shaping, waste, properties, timber, accuracy, square, quality finish,

Health and Safety - Tie long hair back. Listen to instructions. Use the correct technique.

Year 7 Product Design

Knowledge Organiser: Key Fob

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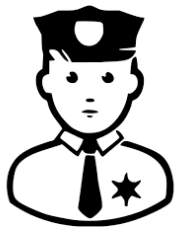

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