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YEAR	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
7	Pupils will be designing and making a model chair that is unique and inspired by a design movement. This is obtained by gaining an understanding of different design eras, they will then analyse existing products to help generate more design ideas. They will used 3d CAD programs to create a design development leading to using cardboard model, to encourage them to develop their designs further. Objectives 1 of 2 To be able to use their independent research by means of product analysis to influence their designs. Learn about different design eras and design history. To be able to effectively use cardboard to create mock up prototypes to help encourage more ideas. To be able to create a good quality chair design that meets the solution of the brief.	Objectives 2 of 2 Able students will Research existing table chairs and products available Generate ideas Further develop ideas Make cardboard prototypes Produce a mood board or inspiration board Annotating prototypes, describing functions and the aesthetics Give reasons for choice of design idea based on research Produce a dairy of making Evaluate final model, with the feedback of their peers Skills: Research, Analytical, Prototyping, Problem Solving, Using CAD Language for Learning: Literacy Through this unit students will be able to understand, use and spell correctly words relating to materials	Throughout our KS3 we are striving for students to be competent in the following and delivery skills based curriculum in Designing, developing technical knowledge and prototyping. This section is mainly developing the drawing techniques to support design communication in terms various types of drawings. Objectives 1 of 2 To understand how to apply one-point perspective technique to cubes. To apply that knowledge to a real design need (a room) To understand how to apply two point perspective technique to cubes. To apply that knowledge to a real design need (a house) To present ideas so they stand out, have depth and realism. To understand the rules and requirements to use this technique to present 3d images	Objectives 2 of 2 To appreciate why isometric drawing is used and learn the rules that accompany it. Develop rendering skills To present ideas so they stand out, have depth and realism. To understand the rules and requirements to present an object in orthographic projection. To be able to use a combination of skills together to be able to crate simple 3D shapes	Logo Keychain Design Context: To learn simple hand drawing techniques and image presentation skills. To appreciate some CAD packages and learn their basic operation and outcomes, to produce a final product and evaluate Objectives To understand the way that brands are advertisers use branding. How do designers come up with their designs? To examine the basic tools available in 2D Design. To discover how to use them to produce a house Theory lesson about the advantage and disadvantage of the CAD CAM and introduction CAD tools such as 2D design , Sketch up etc Practical lesson Start: Laser Cutter Demo Main; Pros and cons of CAD/CAM Assessment and evaluation; to recognise which technique is most appropriate for a range of tasks	Super Curriculum This project is all about user needs and pupils will be completing an Architecture project. pupils will be carrying out the project through out the year and it will be assessed during this term.

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8	Our KS3 schemes of work have been planned to ensure students can see the value of design and technology and are enthused to opt for the subject at GCSE. Expectations and skills are repeated giving students the opportunity to reflect on what they have done and refine their efforts the next time they complete it. It is also hoped that giving students some autonomy to design and make their own products will allow students to practice higher level learning. Materials Characteristics, Processes and Skills Students will be designing and making a identity tag using MDF, pewter materials and casting process. They will design and communicate their ideas through hand drawn sketches and technical drawings. This will then lead to practical activities in the D&T workshop and the manufacturing of their final design. Alongside practicals, students will study material properties and types of manufacturing. Objectives 2 of 2 To enable pupils to develop their practical skills. To increase awareness of health and safety in a potentially dangerous area.	Objective 1 of 2 To develop knowledge and understanding of materials, tools, machinery and processes. Select and use a range of tools, equipment and processes safely and accurately. Understand how to take account of working characteristics of materials and components and restrictions imposed by tools and equipment. Knowledge and understanding required: Health and safety with a particular focus on metal work. Marking out techniques, the use of moulds and accuracy. Understanding of the different types of casting and casting processes. Use of computer-aided design and manufacture skills, the use of 2D Techsoft Design and laser cutter	Technical Knowledge (Design Methods) Students should understand how the following might present opportunities and constraints that influence the processes of designing and making. Objectives 1 of 2 Design Cycle; to understand what the Design Cycle process is and why it is important Level of Production To understand what scale of production is and know the different levels. Sustainability; Students should have a knowledge and understanding of the ecological and social footprint left by designers.	Objectives 2 of 2 What is the various aspect of sustainability to consider when designing and developing a concept e.g. 6Rs Evolution of design; Understanding of planned and Obsolescence Mechanism; understanding the basics of different types of mechanisms and uses of the forces associated with it. Explore how different mechanisms can be applied to functioning designs	Technical Knowledge: Specialist technical principals How more advanced electrical and electronic systems can be powered and used in their products With use of CAD toll understand how to use simple electronic circuits incorporating inputs and outputs. How to apply computing and use electronics to embed intelligence in products that respond to inputs. Make use of sensors to detect input and provide an output. Carry out a project to design and make an electronic system to solve the problem of moisture tester. The project will enable students to experience the design and manufacture of simple electronic circuits. Objectives 1 of 2; to establish understanding of electronic circuits and their science behind it to establish technical design techniques and develop specialist manufacturing processes explore the opportunities of model making	Super Curriculum This project is all about sustainability and students will be completing sustainability project aiming for plant pot. AN opportunity to work independently as well as collaboratively and appreciating all aspects of sustainability including upcycling. Students will be carrying out the project throughout the year and it will be assessed during this term.

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	Gain research through the use of questionnaires and market research of target users.				Objectives 2 of 2; Pupils to further understand: • The need to investigate the background to a problem. • How to select appropriate components to build simple electronic circuits. • The importance of planned manufacture. • The need to build models to evaluate design ideas. • How to improve a product by evaluation.	
9	DT rotation 1 It is our intent to give students the confidence and skills they need to solve real life problems for a specific user. Design and technology is a subject where students create ideas and make them a reality. Whilst creating solutions to a given problem students will have to consider important factors alongside the environmental and social impact of their concepts. We as teachers want our students to design innovative ideas that look good and function effectively. Design and	DT rotation 2 students will develop skills and gain experience; DT project task analysis and its importance A list of specifications using ACCESS FM and a design brief Finish a product analysis of three existing container living projects Know how to set up your technical drawing page with boarder and heading Pick your best idea and do a	Engineering rotation 1 Objectives To understand the different design strategies that are used to make a new product. To understand who the user is and where needs they have on a product. To understand what ergonomics and anthropometric data is and how it effects product design	Engineering rotation 2 To develop simple hand drawing techniques and image presentation skills using a set theme similar to a GCSE NEA project. To gain enhanced understanding of basic CAD packages to produce realistic outcomes, to produce a final design and evaluate.	Electronics rotation 1 Electronics enables learners to: develop scientific knowledge and conceptual understanding of the behaviour of analogue and digital electrical/electronic circuits including a wide range of electronic components develop an understanding of the nature, processes and methods of electronics as an engineering discipline to help them answer	Electronics Rotation 2 Further Electronics opportunities would enable learners to: Produce advanced designs with the least support to solve a problem and present an electronic solution. With support design and build prototype circuit in CAD and on breadboard.

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	technology has strong cross curricular links with other subjects in the curriculum. Concepts learnt in science and maths can be applied throughout the design process developing student understanding.	orthographic drawing of your design Make sure ALL technical drawings are done before modelling Start modelling your container living project Evaluate your project against specifications you made when designing ideas From feedback from previous lesson students will have a chance to improve models and research	To develop initial ideas for a product using all drawing techniques To develop modelling techniques; CAD tools and card board To evaluation and analyse feedback for further improvement		questions about practical circuits be aware of new and emerging technologies develop and learn how to apply observational, practical, problem solving and evaluative skills in the identification of needs in the world around them and to propose and test electronic solutions progress to GCSE/Level 2 qualifications in electronics	Prepare for next stage of electronic components and circuit rotation 2. Evaluate technical knowledge and identify further improvements.
10	The subjects offered in design and technology have strong links with real world industry. For many studying design and technology can be the first introduction into engineering; working in the creative design sector; electronics system industry or working in product design. It is our intent to give students the confidence and skills they need to solve real life problems for a specific user. Design and	Appropriate techniques used to communicate design ideas Use of appropriate marking out methods to ensure quality Use appropriate marking out methods, data points and coordinates Specialist tools and equipment	Investigate the work of a designer or company The work of others Material categories Material properties Sources and origins Stock forms, types and sizes Forces and stresses; types of	Freehand sketching, Isometric 2D/3D drawing, Annotated drawings Material management; cut materials efficiently to organise Specialist techniques and processes –	Industry robotics; use of automation in the workplace Prototype development, Specialist tools and equipment Specialist techniques and processes, Production techniques and systems, use of Computer Aided Design (CAD)	Environment – Design strategies: Iteration Environment – pollution, global warming Sustainability – finite/non-finite Product analysis and evaluation The six Rs (reduce, refuse, re-use, repair, recycle and rethink)

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	technology is a subject where students create ideas and make them a reality. Whilst creating solutions to a given problem students will have to consider important factors alongside the environmental and social impact of their concepts. We as teachers want our students to design innovative ideas that look good and function effectively. Materials and their working properties Mechanical devices Design strategies Drawing Techniques Testing design strategies Communication of ideas	Using and working with materials – how to shape and form using abrasion, cutting and addition Development in new materials	forces and ways to reinforce materials Design a seating solution Collaboration	surface treatments and finishes Specialist techniques and processes (the use of production aids, tolerance, commercial processes and QC) Prototype designs which: demonstrate innovation are functional consider aesthetics		Students to record information for revision purposes. Select and use specialist techniques and processes. Consider accuracy Shape, fabricate and construct a high quality prototype
11	DT GCSE Launch of NEA contextual challenge Selection of the correct hand tools and machinery Safe use of tools Selection and use of specialist techniques (used to shape, fabricate, construct) Selection of the correct hand tools and machinery Safe use of tools	Selection of the correct hand tools and machinery. Safe use of tools Selection and use of specialist techniques (used to shape, fabricate, construct) Preparing a material for a surface finish Applying a surface finish	NEA Section A-D completion. Design and develop contextual challenged based product. Planning and making of the model. Working towards the plan for the prototype manufacturing	Prelim revision Prelim NEA e-folio (design portfolio) plus prototype internal deadline submission	Revision ; preparing for the exam and submitting NEA grades to the examination board	Exam

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	Selection and use of specialist techniques (used to shape, fabricate, construct) Preparing a material for a surface finish Applying a surface finish Selection of the correct hand tools and machinery. Safe use of tools Selection and use of specialist techniques (used to shape, fabricate, construct) Preparing a material for a surface finish Applying a surface finish					
12	Technical principles (TP) Design and making principles (DMP) Materials and their applications (TP) Testing materials (TP) Performance characteristics of materials (TP): • papers and boards • composites. Performance characteristics of materials (TP) • polymer based sheet and film • biodegradable polymers. Performance characteristics of materials (TP): • woods • smart and modern materials.	Design methods and processes (DMP) Design theory (DMP) Technology and cultural changes (DMP) Design processes (DMP) Critical analysis and evaluation (DMP) Selecting appropriate tools, equipment and processes (DMP) Accuracy in design and manufacture (DMP) Introduction of NEA	Responsible design (DMP) Design for manufacture (DMP) Enhancement of materials (TP) Forming, redistribution and addition processes (TP) Forming, redistribution and addition processes (TP) Forming, redistribution and addition processes (TP)	The use of finishes (TP) Modern and industrial commercial practice (TP) Digital design and manufacture (TP) Product design and development (TP) Health and safety (TP) Design for manufacturing, maintenance, repair and disposal (TP) Enterprise and marketing in the development of products (TP) NEA-contextual challenge	Design communication (TP) Technology and cultural changes (A-level specific) (DMP) Design processes – prototype development (A-level specific) (DMP) Design processes (A-level specific) (DMP) – iterative design in commercial contexts NEA	End of Year exam-internal Design theory (A-level specific) (DMP) Design theory (A-level specific) (DMP) Selecting appropriate tools, equipment and processes (A-level specific) (DMP) Responsible design (A-level specific) (DMP) Design for manufacture and project management (A-level specific) (DMP) NEA

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	Performance characteristics of materials (TP) Metals Performance characteristics of materials (TP) Polymers		The use of finishes (TP) NEA-contextual challenge			
13	National and international standards in product design (A-level specific) (DMP) Performance characteristics of materials (A-level specific) (TP) Performance characteristics of materials (A-level specific) (TP) Performance characteristics of materials (A-level specific) (TP) Performance characteristics of materials (A-level specific) (TP): Performance characteristics of materials (A-level specific) (TP) Forming, redistribution and addition processes (TP) NEA – portfolio	Forming, redistribution and addition processes (TP) The use of finishes (TP) The use of finishes (TP) Modern and industrial commercial practice (TP) Modern and industrial commercial practice (TP) Digital design and manufacture (TP) NEA – portfolio Prelim- Internal exams	Digital design and manufacture ((TP) The requirements for product design and development (TP) Protecting designs and intellectual property (TP) Design for manufacturing, maintenance, repair and disposal (TP) Feasibility studies (TP) Enterprise and marketing in the development of products (TP)	Modern manufacturing systems (TP) Prlim-Internal exams Detailed product study Detailed product comparison Detailed product analysis NEA Completion and internal submission deadline	Exam preparation – (TP) Exam preparation – (TP) Exam preparation – (DMP) Exam preparation – (DMP) Exam preparation – (DMP)	External Exams