

Year 10 Half Term 1  
Key Ideas in Technology

<b>Technology in Manufacturing</b>			<b>9</b>	<b>Subtraction</b>	Subtraction is where material is removed from a solid block to form an object.
<b>1</b>	<b>3 stages of a manufacturing system</b>	<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.	<b>10</b>	<b>CNC</b>	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.
<b>2</b>	<b>Automation</b>	Automation is the use of machines to do a task automatically without much, or any, human input.	<b>11</b>	<b>Addition</b>	Addition is where material is added to build up an object.
<b>3</b>	<b>Smart Technology</b>	Develops machines by connecting them to machines and sensors in a factory so that they share data.	<b>Product Sustainability</b>		
<b>4</b>	<b>Flexible Manufacturing Systems (FMS)</b>	FMS consist of a set of different machines which carry out the different stages of production.	<b>12</b>	<b>Sustainability</b>	Not causing permanent damage to the environment and not using up finite resources.
<b>5</b>	<b>Lean Manufacturing</b>	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.	<b>13</b>	<b>Biodegradable</b>	They will break down over time.
<b>6</b>	<b>Just in Time System (JIT)</b>	Materials and components are delivered as they're needed and used as soon as they're delivered.	<b>14</b>	<b>Carbon Footprint</b>	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.
<b>Production Systems: CAD/CAM</b>			<b>15</b>	<b>Planned Obsolescence</b>	Products that are designed to become useless (obsolete) quickly. E.g disposable razor.
<b>7</b>	<b>CAD: Computer Aided Design</b>	It involves designing products on a computer, CAD software packages allow you to make 2D or 3D designs. Examples: Techsoft, TinkerCAD, Solid Works.	<b>16</b>	<b>Design for Maintenance</b>	Products can be designed to last by making the product durable, and designing it so that parts can be maintained and repaired or replaced.
<b>8</b>	<b>CAM: Computer Aided Manufacture</b>	It's the process of manufacturing products with the help of computers. Examples: CNC Router, Laser Cutter, 3D Printer.	<b>17</b>	<b>Design for Disassembly</b>	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	<b>Continuous Improvement</b>	A process by which manufacturers are constantly trying to improve their products.	<b>Powering Systems</b>		
19	<b>LCA: Life Cycle Assessment</b>	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	<b>Fossil Fuels</b>	Fossil fuels are natural resources that form underground over millions of years. Examples: coal, oil and gas.
20	<b>6R's</b>	Used to help reduce the impact that new products have on the environment. Repair, Reuse, Recycle, Reduce, Refuse, ReThink.	31	<b>Finite</b>	Materials/Resources/Energy that will eventually run out over time.
21	<b>Social Footprint</b>	The impact the design and manufacture has on people. Examples: Working conditions & Health impacts.	32	<b>Non-Finite</b>	Materials/Resources/Energy that can be replaced.
<b>Products in Society</b>			33	<b>Nuclear Power</b>	A series of machines that can control nuclear fission to produce electricity.
22	<b>Enterprise</b>	Identifying new business opportunities, and then taking advantage of them.	34	<b>Kinetic pumped storage system</b>	Used to store extra energy for when it is needed during periods of peak demand.
23	<b>Innovation</b>	When an entrepreneur or a business come up with something new.	35	<b>Batteries for storing energy.</b>	Batteries store chemical energy. Example: Alkaline & Rechargeable.
24	<b>Crowd Funding</b>	Using websites (e.g. Kickstarter) to promote an idea to a huge number of people.			
25	<b>Virtual Marketing &amp; retail.</b>	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	<b>Co-operatives</b>	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	<b>Fair trade</b>	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	<b>Market Pull</b>	When a product is made due to consumer demand.			
29	<b>Technology Push</b>	When advances in technology drive the design of new products and the redesign of old ones.			

