

Vocabulary: New and emerging technologies	
Industry	
Impact	A marked effect or influence.
Emerging	Become prominent/noticeable.
Emerging technologies	New technologies which are developing and have the potential to gain social relevance within the next 5 to 15 years.
Organisation	The way in which the elements of a whole (thing) are arranged.
Manufacture	To make (something) on a large scale using machinery.
Process	A series of actions or steps taken towards a particular end.
Automation	The use of automatic equipment in a manufacturing or process situation.
Robotics	The branch of technology that deals with the design, construction, operation and application of robots.
Enterprise	
Crowdfunding	The practice of funding a project or venture by raising money from a large number of people who each contribute a relatively small amount, typically via the Internet.
Virtual	Not physically existing as such but made by software to appear to do so.
Marketing	The action or business of promoting and selling products or services, including market research and advertising.
Retail	The sale of goods to the public.
Co-operative	A farm, business, or other organization which is owned and run jointly by its members, who share the profits or benefits.
Fair trade	Trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers.
Sustainability	
Impact	A marked effect or influence.
Consumption	The action of using up a resource.
Finite	Limited in size or extent.
Non-finite	The opposite to finite. Not limited.
Disposal	The action or process of getting rid of something.
Waste	Something discarded as no longer useful or required after completion of a process.
Ecological	How living organisms relate to one another or their surroundings.
Social	Relating to society.
People	
Technology push	When products are developed due to the technological advance of new materials and/or production methods.
Market pull	When products are developed due to consumer demand.
Culture	
Culture	The ideas, customs, and social behaviour of a particular people or society
Fashion	A popular or the latest style of clothing, hair, decoration, or behaviour.
Trend	A general direction in which something is developing or changing.
Faith	A strong belief in something.
Belief	An acceptance that something exists or is true.
Society	
Disabled person	Someone with a physical or mental condition that limits their movements, senses or activities.

Elderly	A person who is old or ageing.
Religion	A particular system of faith and worship.
Avoid	To Stop, prevent or keep away from.
Negative impact	A bad outcome or influence.
Offence	Annoyance or resentment caused by a perceive insult or disregard.
Environment	
Continuous improvement	A process where the effort to improve a product, service or process is ongoing.
Pollution	The presence or introduction of a substance that is harmful to the environment.
Global warming	A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased pollution.
Production techniques and systems	
Production	The action of making or manufacturing.
System	The way in which something is done.
Automation	The use of automatic equipment in a manufacturing or process situation.
CAD	Computer Aided Design. Designing using a computer.
CAM	Computer Aided Manufacture. Manufacturing using a computer.
FMS	Flexible Manufacturing Systems.
JIT	Just In Time- A system where a manufacturer gets the materials and components delivered as they are needed and uses them as soon as they are delivered.
Lean manufacturing	A production process which has little to no waste in terms of time or materials.
Obsolete	No longer produced or used; out of date.
Planned obsolescence	When a product is deliberately designed to have a specific life span.
Design for manufacture	The process of proactively designing products to optimise all the manufacturing functions.
Ethics	Moral principles that govern a person's behaviour or the conducting of an activity.
Moral	The principles of right and wrong behaviour.
Ecological footprint	The impact of a person or community on the environment, expressed as the amount of land required to sustain their use of natural resources.
Social footprint	A measure of how a company's social policies impact employees, partners and society as a whole.

Vocabulary: Energy generation and storage	
Fossil fuels	
Coal	A combustible black or dark brown rock consisting chiefly of carbonized plant matter, found mainly in underground seams and used as fuel.
Gas	An air-like fluid substance which expands freely to fill any space available, irrespective of its quantity.
Oil	A viscous liquid derived from petroleum, especially for use as a fuel or lubricant.

Nuclear power	
Nuclear power	Electric or motive power generated by a nuclear reactor.
Energy	Power derived from the utilization of physical or chemical resources, especially to provide light and heat or to work machines.
Renewable energy	
Wind	Electrical energy obtained from harnessing the wind with windmills or wind turbines.
Solar	Radiant energy emitted by the sun.
Tidal	A form of hydropower that converts the energy of the tides into electricity or other useful forms of power.
Hydro-electrical	Energy derived from the movement of water. Water has mass. It falls and flows downward due to gravity. When it moves, it has kinetic energy which can be harnessed.
Biomass	A renewable energy source from living or recently living plant and animal materials which can be used as fuel.
Renewable	Capable of being renewed, not depleted when used.
Energy storage systems including batteries	
Kinetic	Relating to or resulting from motion.
Kinetic storage	Kinetic energy is the energy of motion, observable as the movement of an object, particle, or set of particles.
Alkaline batteries	A type of primary battery dependent upon the reaction between zinc and manganese dioxide (Zn/MnO ₂).
Re-chargeable batteries	A secondary rechargeable alkaline battery which allows reuse of specially designed cells.

Vocabulary: Developments in new materials	
Modern materials	
Modern materials	Developments made through the invention of new or improved processes.
Graphene	A form of carbon consisting of planar sheets which are one atom thick, with the atoms arranged in a honeycomb-shaped lattice.
Metal foams	A cellular structure consisting of a solid metal (frequently aluminium) with gas-filled pores comprising a large portion of the volume.
Titanium	A hard silver-grey metal, used in strong, light, corrosion-resistant alloys.
LCDs	LCD (liquid crystal display) is the technology used for displays in notebook and other smaller computers.
Nanomaterials	A material having particles or constituents of nanoscale dimensions, or one that is produced by nanotechnology.
Smart materials	
Smart materials	Designed materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, pH, electric or magnetic fields.
Shape memory alloys	If a part made from a shape-memory alloy (SMA) is bent out of shape, when it is heated above a certain temperature it will return to its original shape.
Thermo chromic	Change colour as the temperature changes.

Photochromic	Change colour according to different lighting conditions.
Composite materials	
Composite materials	A material made from two or more materials with significantly different physical or chemical properties that, when combined, produce a material with characteristics different from the individual.
GRP	Glass-reinforced plastic (GRP), is a composite material or fibre-reinforced polymer made of a plastic reinforced by fine fibres made of glass.
CRP	Carbon fibre reinforced plastic (CFRP or CRP), is a very strong, light and expensive composite material or fibre-reinforced plastic.
Technical textiles	
Conductive fabrics	A conductive textile is a fabric which can conduct electricity. Conductive textiles can be made with metal strands woven into the construction of the textile.
Fire resistant fabrics	Fire-retardant fabrics are textiles that are naturally more resistant to fire than others through chemical treatment or manufactured fireproof fibres.
Kevlar	A synthetic fibre of high tensile strength used especially as a reinforcing agent in the manufacture of tyres and other rubber products.

Vocabulary: Systems approach to designing	
Inputs	
Input	A place where, or a device through which, energy or information enters a system.
Light sensor	Something that a robot can use to detect the current ambient light level.
Temperature sensor	A device, typically, a thermocouple or RTD, that provides for temperature measurement through an electrical signal.
Pressure sensor	A device for pressure measurement of gases or liquids.
Switch	A device for making and breaking the connection in an electric circuit.
Process	
Processes	A series of actions or steps taken in order to achieve a particular end.
Counters	A device used for counting.
Timers	A device that measures or records the amount of time taken by a process or activity.
	An automatic mechanism for activating a device at a pre-set time.
Decision making	The action or process of making important decisions
Outputs	
Output	(of a computer or other device) produce, deliver, or supply (data).
Buzzer	An electrical device that makes a buzzing noise and is used for signalling.
Speaker	
Lamp	A device for giving light,
Component	A part or element of a larger whole, especially a part of a machine or vehicle.

Vocabulary: mechanical devices	
Different types of movement	

Mechanical device	A machine or tool that has one or more parts. They use and manipulate energy to perform tasks and specific actions.
Linear movement	A motion along a straight line.
Rotary movement	A motion which round in a circle.
Reciprocating movement	A repetitive up-and-down or back-and-forth linear motion.
Oscillating movement	Swinging from side to side, like a pendulum in a clock.
Changing magnitude and direction force	
Magnitude	The great size or extent of something.
Force	Strength or energy as an attribute of physical action or movement.
Lever	A rigid bar resting on a pivot, used to move a heavy or firmly fixed load with one end when pressure is applied to the other.
Leavers: first order	First order levers have the turning point (fulcrum) between the load and the effort. A well-known first order lever is the see-saw.
Leavers: second order	A lever that has the load between the fulcrum and the effort is known as a second order lever.
Leavers: third order	Third order levers have the effort is between the load, at the top, and the fulcrum.
Linkages	Linkages are mechanisms which allow force or motion to be directed where it is needed. Linkages can be used to change: <ul style="list-style-type: none"> • The direction of motion • The type of motion • The size of a force
Bell crank	If an 'L'-shaped lever is pivoted at its centre, the direction of the input movement or force would be turned through 90° at the output.
Push/pull	Also called parallel motion. The output travels in the same direction as the input.
Rotary system	A circular motion.
CAMS	A cam is a shaped piece of metal or plastic fixed to a rotating shaft. A cam mechanism has three parts: cam, slide and follower.
Followers	The part of a machine in sliding or rolling contact with a rotating cam and given motion by it.
Simple gear trains	A gear train is a mechanical system formed by mounting gears on a frame so that the teeth of the gears engage.
Pulley	A wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord and is used to raise heavy weights.
Belt	A continuous band of material used in machinery for transferring motion from one wheel to another.

Vocabulary: Materials and their working properties	
Classification	A category into which something is put.
Properties	An attribute, quality, or characteristic of something.
Papers and boards	

Bleed proof	<ul style="list-style-type: none">- smooth, hard paper- used with water-based and spirit-based felt-tip pens- medium cost	
Cartridge paper	<ul style="list-style-type: none">- good quality white paper- available in different weights- general purpose work- can be used to make simple models- medium cost	
Grid	<ul style="list-style-type: none">- printed square and isometric grids in different sizes- a guide for quick sketches and model-making- low cost	
Layout	<ul style="list-style-type: none">- lightweight, thin white paper- used for initial ideas- takes colour media well- low cost	
Tracing	<ul style="list-style-type: none">- thin, translucent paper- making copies of drawings- high cos	
Translucent	Light but not detailed shapes can be seen through the material.	
Board	<ul style="list-style-type: none">- range of thicknesses (from 300 microns to 650 microns)- range of colours including solid white board, grey board and metallic- used for models- different applications use different thicknesses	
Corrugated card	<ul style="list-style-type: none">-strong and lightweight- used for packaging protection and point of sale stands- available in different thicknesses	
Strong	Able to withstand force without breaking or bending.	
Duplex board	<ul style="list-style-type: none">- large foam-based board- different finishes available including metallic and hologrammatic- used for food packaging, eg take-away pizza boxes	
Foil lined board	White card usually coated or laminated with aluminium foil bonded on one side.	
Foam core board	Smooth board surface front and back with foam sandwiched in the middle.	
Ink jet card	Brilliant white card which has been treated for a smooth finish.	
Natural and manufactured timbers		
Natural timber	Natural wood is categorised as hardwood or softwood. These names reflect the cell structure of the tree and not the strength of the wood.	
Manufactured timber	Manufactured boards are usually sheets of processed natural timber waste products or veneers combined with adhesives. They are made from waste wood, low-grade timber and recycled timber.	
Hardwood	Hardwoods come from broad-leaved, deciduous trees.	
Softwood	Softwoods come from coniferous trees which are evergreen, needle-leaved, cone-bearing trees.	
Ash	Light, creamy-brown colour, open-grained, tough, flexible	Sports equipment, wooden ladders, tool handles

Beech	White to pinkish-brown in colour, close-grained, hard, tough, strong, warps easily	Furniture, toys, tool handles
Mahogany	Pink to reddish-brown colour, fairly strong, durable, some interlocking grain	Good quality furniture
Oak	Light brown colour, strong, hard, tough, open-grained, corrodes steel screws and fittings	Interior woodwork, good quality furniture
Balsa	Pale cream/white. An open grained, large and unusually fast growing hardwood tree Very soft and spongy, very lightweight but can snap in thin sections	Prototyping and modelling, especially model aircraft.
Larch	Pale to reddish brown with a contrasting grain Durable, tough, good water resistance, good surface finish and machines well. Issues with loose knots	Exterior cladding, flooring, machined mouldings.
Pine	Pale yellow to pale brown, attractive grain that darkens with age Lightweight, easy to work, can split and be resinous near knots	Interior construction, cheaper furniture, decking.
Spruce	White/cream with a fine even grain Easy to work, high stiffness to weight ratio. Variable results when staining	Construction, furniture and musical instruments.
MDF	Medium density fibreboard (MDF) is a manufactured board made from wood pulp which is bonded with a polymer called urea formaldehyde. The wood pulp is often made from the waste from cutting solid wood.	
Plywood	This is made from veneers (plies) of timber with each grain layer being at right angles to each other and bonded together by resin and pressure. A number of grades are available, designed to suit a variety of situations.	
Chipboard	This is made up of small chips of wood bonded together with resin and formed into sheets by compression. It is not as strong as plywood and block board but it is not expensive.	Chipboard is often covered with a plastic laminate or wood veneer and used in furniture.
Metals and alloys		
Ferrous	Ferrous metals contain iron. Examples are cast iron, mild steel, medium carbon steel, high carbon steel, stainless steel and high speed steel.	
Low carbon steel	Tough and ductile, easily machined, formed and welded.	Construction girders, screws, nuts, bolts and many car frames.
Cast Iron	Hard skin, softer underneath, but brittle, rusts.	Parts with complex shapes which can be made by casting.
High carbon/tool steel	Even harder than medium carbon steel and more brittle, can be heat-treated to make it harder and tougher.	Cutting tools, ball bearings.

Non ferrous	Non-ferrous metals do not contain iron. Some common non-ferrous metals are aluminium, Duralumin, copper, zinc, brass, gilding metal and tin.	
Aluminium	Good strength-to-weight ratio, light, soft, ductile, good conductor of heat and electricity.	Kitchen equipment, window frames, general cast components.
Copper	Malleable and ductile, good conductor of heat and electricity, resistant to corrosion.	Water pipes, electrical wire, decorative goods.
Tin	Soft, weak, malleable, ductile and resistant to corrosion.	Usually used for coating steel to form tin-plate, soft solder.
Zinc	Electrical conductivity, malleability and ductility however all are improved when alloyed.	Mainly used to galvanise steel.
Alloy	An alloy is a metal combined with other substances, resulting in superior properties such as; strength, hardness, durability, ductility, tensile strength and toughness.	
Brass	Deep yellow to golden colour. An alloy, mixture of copper and zinc 65% - 35%. Casts and machines well. Surface tarnishes slowly on contact with air. Conducts electricity. Resists corrosion.	Parts for electrical fittings, engineering, ornaments, musical instruments.
Stainless steel	Hard and tough, resistant to wear and corrosion.	Cutlery, kitchen equipment.
Polymers		
Polymer	Traditionally made from finite petrochemical resources such as oil, gas and coal but are increasingly made from sustainable resources such as vegetable starches.	
Thermoforming	These plastics can be re-heated and re-shaped in various ways. They become mouldable after reheating as they do not undergo significant chemical change. Reheating and shaping can be repeated. The bond between the molecules is weak and becomes weaker when reheated, allowing reshaping. These types of plastics can be recycled.	
Acrylic (PMMA)	Stiff and brittle.	Used to make signs and small 2D and 3D forms.
HIPs	High Impact Polystyrene (HIPS). Light material and yet strong. Available in a range of colours. Can be vacuum formed. Thinner HIPS is quite flexible.	Electrical casings, packaging, trays.
HDPE	Hard, stiff, able to be sterilised.	Plastic bottles, tubing, household equipment.
PP	Light, hard but scratches easily, tough, good resistance to chemicals, resists work fatigue.	Medical equipment, laboratory equipment, containers with built-in

		hinges, 'plastic' seats, string, rope, kitchen equipment.
PVC	Stiff, strong, tough and resists scratching.	Used to make 2D and 3D shapes and may be used for vacuum-forming.
PET	Clear, strong, and lightweight.	Packaging foods and beverages, especially convenience-sized soft drinks, juices and water.
Thermosetting	Once heated and moulded, these plastics cannot be reheated and remoulded. The molecules of these plastics are cross linked in three dimensions and this is why they cannot be reshaped or recycled. The bond between the molecules is very strong.	
ER	Good electrical insulator, hard, brittle unless reinforced, resists chemicals well.	Casting and encapsulation, adhesives, bonding of other materials.
MF	Stiff, hard, strong, resists some chemicals and stains.	Laminates for work surfaces, electrical insulation and tableware.
PR	Stiff, hard, brittle unless laminated, good electrical insulator, resists chemicals well.	Casting and encapsulation, bonding of other materials.
UF	Stiff, hard, strong, brittle, good electrical insulator.	Electrical fittings, handles and control knobs, adhesives.
Textiles		
Textiles	A type of cloth or woven fabric.	
Fibres	A thread or filament from which a vegetable tissue, mineral substance, or textile is formed.	
Natural fibres	Natural fibres are defined as substances produced by plants and animals that can be spun into filament, thread or rope and further be woven, knitted, matted or bound.	
Cotton	A soft white fibrous substance which surrounds the seeds of the cotton plant and is made into textile fibre and thread for sewing.	
Wool	The fine, soft curly or wavy hair forming the coat of a sheep, goat, or similar animal, especially when shorn and prepared for use in making cloth or yarn.	
Silk	A fine, strong, soft lustrous fibre produced by silkworms in making cocoons and collected to make thread and fabric.	
Synthetic	Made by chemical synthesis, especially to imitate a natural product.	
Polyester	A synthetic resin in which the polymer units are linked by ester groups, used chiefly to make synthetic textile fibres.	
Polyamide	Nylon is a tough, lightweight, elastic synthetic polymer with a protein-like chemical structure, able to be produced as filaments, sheets, or moulded objects.	
Elastane	Lycra is an elastic polyurethane fibre or fabric used especially for close-fitting sports clothing.	
Polycotton	A fabric made from a mixture of cotton and polyester fibre.	
Woven	Two sets of yarns which are threaded at 90 degrees to each other.	
Plain weave	A style of weave in which the weft alternates over and under the warp.	

Non-woven	Nonwoven fabrics are broadly defined as sheet or web structures bonded together by entangling fibre or filaments (and by perforating films) mechanically, thermally, or chemically.
Bonded	Joined securely to another or each other, especially by an adhesive, heat process, or pressure.
Felted	Matted together.
Material properties	
Properties	An attribute, quality, or characteristic of something.
Physical property	A characteristic which is inherent to that material group.
Absorbency	The tendency to attract or take on an element, usually liquid but could include light or heat.
Density	The mass of a material per unit of volume; how compact a material is.
Fusibility	The ability of a material to be converted through heat into a liquid state and combined with another material the same) before cooling as one material.
Conductivity	The ability to serve as a channel or medium for (heat, sound, electricity etc).
Thermal	Relating to heat.
Working property	Working properties describe how a material responds to a certain environment or when worked in a certain way.
Strength	The ability of a material to withstand a force such as pressure or tension.
Hardness	The ability to withstand abrasive wear and indentation through impact.
Toughness	The ability to absorb energy through shock without fracturing.
Malleability	The ability to deform under compression without cracking, splitting or tearing.
Ductility	The ability to be stretched out or drawn into a thin strand without snapping.
Elasticity	The ability to return to its original shape after being compressed or stretched.

Vocabulary: Specialist technical principles	
Selection of materials	
Functionality	The quality of being suited to serve a purpose well; practicality.
Aesthetics	A set of principles concerned with the nature and appreciation of beauty. (How something looks.)
Texture	The feel, appearance, or consistency of a surface.
Recyclable	A substance or object that can be recycled.
Availability	The quality of being able to be used or obtained.
Cost	(Of an object or action) require the payment of (a specified sum of money) before it can be acquired or done.
	The loss or unpleasant consequence of (an object or action).
Bulk buy	The purchase of goods in large amounts, typically at a discount.
Factor	A circumstance, fact, or influence that contributes to a result
Social factors	Social factors are things that affect lifestyle, such as religion, family or wealth.
Social responsibility	Social responsibility is a duty every individual or organisation has to perform so as to maintain a balance between the economy and the ecosystems.
Cultural	Relating to the ideas, customs, and social behaviour of a society.
Ethical	Relating to moral principles or the branch of knowledge dealing with these.

FSC	The Forest Stewardship Council (FSC) is an international non-profit, multi-stakeholder organization established in 1993 to promote responsible management of the world's forests.	
Forces and stresses		
An applied force	A static load is a load which does not move.	A dynamic load will produce a much greater force than a static load.
	A dynamic load does move.	
Stresses	Subject to pressure or tension.	
Manipulate	To control or influence.	
Resist	To withstand the action or effect of.	
Functionality	The quality of being suited to serve a purpose well; practicality.	
Tension	The state of being stretched tight.	
Compression	The action of compressing or being compressed, the reduction in volume	
Bending	To shape or force (something straight) into a curve or angle.	
Torsion	The action of twisting or the state of being twisted, especially of one end of an object relative to the other.	
Shear force	A force that acts on an object in a direction perpendicular (at right angles) to its length.	
Reinforced	Strengthen or support (an object or substance), especially with additional material.	
Lamination	Lamination is the technique of manufacturing a material in multiple layers, so that the composite material achieves improved strength, stability, sound insulation, appearance or other properties from the use of differing materials.	
Folding	Bend (something flexible and relatively flat) over on itself so that one part of it covers another.	
Webbing	A strong, closely woven fabric used for making items such as straps and belts, and for supporting the seats of upholstered chairs.	
Fabric interfacing	Interfacing is a textile used on the unseen or "wrong" side of fabrics to make an area of a garment more rigid. Interfacings can be used to: stiffen or add body to fabric.	
Ecological issues		
Ecological	The relationship between living organisms with one another and to their physical surroundings.	
Deforestation	The action of clearing a wide area of trees.	
Mining	The process or industry of obtaining coal or other minerals from a mine.	
Drilling	Produce (a hole) in something by or as if by boring with a drill	
Farming	The activity or business of growing crops and raising livestock.	
Raw material	The basic material from which a product is made.	
Manufacture	Make (something) on a large scale using machinery.	
Distribution	The action of sharing something out among a number of recipients.	
Disposal	The action or process of getting rid of something.	
Carbon footprint	A carbon footprint is defined as: The total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO2)	
The six Rs		
Sustainability	The ability to be maintained at a certain rate or level. Avoidance of the depletion of natural resources in order to maintain an ecological balance.	

Refuse	To say no.
Rethink	To ask if there is a better way.
Reduce	To make smaller.
Reuse	To use again, in the same state. If reused for the same purpose this is known as primary recycling. If used for a new purpose this is called secondary recycling.
Repair	To fix.
Recycle	Tertiary recycling is where the materials are reprocessed.
Social issues	
Social issues	A problem that influences a considerable number of the individuals within a society.
Oceanic	Relating to the ocean.
Atmospheric	Relating to the atmosphere of the earth.
Pollution	The presence in or introduction into the environment of a substance which has harmful or poisonous effects.
Detrimental	Tending to cause harm.
Impact	A marked effect or influence.
Ethical	Morally good or correct.
Moral	Concerned with the principles of right and wrong behaviour.

Vocabulary: Sources and origins	
Life cycle assessment	Life-cycle assessment (LCA, also known as cradle-to-grave analysis) is a technique to assess environmental impacts associated with all the stages of a product's life from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling.
Timber based materials	
Seasoning	The process of adjusting the moisture content of wood to make it more suitable for use as timber.
Conversion	The process of changing felled trees into planks. At this point it is called timber.
Polymers	
Refining	Remove impurities or unwanted elements from (a substance), typically as part of an industrial process
Crude oil	Unrefined petroleum.
Fractional distillation	This occurs when crude oil is heated in the crude oil distillation unit, separating the oil into many different components or fluids.
Cracking	The process of converting large hydrocarbons into smaller more useful hydrocarbons.

Vocabulary: using and working with materials	
Properties	
Properties	An attribute, quality, or characteristic of something.
Performance	The action or process of performing a task or function.
Components	A part or element of a larger whole, especially a part of a machine or vehicle.

Influence	The capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself.
Affect	Have an effect on; make a difference to.
Physical properties	A characteristic which is inherent to that material group.
Commercial	Making or intended to make a profit.
The modification of properties for specific purposes	
Modification	A change made.
Properties	An attribute, quality, or characteristic of something.
Specific	Clearly defined or identified.
Seasoning	The process of adjusting the moisture content of wood to make it more suitable for use as timber.
Moisture	Water or other liquid diffused in a small quantity as vapour, within a solid, or condensed on a surface.
Stabilisers	A substance which prevents the breakdown of emulsions, especially in foods and paints.
UV	Ultraviolet (UV) is an electromagnetic radiation with a wavelength from 10 nm (30 PHz) to 400 nm (750 THz), shorter than that of visible light but longer than X-rays.
Degradation	The condition or process of degrading or being degraded.

Vocabulary: Stock forms, types and sizes	
Commercially available	
Surface area	The outside part or uppermost layer of something.
Volume	The amount of space that a substance or object occupies, or that is enclosed within a container.
Efficient	Achieving maximum productivity with minimum wasted effort or expense.
Pattern spacing	The arrangement of patterns.
Nesting	Fitting (an object or objects) inside a larger one
Waste	Something discarded as no longer useful or required after completion of a process.
Plank	A long, thin, flat piece of timber, used especially in building and flooring.
Board	A long, thin, flat piece of wood or other hard material, used for floors or other building purposes.
Length	The measurement or extent of something from end to end; the greater of two or the greatest of three dimensions of an object.
Width	The measurement or extent of something from side to side; the lesser of two or the least of three dimensions of a body.
Thickness	The distance through an object, as distinct from width or height.
Diameter	A straight line passing from side to side through the centre of a body or figure, especially a circle or sphere.
Standard component	A standard component is usually an individual part (called a ' component '), manufactured in thousands or millions, to the same specification.
Wood screws	A screw designed for a wood or a similar material, with a point, a relatively coarse thread, a thick shank, and, usually, an unthreaded portion of the shank at the head end.

Hinges	A movable joint or mechanism on which a door, gate, or lid swings as it opens and closes or which connects linked objects.
KD fittings	Most KD fittings consist of corner blocks or bloc-joint fittings. Usually these are made from a plastic such as nylon
Sheet	A thin piece of material such as acrylic or paper.
Rod	A thin straight bar, especially of wood or metal.
Powder	Fine, dry particles produced by the grinding, crushing, or disintegration of a solid substance.
Granules	A small compact particle of a substance.
Foam	A mass of small bubbles formed on or in liquid, typically by agitation or fermentation
Films	A thin flexible strip of plastic or other material.
Gauge	A tool used to measure or mark material.
Nuts and bolts	A temporary fixing method.

Vocabulary: Scales of production	
Prototype	A first or preliminary version of a device or vehicle from which other forms are developed.
Batch	A quantity or consignment of goods produced at one time.
Mass	A large quantity or consignment of goods produced at one time.
Continuous	Forming an unbroken whole; without interruption.

Vocabulary: Specialist technical processes	
The use of production aids	
Measurement	The size, length, or amount of something, as established by measuring.
Templates	A shaped piece of rigid material used as a pattern for processes such as cutting out, shaping, or drilling.
Jig	A device that holds a piece of work and guides the tool operating on it.
Pattern	A model or design used as a guide in needlework and other crafts.
Scale drawings	A drawing that shows a real object with accurate sizes reduced or enlarged by a certain amount.
Datum	A piece of information.
Tools, equipment and processes	
Shape	Give a particular shape or form to.
Fabricate	To construct or manufacture (an industrial product), especially from prepared components.
Construct	To build or make.
Assemble	Fit together the separate component parts of (a machine or other object).
Prototype	A first or preliminary version of a device or vehicle from which other forms are developed.
Wastage	The action or process of losing or destroying something by using it carelessly or extravagantly.
Die cutting	Die cutting is the process of using a die to shear webs of low-strength materials, such as rubber, fiber, foil, cloth, paper, corrugated fiberboard, paperboard, plastics, pressure-sensitive adhesive tapes, foam and sheet metal.

Perforation	A small hole or row of small holes punched in a sheet of paper, e.g. of postage stamps, so that a part can be torn off easily.
Turning	The action or skill of using a lathe.
Milling	To cut or shape (metal) with a rotating tool.
Drilling	To produce (a hole) in something by or as if by boring with a drill.
Lamination	Lamination is the technique of manufacturing a material in multiple layers, so that the composite material achieves improved strength, stability, sound insulation, appearance or other properties from the use of differing materials.
3D printing	A CAM process which converts a CAD file into co-ordinates and prints a 3D model/component.
Welding	A permanent joining method using heat or chemicals.
Reforming	To re shape.
Vacuum forming	A process where a heated thermoplastic is formed over a mould by applying a vacuum.
Pressing	Shaping a sheet between a male and female former.
Drape forming	A process where a heated piece of plastic is draped over a former to take on its shape/profile.
Extrusion	Used to create a continuous flow of plastic that is pushed through a die to create a specific profile.
How materials are cut, shaped and formed to tolerance	
Tolerance	An allowable amount of variation of a specified quantity, especially in the dimensions of a machine or part.
The application and use of Quality Control to include measurable and quantitative systems used during manufacture	
Quality	The standard of something as measured against other things of a similar kind; the degree of excellence of something.
Quality control	A system of maintaining standards in manufactured products by testing a sample of the output against the specification.
Measurable	Able to be measured.
Quantitative	Relating to, measuring, or measured by the quantity of something rather than its quality.
Manufacture	To make (something) on a large scale using machinery.
Dimension	A measurable extent of a particular kind, such as length, breadth, depth, or height.
Accuracy	The degree to which the result of a measurement, calculation, or specification conforms to the correct value or a standard.
Go/no go fixture	A quality control tool which checks if a component is in tolerance.

Vocabulary: Surface treatments and finishes	
The preparation and application of treatments	
Function	fulfil the purpose or task of (a specified thing).
Aesthetics	A set of principles concerned with the nature and appreciation of beauty. (How something looks)
Properties	An attribute, quality, or characteristic of something.
Painting	A method of preserving a material, often wood. Often an opaque finish.

Varnishing	A method of preserving a material, often wood giving a transparent finish.
Tanalising	The process of forcing wood preserve into the cell structure of timber under pressure in a vacuum.
Polishing	A process used to make the surface of a material smooth.
Vinyl decals	Printed and cut self-adhesive vinyl shapes/pieces.

Vocabulary: designing and making principles	
Use primary and secondary data to understand client and/or user needs	
Client	A person or organization using the services of a lawyer or other professional person or company.
Primary data	Primary data is information that you collect specifically for the purpose of your research project. An advantage of primary data is that it is specifically tailored to your research needs. A disadvantage is that it is expensive to obtain.
Secondary data	Secondary data refers to data that was collected by someone other than the user.
Market research	The action or activity of gathering information about consumers' needs and preferences.
Human factors	In industry, human factors (also known as ergonomics) is the study of how humans behave physically and psychologically in relation to particular environments, products, or services.
Ergonomics	The study of people's efficiency in their working environment.
Anthropometrics	Anthropometry, especially as it relates to the design of furniture and machinery.
Percentiles	Each of the 100 equal groups into which a population can be divided according to the distribution of values of a particular variable.
Focus groups	a group of people assembled to participate in a discussion about a product before it is launched, or to provide feedback on a political campaign, television series, etc.
Evaluation	The making of a judgement about the amount, number, or value of something; assessment.
Questionnaire	A set of printed or written questions with a choice of answers, devised for the purposes of a survey or statistical study.
Frequency table	A frequency table is a table that shows the total for each category or group of data. View our Unit on Data and Graphs.
Survey	To investigate the opinions or experience of (a group of people) by asking them questions.
Brief and specification	
Design brief	A clear description of what you aim to design.
Specification	A detailed description, often written in a series of statements, of the design and materials used to make something.
Cost	(Of an object or action) require the payment of (a specified sum of money) before it can be acquired or done.
Aesthetic	A set of principles concerned with the nature and appreciation of beauty. (How something looks)
Function	Fulfil the purpose or task of (a specified thing).

Ergonomics	The study of people's efficiency in their working environment.
Quality	The standard of something as measured against other things of a similar kind; the degree of excellence of something.
User	A person who uses or operates something.
Environment	The natural world, as a whole or in a particular geographical area, especially as affected by human activity. Context: the surroundings or conditions in which a person, animal, or plant lives or operates.
Safety	The condition of being protected from or unlikely to cause danger, risk, or injury.
Materials	The matter from which a thing is or can be made.
Processes	A series of actions or steps taken in order to achieve a particular end.

Vocabulary: Environmental, social and ergonomic challenge	
Environmental	Relating to the natural world and the impact of human activity on its condition.
Social	Relating to society or its organization.
Economic	Relating to economics or the economy.
Influence	The capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself.
Constraint	A limitation or restriction.
Opportunities	A time or set of circumstances that makes it possible to do something.
Deforestation	The action of clearing a wide area of trees.
Carbon dioxide	A colourless, odourless gas produced by burning carbon and organic compounds and by respiration. It is naturally present in air (about 0.03 per cent) and is absorbed by plants in photosynthesis.
Global warming	A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants.
Fair trade	Trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers.
Ethical	Relating to moral principles or the branch of knowledge dealing with these.

Vocabulary: The work of others	
Design movements	
Design movement	A "movement" is a style or prevailing inclination in art or design that upholds a specific philosophy or ideal and is followed and promoted by a group of artists for a defined period of time.
Arts and crafts	
Art Nouveau	
Modernist	
Bauhaus	
Art Deco	
De Stijl	
Streamlined Age	

1960s	
Memphis group	
Blobism	
Time line	
1890-1914	
1919-1933	
1920s-30s	
Mid 1920s	
Early 1980s	
Designers	
Harry Beck	
Marcel Breuer	
William Morris	
Charles Rennie Macintosh	
Philippe Starck	
Ettore Sottsass	
Vivienne Westwood	
Design companies	
Alessi	
Apple	
Dyson	
Primark	
Zara	