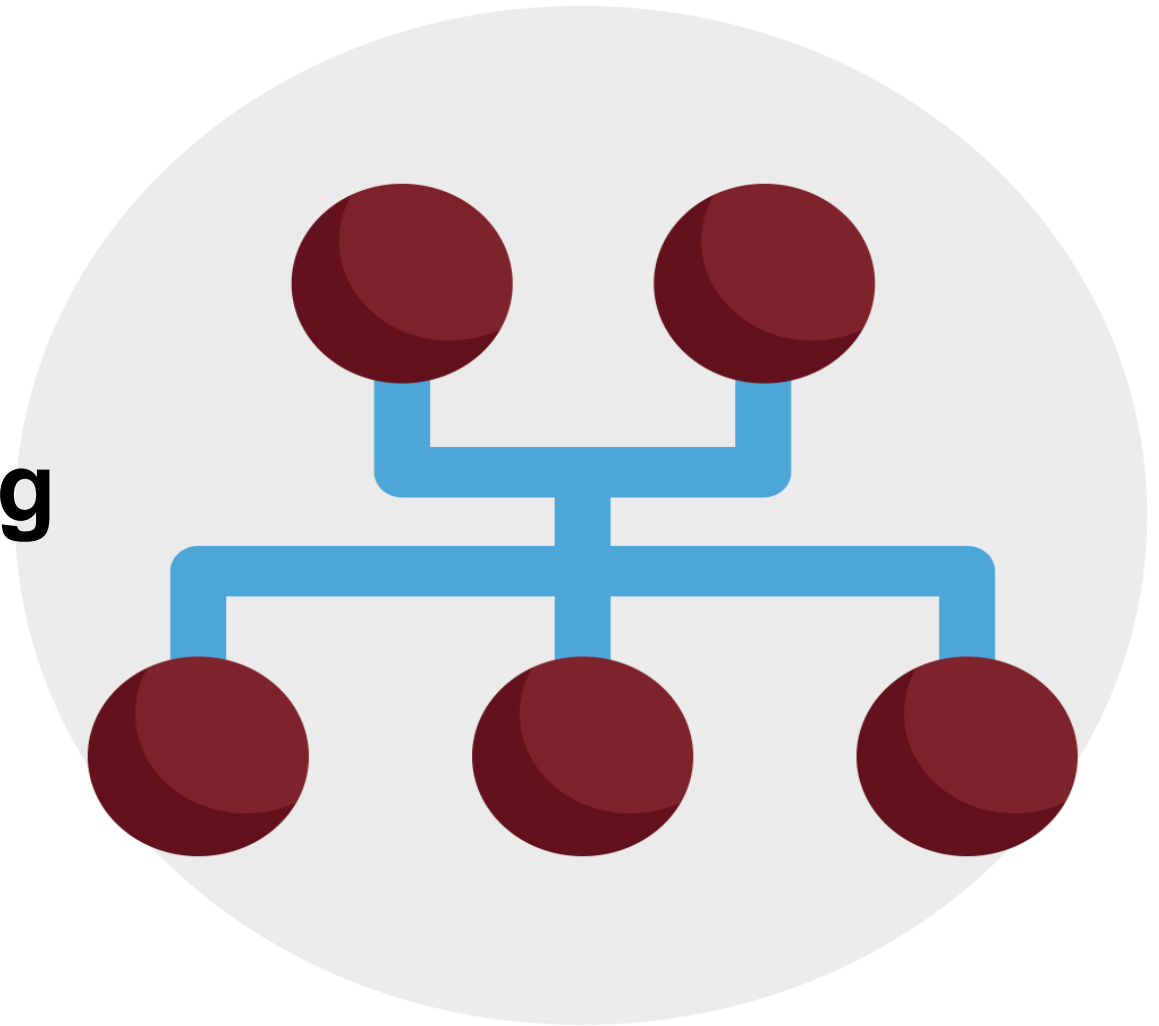


Technology

Curriculum Mapping

2021



September 2021- July 2022	Yr7	Yr8	Yr9
KS3 Creative Carousel Technology Rotation (12 lessons per rotation)			
Learning	Working with materials in DT. Hardwood, Softwood and Man made Board. 60s Design. Cad/Cam, Measuring and Marking Health and Safety Finishing Evaluations	Working with materials in DT. Ferrous, Non - Ferrous and Alloy Metals. Typography Cad/Cam, Routing Measuring and Marking Casting Health and Safety Finishing Evaluations	Working with materials in DT. Polymers. Thermoplastics Thermosett plastics Pattern and tessellation Modelling Line bending Vinyl cutting Self finishing Plastic Modifications
Concepts	Functionality Aesthetics Cost Material Properties Environmental Factors	Material extraction Material Properties Combining materials Typography and Text Heat Processes on Metals	Polymerisation Natural and Synthetic Plastics Environmental factors Sustainability
What is needed to master the knowledge	<p>Pupils will need to :</p> <ul style="list-style-type: none"> * Understand the basic difference between Hardwoods and Softwoods. * Be able to evaluate material properties when selecting woods for different applications * Consider the aesthetic implications of different wood types * Be aware of the cost of utilising different wood types * Understand the basic process of producing Man made Boards * Be aware of the Environmental implications of different wood types * Produce a practical outcome to demonstrate the Wood working concepts learned. 	<p>Pupils will need to :</p> <ul style="list-style-type: none"> * Understand the basic difference between Ferrous, non ferrous and Alloy Metals * Be aware of the process of material extraction and processing * Consider the reasons behind combining Metals to form Alloys * Be able to describe the advantages of Alloy Metals and their properties * Understand the basic concept of Typography and Font design * Produce a practical outcome to demonstrate the Metal working concepts learned. 	<p>Pupils will need to :</p> <ul style="list-style-type: none"> * Be aware of the process of Polymerisation and it's associated products. * Be able to evaluate the environmental drawbacks of producing materials from Fossil fuel sources * Be able to describe the advantages of Polymers in production processes * Understand the basic concept of Pattern and Tessellation * Produce a practical outcome to demonstrate the Plastic working concepts learned.
Common Misconceptions	<p>Literal definitions of Hard and Soft in relation to Wood types.</p> <p>Confusion in subject specific terminology.</p> <p>Lack of understanding of specific wood properties and their suitable uses.</p>	<p>Misconception that all metals Rust.</p> <p>Confusion between Rust and Oxidisation.</p> <p>Lack of understanding that Metals can be protected from rusting.</p> <p>Belief that all Alloys are only found on car wheels</p>	<p>Belief that there is only one type of Plastic.</p> <p>Confusion over the word "Polymer".</p> <p>Confusion over source of plastics.</p> <p>Unaware of the Environmental consequences of high plastic use.</p>

September 2021- July 2022	Yr10	Yr10	Yr10
	Term 1	Term 2	Term 3
Learning	Robotics, automation and production in industry Production techniques and systems – automation Enterprise Market pull and technology push Sustainability and the environment Critical evaluation of new and emerging technologies – planned obsolescence Design for maintenance Ethics The environment Ethics Renewable and non-renewable resources Modern materials Smart materials Composite materials Technical Textiles Material properties Functionality Aesthetics Environmental factors Availability Cost Social factors Ethical factors	Designing: • sketching • modelling • testing The six Rs Ecological issues in design and manufacture Properties of materials Modifying properties for a purpose Commercially available types and sizes of materials Manufacturing specification/working drawings Tools, equipment and processes Quality control How materials are cut shaped and formed to a tolerance The preparation and application of surface treatments and finishes Types of forces and reinforcing materials	Investigate, analyse and evaluate the work of past and present designers/ companies Investigate, analyse and evaluate the work of past and present designers/ companies Generating imaginative and creative designs Using primary and secondary data to understand client and/or user needs. Market research, interviews, human factors Constraints that are presented to designers Isometric and perspective designs Exploded diagrams Working drawings Computer-based tools Audio and visual recordings Modelling Functionality Aesthetics
Concepts	New and Emerging Techniques. Energy, Materials and devices.	Materials and their working properties. Specialists technical principles.	Designing and making principles
What is needed to master the knowledge	Pupils must be able to understand and articulate key concepts related to Design Technology. They must be aware of and able to use subject specific vocabulary when answering questions and be able to identify common materials, tools and processes related to product manufacturing. Pupils should demonstrate a clear understanding of the Social, Ethical and Environmental issues that surround sustainable design and the responsibility of the designer to design in a socially conscious way.	Pupils should understand the impact of new and emerging technologies on: • the design and organisation of the workplace including automation and the use of robotics • buildings and the place of work • tools and equipment. They should be aware of Enterprise e based on the development of an effective business innovation: • crowd funding • virtual marketing and retail • co-operatives • fair trade. pupils should be able to articulate developments made through the invention of new or improved processes eg Graphene, Metal foams and Titanium.. That composite materials are produced by combining two or more different materials to create an enhanced material eg glass reinforced plastic (GRP) and carbonfibre reinforced plastic (CRP).	Students should know and understand that all design and technology activities take place within a wide range of contexts. They should also understand how the prototypes they develop must satisfy wants or needs and be fit for their intended use. For example, the home, school, work or leisure. They will need to demonstrate and apply knowledge and understanding of designing and making principles in relation to the following areas: • investigation, primary and secondary data • environmental, social and economic challenge • the work of others • design strategies • communication of design ideas • prototype development • selection of materials and components • tolerances • material management
Common Misconceptions			