



KOINONIA FEDERATION – ALL THROUGH SUBJECT MAP

SUBJECT Design and Technology

CURRICULUM INTENT: At St Mary Magdalene's All Through School we recognise that high-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of our diverse community. This drives us to focus on ensuring that DT is an inspiring and practical subject which provides all children with the opportunity to develop skills, knowledge and understanding of designing and making functional products including nutrition. It involves children in learning about the world we live in and developing a wide range of knowledge and skills through designing and making. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team.

We offer children the opportunity to:

- build and apply a repertoire of knowledge, understanding and skills in order to design and make high quality prototypes and products for a wide range of users and critique, evaluate and test their ideas and products and the work of others
- develop a sense of enjoyment and pride in their ability to make products that are fit for purpose while considering sustainability and natural resources
- children combine practical skills with an understanding of aesthetic, social, moral, and environmental issues, in order to design and make a product.

Spirituality Statement

Design and Technology contributes to students' spiritual **development** by encouraging curiosity, creativity, and reflection through designing and making. Pupils explore how technology and design impact people, communities, and the environment, promoting responsibility and ethical thinking. Through collaboration, problem-solving, and innovation, students develop respect for others' ideas while recognising how design can positively shape the world.



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Textiles	Mechanisms	Cooking and Nutrition	Structures	Electronic Systems
Resistant Materials	Graphics			

	AUTUMN 1	SPRING 1	SUMMER 1
RECEPTION	<p>Textiles Owl baby nests. Children will weave thread in and out of paper bowls to make nests.</p> <p>Expressive Arts and Design Creating with Materials ELG</p> <ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. 	<p>Mechanisms Pop-up or sliding cards. Children will design and make cards with a moving feature.</p> <p>Expressive Arts and Design Creating with Materials ELG</p> <ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. 	<p>Cooking and Nutrition Fruit and vegetable kebabs and rice cake faces</p> <p>Children will learn about healthy eating and then design and make their choice of fruit and vegetable kebabs or rice cake faces.</p> <p>Expressive Arts and Design Creating with Materials ELG</p> <ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.
YEAR 1	<p>Cooking and Nutrition Flapjacks</p> <p>Children will follow a recipe and combine ingredients to make flapjacks. They will:</p> <ul style="list-style-type: none"> know where food comes from work hygienically and safely mix ingredients with hands or a spoon use simple measuring aids (spoons, cups, scoops) prepare foods for cooking in an oven 	<p>Structures Desk Tidies</p> <p>Children will use various tools and resources to construct a desk tidy. They will:</p> <ul style="list-style-type: none"> choose and use a selection of materials for model-making (e.g. card, wood, tubes, cotton reels, straws) join components using glue or tape; know which is appropriate for the material use folding techniques to strengthen structures 	<p>Mechanisms Moving Pictures</p> <p>Children will design and make moving pictures using mechanisms such as levers and linkages. They will:</p> <ul style="list-style-type: none"> use a hole punch use paper fasteners assemble a lever to make a moving picture use levers and linkages to make a picture move make a sliding picture cut card with scissors following straight and curved lines



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<p>YEAR 2</p>	<p>Cooking and Nutrition Jollof Rice</p> <p>Children will learn how to follow a basic recipe to combine ingredients and make a stew for jollof rice which will be cooked in an oven.</p> <ul style="list-style-type: none"> • name familiar foods • know where food comes from • group familiar foods, e.g., as fruit or vegetables, and understand the need for a mixture of foods in a healthy diet • work hygienically and safely • cut, and peel foods using tools and hands • prepare foods for cooking in an oven 	<p>Textiles Paper plate sewing</p> <p>Children will use a template of their choice to mark onto a paper plate they will then use running stitch to sew the shape onto their plate decorating with fabric, and haberdashery.</p> <ul style="list-style-type: none"> • draw round a template and cut out fabric shapes • join fabrics with staples or glue • sew using running stitch • decorate fabrics with paints, pens and haberdashery (ribbons, buttons, sequins, etc.) 	<p>Structures Picture Frames</p> <p>Children will learn how to mark measure wood using a ruler and safely saw with a junior hacksaw to create a secure structure for a picture frame.</p> <ul style="list-style-type: none"> • join components using glue or tape; know which is appropriate for the material • cut wood with a hacksaw and bench hook • use sandpaper to smooth cut ends of wood • join wooden components with glue • watch an adult using a glue gun • use Jinks' corners to strengthen structures
<p>YEAR 3</p>	<p>Cooking and Nutrition Soup</p> <p>Children will taste a variety of vegetables and consider flavour combinations before designing and cooking their chosen variety of soup.</p> <ul style="list-style-type: none"> • know and understand the components of a balanced diet • make healthy choices for snacks • follow a simple recipe • cut, chop, peel and slice food safely and hygienically • mix ingredients with a spoon or whisk • combine food to make a tasty snack, taking flavour and texture into account • use a (soup) oven under close supervision 	<p>Structures Wooden trinket boxes</p> <p>Children will research different styles and materials of trinket boxes to inform their chosen designs. They will create wooden frames with card jinks and sides for strength.</p> <ul style="list-style-type: none"> • cut, score and fold card accurately • make stable frameworks using strengthening struts, Jinks' corners, etc. • cut wood with a hacksaw and bench hook to 10 mm accuracy • sand wood evenly to produce a smooth finish • use a glue gun with one-to-one supervision 	<p>Electrical Systems Motorised Fan Boats</p> <p>Building on their knowledge of simple circuits in science, children will attach a circuit with a motor with a fan on board their Styrofoam fan boat and test them to see if they will propel themselves over water.</p> <ul style="list-style-type: none"> • build a circuit with a bulb, battery and switch • make a simple switch with foil



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<p>YEAR 4</p>	<p>Mechanisms and Structures Egyptian Shadufs</p> <p>Children will learn about Egyptian engineering and make working models of shadufs which were hand operated devices for lifting water.</p> <ul style="list-style-type: none"> • use scissors and hole punch with some accuracy • use pulleys and levers to form a lifting system • cut wood with a hacksaw and bench hook to 10 mm accuracy • sand wood evenly to produce a smooth finish 	<p>Textiles Mini-travel bags</p> <p>Children will continue to practice running stitch and develop their skills in stitching with back stitch and oversewing to join fabric to make a usable bag for carrying small travel items.</p> <ul style="list-style-type: none"> • create a pattern (template) • understand how a prototype improves a design • join fabrics with running stitch, back stitch or oversewing • use simple fastenings, e.g., buttons and loops, Velcro 	<p>Electrical Systems Brush Monsters</p> <p>Continuing to refine their knowledge of circuits in science, children will attach a circuit with a motor to a dust pan and brush monster of their own design and race them on a flat surface.</p> <ul style="list-style-type: none"> • build a circuit with a bulb, battery and switch • make a simple switch with foil
<p>YEAR 5</p>	<p>Mechanisms London Landmarks- The London Eye</p> <p>Children will design and make a London landmark model. Children will be able to design and make a framework to hold mechanisms, and join materials with glue.</p> <ul style="list-style-type: none"> • cut accurate slots in card (using a craft knife and cutting mat under supervision or scissors) • use gears or pulleys to transfer movement from a motor to a model 	<p>Structures Antarctic Shelters</p> <p>Children will research different types of shelters and consider how best to assemble a shelter in the Antarctic before making wooden models of their designs.</p> <ul style="list-style-type: none"> • create nets for 3D shapes • measure and cut wood neatly to 1mm accuracy • sand wood to shape it for a purpose • use a hand drill to drill holes in wood • join materials with glue, nails or screws, as appropriate 	<p>Cooking and Nutrition Greek Food</p> <p>Children will learn how to blend ingredients to make pitta bread and tzatziki crudites and olives.</p> <ul style="list-style-type: none"> • taste a range of foods and develop a food vocabulary • know how some foods are grown, reared, caught or processed • prepare foods safely and hygienically
	<ul style="list-style-type: none"> • explain why small and large gears/pulleys are needed in a motorised model 	<ul style="list-style-type: none"> • use a glue gun under supervision • design and make strong frameworks to hold mechanisms 	<ul style="list-style-type: none"> • choose foods for a purpose (e.g., a snack, a cool drink, soup), showing awareness of the need for a balanced diet • choose foods which are in season and know where the food has come from or how it is grown • weigh ingredients using kitchen scales • cut, slice, peel and grate foods as appropriate • combine ingredients by kneading, beating and whisking • cook foods on a stove or in an oven as appropriate



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<p>YEAR 6</p>	<p>Textiles Freedom Quilts</p> <p>Children will learn about the history of freedom quilts through the text "Sweet Clara and the Freedom Quilt". They will then draw a map of a known journey to sew onto fabric.</p> <ul style="list-style-type: none"> name and know the properties of some common fabrics understand how fabric properties can affect the structure and appearance of a product cut fabrics accurately using pattern pieces pin and tack pieces before sewing use a seam allowance join fabrics using a variety of stitches decorate products appropriately at a suitable point in the construction of the product 	<p>Electrical Circuits and Mechanisms Motorised vehicles.</p> <p>Children will build a wooden chassis for their vehicles before attaching an electric circuit to make their buggies move.</p> <ul style="list-style-type: none"> use bulbs, buzzers, motors and switches effectively in models understand how to draw a circuit diagram build a switch for a particular purpose trouble-shoot a circuit which isn't working (dead battery, blown bulb, poor connections) measure and cut wood neatly to 1mm accuracy sand wood to shape it for a purpose join materials with glue, nails or screws, as appropriate use a glue gun under supervision design and make strong frameworks to hold mechanisms 	<p>Mechanisms and Structures Bridges</p> <p>Children will research different types of bridges and discover how the moving parts of a bridge work before designing and making their own.</p> <ul style="list-style-type: none"> cut accurate slots in card (using a craft knife and cutting mat under supervision) use gears or pulleys to transfer movement from a motor to a model explain why small and large gears/pulleys are needed in a motorised model measure and cut wood neatly to 1mm accuracy sand wood to shape it for a purpose join materials with glue, nails or screws, as appropriate use a glue gun under supervision design and make strong frameworks to hold mechanisms



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<p>YEAR 7 - KEY THEMES / CONCEPTS</p>	<p>Food Technology Hygiene, Health & Safety Understanding the food room, expectations and hygiene H&S (including 4 C's, knife handling and hazards). Apply and evidence principles through all practicals.</p>	<p>Product Design Research & Analysis Understand how to explore a given brief whilst using common researching techniques to develop an understanding of what Jewellery is and the different types of Roman Jewellery. To develop a secure understanding of the term ACCESSFM to create a product analysis.</p>	<p>Graphic/Product Design Research & Analysis Understand how to explore a given brief problem whilst using common researching techniques to develop an understanding of what shop signage is and the different types of Street Food Stalls. To develop a secure</p>
	<p>Principles of food and healthy eating Understand and apply the Eat Well Guide, 8 tips for healthy eating and portion size. Comparing and evaluating existing products, sensory analysis. Cook using appropriate equipment and skills then evaluate THREE dishes (two savory, one sweet).</p> <p>Provenance: Where fruits and veg come from and seasonality/price.</p> <p>Assessment Practical (assessed using assessment framework) + written (including two GCSE level questions)</p>	<p>Designing and making To generate a variety of imaginative and creative ideas using the influence of existing Jewellery. To create a design specification using prior knowledge on ACCESSFM. To understand the tools and processes used within design and technology.</p> <p>Assessment Mini practical assessment</p>	<p>understanding of the term ACCESSFM to create a product analysis.</p> <p>Designing and making To generate a variety of imaginative and creative ideas using the influence of existing Street Food. To create a design specification using prior knowledge on ACCESSFM. To understand the tools and processes used within design and technology for the manufacturing of models. To be able to design and make a Street Food sign</p> <p>Assessment Mini practical assessment</p>



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<p>YEAR 7 - KEY CONTENT/ LEARNING</p>	<p>Food and drink choices Understand why people make the dietary choices they make: religion, culture, allergies/intolerances, affordability, age (energy requirements), food availability. Reiterating the Eat Well Guide and 8 tips for healthy eating.</p> <p>Creative food preparation and healthy eating Planning and engaging in an iterative process of creating meals based on dietary requirements. Food product evaluations and redesigns. Plan, cook and evaluate THREE food products (two savory and one sweet)</p> <p>Provenance To explain where starchy carbohydrates come from and why they are important in</p>	<p>Researching materials To gain knowledge on a variety of materials and state their different properties. Introducing students to beveled edge, whilst understanding how to use different tools on acrylic.</p> <p>Making To explain and demonstrate what a template and Mould is and why it is used as a guide in design. Safely use a blow torch to cast pewter, understand the different machinery within the DT room. To understand what an advertisement is and how to construct one.</p> <p>Evaluation & Assessment To evaluate finished product and given a grade for the end result. Potential Extension task – Vacuum Moulding packaging</p>	<p>Researching materials and electronics To gain knowledge on a variety of materials and state their different properties. Introducing students to mitre jointing, whilst understanding how to use glue guns safely. What a circuit is and what components do in a control system.</p> <p>Making To demonstrate the ability to mark out accurately and work to a scale drawing. Safely cut glue and assemble parts for the Street Food Stall model. To understand and make own electronic circuit. Be able to assemble a piece of food packaging</p> <p>Evaluation & Assessment To evaluate finished product and given a grade for the end result.</p>
	<p>the diet. To explain where protein comes from and why it is needed in the diet.</p> <p>Assessment Practical (assessed using assessment framework) + written (including two GCSE level questions)</p>		



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**YEAR 8 -
KEY
THEMES /
CONCEPTS**

**Food Technology - Food4Fuel
Hygiene, Health & Safety**

Recall understanding the food room, expectations and hygiene H&S (including 4 C's, knife handling and hazards). Apply and evidence principles through all practicals.

Principles of food and healthy eating

Apply the Eat Well Guide, 8 tips for healthy eating and portion size. Comparing and evaluating existing products, sensory analysis.

Cook using appropriate equipment and skills then evaluate THREE dishes (two savory, one sweet). Understand how energy balance works and how food provides us with energy for bodily function.

Provenance:

Where our main sources of carbohydrates, proteins and fats come from. To understand the term 'staple food' and apply this to the understanding of cultural diets.

Assessment

Practical (assessed using assessment framework) + written (including two GCSE level questions)

**Product Design - Mechanical Pull-Toy
Research & Analysis**

To apply understanding of the design brief whilst exploring individual points from it. Recall understanding of ACCESSFM to create a detailed product analysis. Critically Analyse a chosen target audience. Produce accurate and detailed research to help influence design choices.

Designing & Making

Creating a variety of imaginative design ideas influenced by research and a chosen target audience. To expand on prior knowledge on colour and drawing techniques. To recap on how to use the coping saw.

Assessment

Formative Practical assessment

**CAD/CAM - clocks Introducing
CAD/CAM:**

Computer aided design and computer aided manufacture; how it is used and how it benefits the design industries. Thinking about new and emerging technologies and their benefits. Specifically looking at the laser cutter and how it works.

Design software:

Learning how to use TechSoftV2 which is an industry level software which enables designs to be realised and sent to the laser cutter to be cut and engraved. Pupils will learn about the different colours and thicknesses required to cut/engrave/raster on the laser cutter.

Research & Analysis

To apply understanding of the design brief whilst exploring individual points from it. Recall understanding of ACCESSFM to create a detailed product analysis. Critically Analyse a chosen target audience. Produce accurate and detailed research to help influence design choices.

Designing & Making

Creating a variety of imaginative design ideas influenced by research and a chosen

target audience. To expand on prior knowledge on colour and drawing techniques. To translate drawn designs onto TechSoftV2.



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<p>YEAR 8 - KEY CONTENT/LEARNING</p>	<p>Food Technology Hygiene, Health & Safety Recall understanding the food room, expectations and hygiene H&S (including 4 C's, knife handling and hazards). Apply and evidence principles through all practicals.</p> <p>Principles of food and healthy eating Apply the Eat Well Guide, 8 tips for healthy eating and portion size. Comparing and evaluating existing products, sensory analysis. Cook using appropriate equipment and skills then evaluate THREE dishes (two savory, one sweet). Understand how energy balance works and how food provides us with energy for bodily function.</p> <p>Provenance: Where our main sources of carbohydrates, proteins and fats come from. To understand the term 'staple food' and apply this to the understanding of cultural diets.</p> <p>Assessment Practical (assessed using assessment framework) + written (including two GCSE level questions)</p>	<p>Specialist Tools To gain confidence in using specialist tools and equipment including coping saw, pillar drill and any finishing techniques. To use knowledge in the development of the final mechanical device.</p> <p>Designing To create a variety of designs influenced by their users wants and needs. To recap on different types of branding, creating packaging and advertisements for the finished product. To acquire skills in sanding, painting, etching and other specialist skills.</p> <p>Self-evaluation and Assessment To evaluate and refine final product against the specification, taking into account any changes made throughout the project. Final grade given against end product and written assessment.</p>	<p>Specialist Tools To gain confidence in using specialist tools and equipment including TechSoftV2, the laser cutter.</p> <p>Designing & making To finish making the prototype clock, assembling all of the clock pieces once the laser cutter has cut and engraved. The clock should be fully functioning. Then analyse clock packaging and design a net of the clock packaging as a prototype if the clock were to be sold in a shop.</p> <p>Self-evaluation and Assessment To evaluate and refine final product against the specification, taking into account any changes made throughout the project. Final grade given against end product and written assessment.</p>
<p>YEAR 9 - KEY</p>	<p>Hygiene, health and safety focus.</p>		<p>Students will design and make a 3D product using either wood, metal or plastic. The project will include</p>



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THEMES / CONCEPTS

Students' knowledge, skills and understanding in relation to the preparation, cooking, presentation of food and application of nutrition, with a main focus of Hygiene, Health and Safety in the kitchen.

Over 2-3 lessons pupils will cook whilst applying hygiene and safety learning. Each lesson will have a main evaluative focus on H&S.

Theory

Food, nutrition and health and safety.

Week 1: To understand the food technology classroom; where equipment goes and how to store it so that the room remains safe. Understanding common H&S issues that arise in the food room and how to prevent them

Week 2: To understand good food hygiene and how bacteria grows. To learn and apply the 4C's of food hygiene (cleaning, cooking, chilling, crosscontamination)

Week 3: Apple crumble practical. To understand and apply hygiene rules whilst cooking with fruit and safety rules whilst using a sharp knife and a hot oven. Learning the 'rubbing-in' technique.

Week 4: Evaluation of hygiene and safety practice in the food room. Application of learning.

Week 5: Chicken Fajitas. To understand and apply hygiene rules whilst cooking poultry and safety

Students will design and make a prototype for a logo, bottle design and advertisement for a new soft drinks company. The project will include using freehand and pictorial sketches as well as 2D and 3D designs. Students will investigate famous artists and graphic designers to help them to design their own packaging and poster that could be used as part of a marketing campaign for a new drinks company that will sell soft drinks. Students will also go able to use CAD as part of the project when designing their drinks packaging and their poster. Students will make a life size prototype.

Pupils will:

- Produce a name of a new soft drinks company
- Design a logo for the company

Formative assessment of booklets/designs at week 3 and 5

Week 1: To understand the brief by using analysis skills, brainstorming, sketching. To understand what is meant by 'target market' and describe a typical customer for your brand.

Week 2: To understand colour theory and typeface uses. To apply colour theory and typeface meanings to logo designs.

Week 3: To understand iterative design. To be able to respond to feedback and develop initial ideas.

sketching and modelling to develop their product. Students will also be able to use CAD/CAM as part of the project as well as learning about the strip heater and vacuum former

Pupils will:

- Follow the design process to create a fully functioning prototype

Week 1: To understand the brief by using analysis skills and mind mapping
To understand what is meant by 'target market'

Week 2: To understand what a specification is and how it is used to develop design ideas

Week 3: To be able to respond to feedback selecting the best idea fully evaluated and presented to a high standard

Week 4: To be able to develop chosen idea through modelling in card. Produce an orthographic drawing and cutting list

Week 5: Know what an exploded view is and produce a parts list

Week 6: Making practical activities. Producing a sequence drawing

Week 7: Making practical activities. Producing a sequence drawing. Using 2D design to prepare for CAD/CAM



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rules whilst using a sharp knife, a grater and a frying pan/hob heat.



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	<p>Week 6: Homemade burgers. To understand and apply hygiene rules whilst cooking with egg and beef, and safety rules whilst using the grill.</p> <p>Week 7: End of unit test. (Hygiene and Health & Safety). 15 multiple choice questions, one 5 mark question and one 10 mark question. Total: 40 marks.</p>	<p>Week 4: To learn basic tools on photoshop and how to use them.</p> <p>Week 5: To use developed logo designs and apply understanding of photoshop. To be able to create an initial digital logo design.</p> <p>Week 6: To analyse packaging and understand what needs to be on a label.</p> <p>Week 7: To embed iterative design, responding to digital logo design feedback.</p>	
<p>YEAR 9 - KEY CONTENT/ LEARNING</p>	<p>Food Investigation: Students' understanding of the working characteristics, functional and chemical properties of ingredients.</p> <ul style="list-style-type: none"> • Different flours to make bread • How eggs coagulate and why • The active ingredients in a sponge cake. 	<p>Students will design and make a 3D product using either wood, metal or plastic. The project will include sketching and modelling to develop their product. Students will also be able to use CAD/CAM as part of the project as well as learning about the strip heater and vacuum former</p> <p>Pupils will:</p>	<p>Week 1: Making practical activities. Understand and demonstrate practical skills and use of a strip heater</p> <p>Week 2: Be able to design the mould for use with the Vacuum Former. Making practical activities.</p> <p>Week 3: Making various practical activities</p>



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Theory

Food Science

Week 1: Dough ball experiment. To investigate the best flour for bread making. Five different flours, one controlled method, five groups of 6 pupils, each group works with one flour type and each student makes 5 doughballs in their given flour type. 30 dough balls of each flour type produced (1 of each flour) to take home where pupils will carry out taste test.

- Follow the design process to create a fully functioning prototype

Week 1: To understand the brief by using analysis skills and mind mapping
To understand what is meant by 'target market'

Week 2: To understand what a specification is and how it is used to develop design ideas

Week 4: Be able to edge/surface finish and be able to apply a finish to final outcome

Week 5: Exam

Week 6: Be able to photograph and fully evaluate product against Design Brief and Specification

Week 7:

CCL – Science Starches in year 7 Spring 1 'Diet & Health'

Week 2: Experiment write up. Mimicking a NEA1 write up.

Week 3: To understand and explain the term coagulation. To carry out a coagulation experiment – a fried egg and a poached egg, analysing the differences when cooking.

CCL – Coagulation links with science, they teach it in Science year 7 term 2. They teach food tests in proteins and fats.

Week 4: Sponge cake practical. To understand the function of all of the ingredients in a sponge cake.

Week 3: To be able to respond to feedback selecting the best idea fully evaluated and presented to a high standard

Week 4: To be able to develop chosen idea through modelling in card. Produce an orthographic drawing and cutting list

Week 5: Know what an exploded view is and produce a parts list

Week 6: Making practical activities. Producing a sequence drawing



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	<p>Week 5: Written exam.</p> <p>Week 6: Peer review/feedback and consolidating learning.</p>	<p>Week 7: Making practical activities. Producing a sequence drawing. Using 2D design to prepare for CAD/CAM</p>	
<p>YEAR 10 - KEY THEMES / CONCEPTS</p>	<p>Desk tidy (core technical and designing and making principles)</p> <p>The contemporary home project (specialist technical and designing and making principles) Children’s learning and play project (core, specialist and design and making principles) Theory work will be covered weekly from Autumn term 2 and will cover the following topics:</p> <ul style="list-style-type: none"> • new and emerging technologies • energy generation and storage 	<p>Cultural, ethical and social influences when using material Six ‘Rs’ of sustainability to understand and apply ways of conserving the earth’s resources Iconic British and UK based designers and companies.</p> <p>How energy is generated and stored and how this is used as the basis for the selection of products and power systems The impact of new and emerging technologies</p> <p>on contemporary and potential future scenarios</p> <p>Developments in new and modern materials</p> <p>Ecological and social footprint</p>	<p>The design process Design Industry Research into designers and design companies ‘Live’ project briefs</p> <p>The final products will be assessed on its quality and finish as well as the evaluation and written analysis of the student.</p> <p>Three formal assessments will also be given to the students covering the pillars of skill and knowledge End of project assessments there will be an end of project mock covering the learning</p>
	<ul style="list-style-type: none"> • developments in new materials 		<p>pillars. These will be assessed using the examination specification.</p>



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- systems approach to designing
- mechanical devices
- materials and their working properties

YEAR 11 - KEY THEMES / CONCEPTS

Non-Examination Assessment (NEA)

- Substantial design and make task

Assessment criteria:

- Identifying and investigating design possibilities
- Producing a design brief and specification
- Generating design ideas
- Developing design ideas
- Realising design ideas
- Analysing & evaluating Exam revision

Covering the core technical, specialist technical and designing and making principles.

Identify, investigate and outline design possibilities to address needs and wants (AO1)

- Demonstrate and apply knowledge and understanding of working with timber, metal and textile-based materials (AO4)
- Demonstrate and apply knowledge and understanding designing and making principles. (AO4)
- Design and make prototypes that are fit for purpose. (AO2)
- Analyse and evaluate design decisions and outcomes, including for prototypes made by themselves and others (AO3)

Both Resistant Materials and Graphic Products GCSE subjects follow the AQA Design Technology Specification (8552). The GCSE classes will specialise within their lessons on either Timbers, Polymers and Metals (Resistant Materials) or Papers and Boards (Graphic Products). The subject content is split into three sections:

- Core technical principles (20%)
- Specialist technical principles (30%)
- Designing and making principles (50%)



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<p>YEAR 12 - KEY THEMES / CONCEPTS</p>	<p>Topic 1: Materials Topic 2: Performance characteristics of materials Topic 3: Processes and techniques Topic 4: Digital technologies Topic 5: Factors influencing the development of products Topic 6: Effects of technological developments Topic 7: Potential hazards and risk assessment Topic 8: Features of manufacturing industries Topic 9: Designing for maintenance and the cleaner environment Topic 10: Current legislation Topic 11: Information handling, Modelling and forward planning Topic 12: Further processes and techniques.</p>	<p>Timber based project Metal based project 3D printing project. Laser cutter-based project.</p>	
<p>YEAR 13 - KEY THEMES / CONCEPTS</p>	<p>Students individually and/or in consultation with a client/end user identify a problem and design context.</p> <ul style="list-style-type: none"> Students will develop a range of potential solutions which include the use of computer aided design and evidence of modelling. Students will be expected to make decisions about the designing and development of the prototype in conjunction with the opinions of the client/end user. Students will realise one potential solution through practical making activities with evidence of project management and plan for production. Students will incorporate issues related to sustainability and the impact their prototype may have on the environment 	<p>Part 1: Identifying and outlining possibilities for design Identification and investigation of a design possibility, investigation of client/end user needs, wants and values, research and production of a specification Part 2: Designing a prototype Design idea, development of design idea, final design solution, review of development and final design and communication of design ideas Part 3: Making a final prototype Design, manufacture and realisation of a final prototype, including tools and equipment and quality and accuracy Part 4: Evaluating own design and prototype Testing and evaluation</p> <p>Revision Exams</p>	



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	<ul style="list-style-type: none">• Students are expected to analyse and evaluate design decisions and outcomes for prototypes/products made by themselves and others• Students are expected to analyse and evaluate of wider issues in design technology, including social, moral, ethical and environmental impacts.		