

Year 11 Half Term 2
Key Ideas in Technology

Technology in Manufacturing			9	Subtraction	Subtraction is where material is removed from a solid block to form an object.
1	3 stages of a manufacturing system	<u>Input</u> - This is all of the materials, tools and equipment that you start off with. <u>Process</u> - This is what happens to the input to change it into an output, e.g. measuring, cutting and forming. <u>Output</u> - The output is the result of the system's finished product.	10	CNC	Stands for computer numerically controlled. This means machines follow the x,y,z coordinates and move the tools to cut out or build up your design.
2	Automation	Automation is the use of machines to do a task automatically without much, or any, human input.	11	Addition	Addition is where material is added to build up an object.
3	Smart Technology	Develops machines by connecting them to machines and sensors in a factory so that they share data.	Product Sustainability		
4	Flexible Manufacturing Systems (FMS)	FMS consist of a set of different machines which carry out the different stages of production.	12	Sustainability	Not causing permanent damage to the environment and not using up finite resources.
5	Lean Manufacturing	Manufacturing that aims to minimise the amount of resources used and waste produced. The aim of lean manufacturing is to minimise costs and maximise efficiency.	13	Biodegradable	They will break down over time.
6	Just in Time System (JIT)	Materials and components are delivered as they're needed and used as soon as they're delivered.	14	Carbon Footprint	The amount of greenhouse gases (e.g. carbon dioxide and methane) released into the atmosphere by making, using and eventually reusing, recycling or disposing of something at the end of its lifetime.
Production Systems: CAD/CAM			15	Planned Obsolescence	Products that are designed to become useless (obsolete) quickly. E.g disposable razor.
7	CAD: Computer Aided Design	It involves designing products on a computer, CAD software packages allow you to make 2D or 3D designs. Examples: Techsoft, TinkerCAD, Solid Works.	16	Design for Maintenance	Products can be designed to last by making the product durable, and designing it so that parts can be maintained and repaired or replaced.
8	CAM: Computer Aided Manufacture	It's the process of manufacturing products with the help of computers. Examples: CNC Router, Laser Cutter, 3D Printer.	17	Design for Disassembly	when a new product is designed so it can be easily taken apart at the end of its lifetime — this allows the parts and materials to be reused or recycled to make new products.

18	Continuous Improvement	A process by which manufacturers are constantly trying to improve their products.	Powering Systems		
19	LCA: Life Cycle Assessment	Looking at each stage of the life of a product to work out the potential environmental impact of a product. Choice of Material - Manufacture - Using the Product - Disposal.	30	Fossil Fuels	Fossil fuels are natural resources that form underground over millions of years. Examples: coal, oil and gas.
20	6R's	Used to help reduce the impact that new products have on the environment. Repair, Reuse, Recycle, Reduce, Refuse, ReThink.	31	Finite	Materials/Resources/Energy that will eventually run out over time.
21	Social Footprint	The impact the design and manufacture has on people. Examples: Working conditions & Health impacts.	32	Non-Finite	Materials/Resources/Energy that can be replaced.
Products in Society			33	Nuclear Power	A series of machines that can control nuclear fission to produce electricity.
22	Enterprise	Identifying new business opportunities, and then taking advantage of them.	34	Kinetic pumped storage system	Used to store extra energy for when it is needed during periods of peak demand.
23	Innovation	When an entrepreneur or a business come up with something new.	35	Batteries for storing energy.	Batteries store chemical energy. Example: Alkaline & Rechargeable.
24	Crowd Funding	Using websites (e.g. Kickstarter) to promote an idea to a huge number of people.			
25	Virtual Marketing & retail.	Virtual retail is all about selling products and services on the internet. Virtual marketing includes promoting a product/service on social media (e.g. Facebook®).			
26	Co-operatives	A type of business that is owned and run by its members. The members make the decisions about how the business is run and profits are shared out between them.			
27	Fair trade	A way of buying and selling products that allows the workers to be paid a fair price for their produce, and have better working conditions.			
28	Market Pull	When a product is made due to consumer demand.			
29	Technology Push	When advances in technology drive the design of new products and the redesign of old ones.			

