Curriculum Content Map — **Subject: Design Technology - Year 9**

Month			Rotation 1	Rotation 2
Cultural Transmission	Units of Work		Technical Knowledge & Research Safe working Recognising tools & machinery Understanding structures and strength. Bridges, Pulleys and Levers. Forces Planning and Design Frame, Structure Making Prototype Testing other materials Testing and evaluating outcomes. Creating a new Bridge or Tower. Evaluate its success User review	Technical Knowledge & Research Safe working Recognising tools & machinery Understanding structures and strength. Bridges, Pulleys and Levers. Forces Planning and Design Frame, Structure Making Prototype Testing other materials Testing and evaluating outcomes. Creating a new Bridge or Tower. Evaluate its success User review
	National Curriculum area – KS3		• develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools • use research and exploration, such as the study of different cultures, to identify and understand user needs • use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses • analyse the work of past and present professionals and others to develop and broaden their understanding • understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists • select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties	• develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools • use research and exploration, such as the study of different cultures, to identify and understand user needs • use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses • analyse the work of past and present professionals and others to develop and broaden their understanding • understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists • select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties
	Substantive Knowledge	*The What!*	As Year 9 starts there is a focus on the core elements of GCSE Design and Technology such as research, planning, making and evaluation. The skills based curriculum encourages learners to explore a range of factors that would impact designs in the real world including global costs, logistics, environmental weathering, and health and safety. Opportunities to exploit cross-curricular links with physics in key stage 3 will see students explore forces, weights, friction and other elements that would play a role in the construction of a bridge.	
	Disciplinary knowledge	*The How!*	Students carry out four distinct activities across the year that helps them build the skills needed for GCSE. In the research phase they explore both quantitative and qualitative methods of Bridge design and practicality. They then plan, using prototypes and models, a range of options. They revisit CAD and 3D printing as they design and make a bridge or weight bearing structure. The year will close with an evaluation and presentation of the final models that will be tested and analysed through both evaluative and data-driven information.	
	Sequencing (Flow)	*Retrieval & Extension*	**1. Making** a. Tools & Selection a. Health and Safety b. Using Tools Safely, Selecting and measuring/marking c. Range of materials d. Construction and Finish e. Overcoming problems independently. **2. Designing** a. Research and design b. Sketches and models c. Outline Dimensions f. Sequencing g. Refine and change h. Formal Drawings **3. Research** a. Gather information b. Information from marketing and design campaigns c. Research environmental issues and health and safety independently **4. Evaluation** a. Work as it develops b. Make changes as necessary c. Like and Dislike about my final product d. Compare to similar products e. Against original intentions Builds from Plant Pot design and make in Yr 7	**1. Making** a. Tools & Selection a. Health and Safety b. Using Tools Safely, Selecting and measuring/marking c. Range of materials d. Construction and Finish e. Overcoming problems independently. **2. Designing** a. Research and design b. Sketches and models c. Outline Dimensions f. Sequencing g. Refine and change h. Formal Drawings **3. Research** a. Gather information b. Information from marketing and design campaigns c. Research environmental issues and health and safety independently **4. Evaluation** a. Work as it develops b. Make changes as necessary c. Like and Dislike about my final product d. Compare to similar products e. Against original intentions Builds from Plant Pot design and make in Yr 7
	Summative Assessment		Students will have a summative assessment on bridge design and forces/loads. Student's summative assessment will be on their planning and construction diary.	Evaluation and Self-Evaluation.
Personal Empowerment	Virtue		1. Friendliness and Civility (September) 2. Justice and Truthfulness (October) 3. Courage (November) 4. Generosity (December) 5. Gratitude (January) 6. Good Speech (February)	1. Good Speech (February) 2. Good Temper (March) 3. Self-Mastery (April and May) 4. Compassion (June) 5. Good Sense (July)
	Link to Virtue	The opportunity to reflect, think deeply and critically about an issue.	Friendliness and Civility – Peer support in training in the workroom, understanding health and safety. Sharing of tools, peer-assessing tool skills Justice and Truthfulness – When reviewing own work, understanding how false advertisement might damage a products viability. Courage- to try new skills and think outside the box. Generosity – allowing peers to use tools at busy periods Gratitude – Appreciation of products and how they have solved everyday problems Good Speech – Thinking about the words that you use when analysing and evaluating the work of others.	Good Speech – Thinking about the words that you use when analysing and evaluating the work of others. Good Temper/Humour – How organisations use branding in their marketing of products Self –Mastery – Independent design and production of Bridge, keeping to a timetable. Compassion – Help with peer-feedback and evaluation in a caring and constructive way Good Sense – Use of tools and keeping safe in the work room environment.
Preparation for Work	Skill	*Transferable skills*	1. Listening (September) 2. Leadership (October) 3. Problem Solving (November) 4. Creativity (December) 5. Staying Positive (January) 6. Speaking (February)	1. Speaking (February) 2. Staying Positive (March) 3. Aiming High (April and May) 4. Speaking (June) 5. Teamwork (July)
	Link to Skill		**Listening** – Instructions regarding the safe use and operation of machinery in the workroom. **Leadership** – Lead on presentation of a product, then leading on their own design and product. **Problem Solving** – Looking at how bridge design solves the problem of getting from one place to another and understanding how this skill can be applied to a number of scenarios. **Creativity** – A creative, yet appropriate design for a product that uses imagination. **Staying Positive** – Using feedback in a positive way relating to the design of products or use of tools **Speaking** – Oracy in presentation of idea	**Speaking** – Oracy in presentation of idea **Staying Positive** – Using feedback in a positive way relating to the design of products or use of tools **Aiming High** – Looking for the best outcome for each product problem. **Speaking** – Oracy in presentation of idea **Teamwork** – Support each other to make sure everyone has time to use the workroom to meet their deadline.
Preparation for Citizenship	SMSC & British Values	*Developing opinions on curent issues*	enable students to develop their self-knowledge, self-esteem and self-confidence encourage students to accept responsibility for their behaviour, show initiative, and to understand how they can contribute positively to the lives of those living and working in the locality of the school and to society more widely	enable students to develop their self-knowledge, self-esteem and self-confidence encourage students to accept responsibility for their behaviour, show initiative, and to understand how they can contribute positively to the lives of those living and working in the locality of the school and to society more widely
	Link to SMSC & British Values		Working safely and designing products that solve a problem. Working to design something and then make their design, giving a sense of achievement.	Working safely and designing products that solve a problem. Working to design something and then make their design, giving a sense of achievement.