



Intent for the Year 7 *Design and Technology* Curriculum 2021-2022

'All children will experience a well-balanced and comprehensive curriculum that enhances informed, intellectual, developmental and moral character. As a result, this will improve life chances, interpersonal relationships, social mobility and preparedness for employment. Our curriculum will encourage everyone to have a positive impact on society.'

Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others needs, wants and values. Design and Technology curriculum allows students to gain a greater understanding of the technological/creative world of design having greater understanding for how products work, prepared and made. Design and technology is one of the very few opportunities for pupils to partake in a technical, practical education. It plays an important role in providing young people with a hands-on creative experience and develops a practical identity and a capability for innovation. The subject provides opportunities for collaboration, team working and communication skills that are essential for future employment. We have recognised the need to reform the subject and align it with modern design thinking and industrial practices while maintaining strands of the National Curriculum

In Year 7 we encourage students to build on existing knowledge and continue to make the links which were formed from the Primary curriculum and expand on knowledge, if students haven't covered this yet we intend to fill the gap through interleaving where possible. The aim of this year is to induct students into The department's 6 principles Tool box:

1. Problem solving-the multidisciplinary approach

2. User centred design

3. Communication

4. Application of skill

5. Knowledge of materials / nutrients

6. Industrial culture and careers

Character Education will be an additional tool in our Tool box and very much at the forefront of our delivery of the curriculum. Activities will strive to encourage students to be independent learners, by taking responsibility for their own actions. Students will be introduced to a range of tools, materials, working techniques and projects early on so they are equipped to deal with the challenges that Design and Technology pose and how these are related to the real world applications. The lessons are delivered through specific context - projects form small focussed tasks which require students to build on listening skills, communication, team work, reflection, and how to deal with mistakes. Much of what we have been covering in DT for many years now is Enquiry based learning providing a vehicle to developing a sense of the world and their responsibility within it.

Implementation:

Design and technology is part of the Creative Faculty along with Art, Drama and Music. Pupils will rotate on a carousel system spending approximately 10 weeks with each subject area. The length of time that students spend with each subject area differs however within design technology students will receive 2 hours a week in year 7. Within design and technology pupils will also rotate within our own carousel focusing on Food, Engineering, STEM/Skills and Textiles modules. Design and technology's intent is to combine practical



and technological skills with creative thinking to design and make products and systems that meet human needs. We have integrated a key stage by key stage curriculum where students will have unrivaled opportunities to understand the relevance of, and apply mathematical, scientific, design and computing concepts to the made world(STEM). They learn to use current technologies and consider the impact of future technological developments. They learn to think creatively to improve quality of life, solving problems as individuals and members of a team.

Curriculum adaptations as a result of the pandemic:

In relation to the pandemic students have missed out on all applications of skills, including CAD/CAM due to not being able to access the specialist workshops and food rooms. We have therefore focussed this year on the revival of skills associated with design, make, evaluate and technical knowledge. Longer module rotations throughout the year will allow more time to cover more areas and enable us to reduce the gap in the highlighted areas. All details of which can be identified below.

Term	Enquiry/Topic/Unit: <i>What is going to be taught?</i>	Key Outcomes: <i>What will students have achieved by completing this scheme of learning?</i>	Character Education: <i>How does this topic link to a sense of Self, Others and the World, in terms of Character Education?</i>	Assessment: <i>Will there be formative and/or summative testing? What role will interleaving play? How will this be marked?</i>	Vocabulary: <i>What are the key words for this topic/unit that students must know?</i>	Home-Learning: <i>What homework will be set and why (e.g. consolidate/extend)? How will this be marked?</i>
1-6 Creative Carousel g 10w eeks	Year 7 – Food 1 -Skills challenge Cooking and Nutrition Where food comes from CNA2 CNA3 CNA4 Cooking and Nutrition Food preparation, cooking and nutrition	<ul style="list-style-type: none"> • about the influence of food marketing, advertising and promotion on their own diet and purchasing behaviour • that food is produced, processed and sold in different ways, e.g. conventional and organic farming, fair trade • that people choose different types of food and that this may be influenced by availability, season, need, cost, where the food is produced, culture and religion 	We will be focussing on 6 character traits: Resilient, Responsibility, Confident, Creative, Curious and Reflective At the end of each term students sit an Assessment- and the feedback policy is designed to develop a sense of reflection. At the end of the module students also reflect on the project to understand which areas of the 9	Summative: Mid & End of Topic Assessment. Formative: Carried out in line with feedback policy *verbal feedback *Whole class feedback *Peer/self-assessment At the start of all lessons staff will recap each lesson leading into the next to shape interleaving. Assessments occur twice in a term amid way check and a formal one driven at the end of the rotation focusing on core knowledge for the	See SOW for more specific key vocabulary Savoury Routines Health Weighing Measuring Accuracy Hob Independent Organisation	Select and prepare ingredients for practical lesson Weighing and measuring throughout the term 1 week per module cleaning and washing up routine at home 2 hours per module split as necessary



CNB1 CNB2 CNB3 CNB7 CNB8 CNB9 CNB10 CNB12 CNB13 CNB14 CNB15 CNB16 CNB17	<ul style="list-style-type: none">● the importance of a healthy and varied diet as depicted in the Eatwell Guide and eight tips for healthy eating● that food provides energy and nutrients in different amounts; that they have important functions in the body; and that people require different amounts during their life● how to taste and cook a broader range of ingredients and healthy recipes, accounting for a range of needs, wants and values● how to use a broader range of preparation techniques and methods when cooking, e.g. stir-frying, steaming, blending● how to modify recipes and cook dishes that promote current healthy eating messages● the principles of cleaning, preventing cross-contamination, chilling, cooking food thoroughly and reheating food until it is steaming hot● how to store, prepare and cook food safely and hygienically● how to select and prepare ingredients	character traits they have used which has allowed them to complete/ assist in the challenge.	specific module. They will sit a 25 minute assessment near the end of term		
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	<p>Year 7 – <u>Skills challenge - Upcycling LED lamp</u></p> <p>Designing DA Understanding contexts, users and purposes DA1, DA9, DA10</p> <p>Designing DB Generating, developing, modelling and communicating ideas DB1, DB9</p> <p>Making MA Planning MA1, MA2</p> <p>Making MB</p>	<ul style="list-style-type: none"> ● develop detailed design specifications to guide their thinking ● take creative risks when making design decisions ● consider additional factors such as ergonomics, anthropometrics or dietary needs ● use 2D and begin to use 3D CAD packages to model their ideas ● develop and communicate design ideas using annotated sketches ● produce ordered sequences and schedules for manufacturing products they design, detailing resources required 	<p>Enquiry based learning provides a vehicle to developing a sense of the world and their responsibility within it.</p> <p>We will be focussing on 6 character traits: Resilient, Responsibility, Confident, Creative, Curious and Reflective</p> <p>At the end of each term students sit an Assessment- and the feedback policy is designed to develop a sense of reflection.</p>	<p>Summative: Mid & End of Topic Assessment.</p> <p>Formative: Carried out in line with feedback policy</p> <ul style="list-style-type: none"> *verbal feedback *Whole class feedback *Peer/self-assessment <p>At the start of all lessons staff will recap each lesson leading into the next to shape interleaving. Assessments occur twice in a term amid way check and a formal one driven at the end of the rotation focusing on core knowledge for the specific module. They will sit</p>	<p>See SOW for key vocabulary - however below are just a selection of recurring DT words and Phrases students should know at the end of KS3</p> <p>Problem solving Measuring Techniques Safety with tools Processes - Cutting, drilling, sanding, filing, joining, finishing Hacksaws (including junior hacksaws) Fret saw & blades Files</p>	<p>See separate Homework sheet for year 7</p> <p>Each term has a focus to extend learning and engagement with real world applications some of which are national competition based and will include inter-house competitions</p>



	<p>Practical skills and techniques MB7, MB9</p> <p>Technical Knowledge Making products work TK2 ,TK3, TK4</p>	<ul style="list-style-type: none"> ● produce costings using spreadsheets for products they design and make ● follow procedures for safety and hygiene and understand the process of risk assessment ● use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely ● about the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal ● how more advanced electrical and electronic systems can be powered and used in their products ● how to use simple electronic circuits incorporating inputs and outputs ● 	<p>At the end of the module students also reflect on the project to understand which areas of the 9 character traits they have used which has allowed them to complete/ assist in the challenge.</p>	<p>a 25 minute assessment near the end of term</p>	<p>Abrasive paper & Pillar drill, hand drill Two part epoxy resin. Hardness, elasticity, conductivity, toughness, ductility, tensile strength and malleability. Ferrous metals Non-ferrous metals Alloys</p>	
	<p>Year 7 – Engineering - Sweet Dispenser Designing DA Understanding contexts, users and purposes DA7 ,DA8, DA10</p>	<ul style="list-style-type: none"> ● work confidently within a range of relevant domestic, local and industrial contexts, such as the home, health, leisure, culture, engineering, manufacturing, 	<p>We will be focussing on 6 character traits: Resilient, Responsibility, Confident, Creative, Curious and Reflective</p>	<p>Summative: Mid & End of Topic Assessment. Formative: Carried out in line with feedback policy</p>	<p>See SOW for key vocabulary Problem solving Measuring Techniques Safety with tools</p>	<p>See separate Homework sheet for year 7 Each term has a focus to extend learning and engagement with real world applications some of which are national competition based and</p>



<p>Making MA Planning MA1, MA2, MA7, MA8</p> <p>Making MB Practical skills and techniques MB1, MB7, MB8 MB9, MB11</p> <p>Evaluating EA Own ideas and products EA1, EA2, EA5</p> <p>Technical Knowledge Making products work TK1, TK2, TK8, TK17, TK19</p>	<p>construction, food, energy, agriculture and fashion</p> <ul style="list-style-type: none"> ● consider the influence of a range of lifestyle factors and consumer choices when designing products ● consider additional factors such as ergonomics, anthropometrics or dietary needs ● produce ordered sequences and schedules for manufacturing products they design, detailing resources required ● produce costings using spreadsheets for products they design and make ● select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture ● select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness ● make use of specialist equipment to mark out materials 	<p>At the end of each term students sit an Assessment- and the feedback policy is designed to develop a sense of reflection.</p> <p>At the end of the module students also reflect on the project to understand which areas of the 9 character traits they have used which has allowed them to complete/ assist in the challenge.</p>	<p>*verbal feedback *Whole class feedback *Peer/self-assessment</p> <p>At the start of all lessons staff will recap each lesson leading into the next to shape interleaving. Assessments occur twice in a term amid way check and a formal one driven at the end of the rotation focusing on core knowledge for the specific module. They will sit a 25 minute assessment near the end of term</p>	<p>Processes - Cutting, drilling, sanding, filing, joining, finishing Ergonomics Assembling products Manipulating timber Finishing timber Softwood Hardwood MDF Plywood Acrylic sheet Dowel PVA Varnish/wax Stains</p>	<p>will include inter-house competitions</p>
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	<ul style="list-style-type: none">● follow procedures for safety and hygiene and understand the process of risk assessment● use a wider, more complex range of materials, components and ingredients, taking into account their properties● use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely● apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods● evaluate their products against their original specification and identify ways of improving them● actively involve others in the testing of their products● test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups● how to classify materials by structure e.g. hard words, soft				
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		<p>woods, ferrous and non-ferrous, thermoplastic and thermosetting plastics</p> <ul style="list-style-type: none"> ● about the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal ● how to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines ● use learning from mathematics to help design and make products that work ● understand the performance of structural elements to achieve functioning solutions 				
	<p>Year 7 – Textiles -Skills challenge Project 1 Art Textiles Insects – Introduction to sewing machines & to get familiar with the tools and environment</p>	<p>Key Outcomes: Introduction to sewing machines & to get familiar with the tools and environment</p>	<p>Character Education: It gives students curiosity, confidence, resilience and reflectivity to use sewing machines and really challenge themselves to start working independently and to be able to problem solve throughout the project.</p>	<p>The students have an assessment sheet in their sketchbooks with Success Criteria for each project, which allows for constructive and positive comments, Grade, Attitude for Learning and Targets to be set.</p> <p>Summative;</p>	<p>Techniques:</p> <ul style="list-style-type: none"> ● Health & Safety ● Observational Study (Oil Pastels) ● Sewing Machine Test with License ● Introduction to different 	<p>Each project has a 3 - 4 week Home Learning project that corresponds to the theme of the project. These are marked at the end of the rotation and contribute to the overall assessment of each student in a 'portfolio' style</p>



<p>Art Elements - Line, Colour, Texture, Space and Form</p> <p>Design Principles - Contrast, White Space, Proportion</p> <p>Textiles Insects</p> <p>Project 2</p> <p>Malaysian Batik – Students focuses on Motifs, colours and patterns. They will understand the process and application of Malaysian Batik compared to Indonesia</p> <p>Art Elements - Colour, Shape, Space</p> <p>Design Principles - Pattern, Repetition, Balance, Contrast</p> <p>Project 3</p> <p>Fashion Textiles Superhero/Villain Tote</p>	<p>Students focus on Motifs, colours and patterns. They will understand the process and application of Malaysian Batik compared to Indonesia</p> <p>Using the sewing machines more independently, securing knowledge of tools, techniques & machines</p>	<p>It gives students curiosity, creativity and reflectivity to explore a new culture and really challenge themselves to start working independently and to be able to differentiate different cultures through patterns and textiles.</p> <p>It gives students creativity, confidence, resilience and reflectivity to use sewing machines and really challenge themselves to start working independently and to be able to problem solve throughout the project. They will be cementing the knowledge that they have learnt throughout the year.</p>	<p>Students' work in sketchbooks is assessed at the end of each project. It takes into account all classwork and coincides with the completion of a Home Learning activity that is set for a 3 - 4 week period. There is an emphasis on Home Learning so that the students are aware that the project is as important as the work completed in class. This will allow students to practice and prepare for the high quality expectations of GCSE.</p> <p>Whole school assessment; Students are assessed during Winter Term and Summer Term. This will involve students to complete an exercise that sits within the scheme of work.</p> <p>The level, percentage mark and 'attitude to learning' are entered into Arbor after every rotational group.</p>	<p>stitching on the machines</p> <ul style="list-style-type: none"> ● Appliqué ● Oil pastel application ● Observational Drawing (Watercolours) ● Colour Theory ● Batik ● Introduction to Silk Gutta ● Silk Painting <p>Designing</p> <ul style="list-style-type: none"> ● Pattern Cutting ● Appliqué ● Construction 	<p>marking of work that is subject appropriate and feeds into the expectations and marking scheme at KS4</p>
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<p>Bag – Using the sewing machines more independently, securing knowledge of tools, techniques & machines</p> <p>Art Elements - Line, Colour, Space and Form</p> <p>Design Principles - Proportion, White Space, Hierarchy and Unity</p>					
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Impact:

At this stage before they embark on year 8 we want students to have built up a repertoire of practical skills for their 'Tool box' whilst understanding a range of material knowledge and technical vocab some of which are mentioned above. They will understand the importance of problem solving, making connections between skills acquired and the world of work and relate these to actual real life examples in the world. Through the use of the case studies students can make real world connections to life beyond the classroom. The Careers covered here hope to inspire students when considering options for next steps and their future careers and to make those all important connections. Here at Haygrove we have produced a curriculum that is inspiring and motivational where our pupils are encouraged to take risks, become resourceful, innovative and enterprising in their approach

Careers starts early In year 7 we launch a DT club to provide extra support and extracurricular activities for students to participate in. We want to initiate a year 7 STEM group and have organised trips to local show events such as the BIG BANG next year we aim to exhibit at the show. Next year we would like to offer a day for some year 7 to take part in a STEM work shop with a local company and we aim also to enter students into a national DT competition Aluminium Challenge internally and externally will begin in September offering it to all students. Case studies and Use of <https://www.bbc.co.uk/bitesize/careers> in a range of lessons where the focus is around people centred design, the environment and sustainability. 'Food a fact of life' website, careers in the food industry – at the end of the First food module. As a homework (because all lessons will be practical cooking lessons) The career opportunities from 'farm to fork' are extensive and provide wide variety of opportunities to students. Case studies are available to download for guidance and inspiration to students when considering options for next steps and their future career. 'Careers that Feed the Nation' – Sheep farming, Stockman, Research scientist, Mill coordinator, Horticulturalist, Red meat technical manager, Food safety manager, Meat poultry and fish buyer, Product development, Chef