Key Stage 3 Subject Curriculum Overview

Y7

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics and content to be learnt		**Topics and content to be learnt**		**Topics and content to be learnt**	
JIGSAW PUZZLE PROJECT 1. Identifying design possibilities 2. Producing a specification 3. Generating Design Ideas	**JIGSAW PUZZLE PROJECT** 4. Developing design idea 5. Realising Design Ideas **6.** evaluating	**CEREAL BOX PACKAGING** 1. Identifying design possibilities 2. Producing a specification 3. Generating Design Ideas	**CEREAL BOX PACKAGING** 4. Developing design idea 5. Realising Design Ideas evaluating	**MAINLY DESIGN – CORE SKILLS** 1. Drawing Methods 2. Sketching 3. Perspective 4. One-point perspective **5.** Two –point perspective	**MAINLY DESIGN – CORE SKILLS** 6. Orthographic projection 7. Orthographic drawing 8. Isometric 9. Rendering methods 10. Tone and texture
Knowledge, skills and understanding explicit to these topics/stage **Key learning:** • Understand the different needs to the client using the product • Develop design that show understanding through making **Skills:** • Manufacture using appropriate tools and equipment • Develop a successful product that relates to the client's needs **NC 2014 Learning objectives** • **DA1** - Develop detailed design specifications to guide their thinking • **MB7** - follow procedures for safety and understand the process of risk assessment • **MB2** - use a broad range of material joining techniques including vacuum forming • **MB9** - use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • **MB11** - apply a range of finishing techniques, including those from art and design, to a broad range of materials including metals, polymers and woods • **TK2** - about the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal		**Knowledge, skills and understanding explicit to these topics/stage** **Key Learning:** • Understanding how batch production works • Generating ideas and developing into a product • Basic ordering of processes to construct a product **Skills:** • How to manufacture packaging • Working as team • Sketch out design • Development of logo/typography • Manufacture of cereal box using production lines • Evaluation of product as a class **NC 2014 Learning objectives** • **DB9** - Develop and communicate design ideas using annotated sketches • **DB10** - Produce 3D models to develop and communicate ideas • **DB5** - Use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • **DB8** - Decide which design criteria clash and determine which should take priority • **DA3** - Identify and solve their own design problems		***Knowledge, skills and understanding explicit to these topics/stage*** **Key Learning:** • Use of basic graphical skills • Develop basic sketching skills • Develop knowledge of key terminology **Skills:** • Developing freehand sketching skills • Learning how to sketch in 3D • Annotation of work **NC 2014 Learning objectives** • **DB9** Develop and communicate design ideas using annotated sketches • **DB10** Produce 3D models to develop and communicate ideas	

Y8

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics and content to be learnt		**Topics and content to be learnt**		**Topics and content to be learnt**	
BLOCKBOT PROJECT **1.** Analysing design possibilities **2.** Producing a design brief and specification 3. Generating Design Ideas	**BLOCKBOT PROJECT** **4.** Developing design idea 5. Realising Design Ideas 6. evaluating	**BLOCKBOT PACKAGING** **1.** Analysing design possibilities **2.** Producing a design brief and specification 3. Generating Design Ideas	**BLOCKBOT PACKAGING** **4.** Developing design idea 5. Realising Design Ideas 6. evaluating	**MOOD LIGHTS** **1.** Analysing design possibilities **2.** Producing a design brief and specification 3. Generating Design Ideas	**MOOD LIGHTS** **4.** Developing design idea 5. Realising Design Ideas 6. evaluating
Knowledge, skills and understanding explicit to these topics/stage **Key Learning:** • Know how to select correct manufacturing tools and equipment • The importance of accuracy • Understand use of templates and jigs		***Knowledge, skills and understanding explicit to these topics/stage*** **Key Learning:** • Learn how to analyse products • How existing product can be a rich source of information **Skills:**		***Knowledge, skills and understanding explicit to these topics/stage*** **Key Learning:** • Know what components are needed for a sensing circuit to operate • Make use of sensor systems to affect the operation of a system • LED series resistor calculations	

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	Skills: • Use equipment and tools safely • Learn to work accurately and problem solve **NC 2014 Learning objectives** • **DB8** - Decide which design criteria clash and determine which should take priority • **MB1** - Make use of specialist equipment to mark out materials • **MA7** - Select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture • **MB7** - Follow procedures for safety and understand the process of risk assessment • **TK2** - About the physical properties of materials e.g. grain, brittleness, • flexibility, elasticity, malleability and thermal • **MB2** - Use a broad range of material joining techniques including combining materials	• Develop designs based around the product as inspiration and new specification • Use of drawing rendering and modelling to communicate designs **NC 2014 Learning objectives:** • **DA1** Develop detailed design specifications to guide their thinking • **DB5** Use specifications to inform the design of innovative, functional, appealing • products that respond to needs in a variety of situations • **DB6** Combine ideas from a variety of sources • **DB9** Develop and communicate design ideas using annotated sketches • **EA2** Actively involve others in the testing of their products	• Create suitable controlling software to operate the mood light in an appropriate manner • Know how to power a circuit using a number of power supply options **Skills:** • Use circuit simulator software to investigate/test circuit ideas • Creation of a PCB from a circuit diagram • Develop a program that solves a particular problem • Develop a program that uses a sensor as an analogue input. • Relevant testing of prototypes **NC 2014 Learning objectives** • **TK9** How to apply computing and use electronics to embed intelligence in products that respond to inputs • **TK16** Use learning from science to help design and make products that work • **TK10** Make use of sensors to detect heat, light, sound and movement such as thermistors and light dependant resistors • **TK11** How to apply the concepts of feedback in systems • **TK12** How to control outputs such as actuators and motors • **TK3** How more advanced electrical and electronic systems can be powered and used in their products

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	SWEET DISPENSER PROJECT 1. Identifying and investigating design possibilities 2. Producing a design brief and specification 3. Generating Design Ideas 4. Developing design idea	**SWEET DISPENSER PROJECT** 5. Developing design idea 6. Realising Design Ideas 7. Analysing and evaluating	**FESTIVAL PROJET** **1.** Identifying and investigating design possibilities **2.** Producing a design brief and specification 3. Generating Design Ideas **4.** Developing design idea	**FESTIVAL PROJECT** 5. Developing design idea 6. Realising Design Ideas **7.** Analysing and evaluating	**SHOP FRONT PROJECT** 1. Identifying and investigating design possibilities 2. Producing a design brief and specification 3. Generating Design Ideas **4.** Developing design idea	**SHOP FRONT PROJECT** 5. Developing design idea 6. Realising Design Ideas **7.** Analysing and evaluating
Y9	**Knowledge, skills and understanding explicit to these topics/stage** **Key Learning:** • Learn to develop a base of research • Develop a brief and specification • Factors that affect design **Skills:** • Sketches out designs and select appropriate proposal • Transfer design onto CAD programme • Cut out moulds using CAM available • Cast and finish jewellery **NC2014 Learning objectives** • **DA2** Use research including the study of different cultures, to identify and understand user needs		**Knowledge, skills and understanding explicit to these topics/stage** **Key learning:** • Developing a brief and planning out a project • Researching needs of a client • Use of appropriate tools and materials • Evaluation as a tool to progress in design **Skills** • Applying skills learnt throughout projects of planning design and manufacture • Selecting tools and equipment appropriately to manufacture a successful prototype • Evaluating and testing product and suggesting improvements in relation to developed criteria		***Knowledge, skills and understanding explicit to these topics/stage*** **Key Learning:** • Use of CAD/CAM in design • Design of logos and typography • Making models to communicate ideas **Skills:** • Understand how to develop design on CAD package • Use of basic CAD/CAM tools • How to set up and use a laser **NC 2014 Learning objectives** • **DB1** Use 2D and begin to use 3D CAD packages to model their ideas	

	• **DB9** Develop and communicate design ideas using annotated sketches • **DA9** Take creative risks when making design decisions • **DB2** Produce models of their ideas using CAM to test out their ideas • **DB4** Use CAD and related software packages to validate their designs in advance of manufacture • **MA7** Select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture • **DB5** Use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • **TK7** How materials can be cast in moulds • **TK8** How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines • **MB11** Apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods	**NC 2014 Learning objectives** • **EB3** - Products that they are less familiar with using themselves • **DB9** - Develop and communicate design ideas using annotated sketches • **DA9** - Take creative risks when making design decisions • **DA8** - Consider the influence of a range of lifestyle factors and consumer choices when designing products • **DB5** - Use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • **DB7** - Use a variety of approaches and user-centred design, to generate creative ideas and avoid stereotypical responses • **MA3** - Create production schedules that inform their own and others' roles in the manufacturing of products they design • **MA7** - Select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture • **MA8** - Select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness • **MB7** - Follow procedures for safety and hygiene and understand the process of risk assessment • **MB9** - Use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • **MB10** - Exploit the use of CAD/CAM equipment to manufacture products, increasing standards of quality, scale of production and precision • **MB11** - Apply a range of finishing techniques, including those from art and design, to a broad range of materials including metals, polymers and woods • **EA5** - Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups	• **MB7** Follow procedures for safety and hygiene and understand the process of risk assessment • **MB9** Use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • **EA5** Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups