METHODS OF MAKING

Key Revision Facts: GCSE Technology

A range of tools, equipment, and processes can be used to shape, fabricate, construct, and assemble products.

Wastage

Wastage is the process of cutting away material with tools and equipment. Such as:

- **Die Cutting –** is a process where a die is used to cut through soft materials such as paper, card, or leather.
- **Perforation –** is a process where a small hole or row of small holes punched in a material, e.g., the edge of a postage stamp, so that a part can be torn off easily.
- **Turning –** is a process where a machine rotates a workpiece, with tools applied to the workpiece to create a cylindrical or bowl object. e.g., Lathe
- **Sawing –** is a cutting process using a saw to section a material.
- **Milling –** is a manufacturing process of using a machine with a rotary cutter to cut and shape material.
- **Drilling –** a cutting process using a drill to make a hole in a material.
- **Cutting and Shearing –** is the separation or opening of a physical object into two or more portions
- **Abrading –** is a process of wearing down with friction, e.g., sanding

Addition

Addition is the process of adding material.

- **Brazing** – is a metal-joining process in which two or more metal items are joined together by melting and flowing a filler metal into the joint at a high temperature.
- **Welding** – is a fabrication process whereby two or more parts are fused utilizing heat, pressure, or both forming a join as the parts cool. Welding is distinct from lower temperature metal-joining techniques such as brazing and soldering, which do not melt the base metal.
- **Soldering** – is a process in which two or more items are joined together by melting a filler metal into the joint. The filler metal has a lower melting point than the adjoining metal.
- **3D Printing** – as additive manufacturing, is a method of creating a three-dimensional object layer-by-layer. Typically the layers are formed using heated plastic.
- **Batik** – is a process of using melted wax as a resist on fabric. The wax is painted on the fabric, and then the fabric is then dyed, and the areas that have been waxed will not be penetrable by the dye.
- **Sewing** – is the process of fastening or attaching objects using stitches made with a needle and thread.

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- **Bonding** – Adhesive bonding is a joining technique that involves glues, epoxies, or various plastic agents that bond by evaporation of a solvent or by curing a bonding agent with heat, pressure, or time.

- **Printing** - is a process for reproducing text and images, typically with ink on paper using a printing press

Deforming and Reforming

Deformation is the collective name for folding, perforating, bending, and shaping materials to create 3D forms.
Reformation is the manufacturing process of reforming materials into new shapes

- **Vacuum Forming** – is a process where a sheet of plastic is heated to a forming temperature, stretched onto a single-surface mold, and forced against the mold by a vacuum.

- **Creasing –** is a process that prepares the paper for folding by creating two parallel folding points. It is recognizable by the bead made on the inside of the fold. A score only creates one stress point for the paper to fold.

- **Pressing** – (also known as Stamping) is the process of placing flat sheet metal in either blank or coil form into a stamping press where a tool and die surface forms the metal into a net shape.

- **Drape Forming - i**s a process whereby a plastic sheet is heated to the state where it can be pressed, bent, or formed into or over a mandrel or form, and sometimes using both an inside and outside form creates the desired shape without the use of vacuum.

- **Bending –** is a manufacturing process that produces a V-shape, U-shape, or channel shape along a straight axis in ductile materials, most commonly sheet metal.

- **Folding** - is the process of applying one or bends to a sheet of metal by securing the sheet at a certain point and applying enough pressure to fold the metal.

- **Blow Moulding** – is a manufacturing process for forming hollow parts. It is also used for creating glass or plastic bottles or other hollow shapes. The plastic material is clamped into a mold, and the air is blown into it. The air pressure then pushes the plastic out to match the mold.

- **Casting** – is a manufacturing process in which a liquid material is usually poured into a mold, which contains a hollow cavity of the desired shape, and then allowed to solidify.

- **Injecting Moulding –** is a manufacturing process used to create plastic products and materials. It involves inserting melted plastic into a mould cavity, which has been designed into the required shape.

- **Extrusion –** is a process used to create objects of a fixed cross-sectional profile. A material is pushed through a die of the desired cross-section. The extrusion process can be done with the material hot or cold.

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VERSION INFORMATION

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13-Mar-2021	Andrew Seaford	Initial release.

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