

# *St Cuthbert Mayne School Curriculum Map 2023-2024*



## Department: Design & Technology

### Year 10

#### Key Stage 4 Curriculum Summary

#### Department Intent and overview

##### Design and Technology - KS4

- Design and Technology is an inspiring, rigorous, engaging and practical subject. Using creativity and imagination, students design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire and use a broad range of subject knowledge, skills, and understanding to

prepare them to live and work in the designed and made world. They incorporate knowledge and understanding of different materials and manufacturing processes in order to design and make, with confidence and demonstrate safe working practices. They learn how to take design risks, helping them to become resourceful, innovative and enterprising citizens, and develop the skills to critique and refine their own ideas whilst designing and making. They communicate their design ideas and decisions using different media and techniques and develop decision making skills, including the planning and organisation of time and resources when managing their work. They are encouraged to consider the costs, commercial viability and marketing of products. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. It provides opportunities for students to apply knowledge from other disciplines, including mathematics, science, art & design, computing & humanities. High quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

#### **Food Preparation, Cooking and Nutrition - KS4**

- Food preparation, cooking and nutrition is an inspiring, rigorous and engaging practical subject where students use a broad range of knowledge, skills, and understanding when buying, storing, preparing and cooking different ingredients to make healthy and nutritious dishes and meals. Students experience exciting and creative lessons which focus on practical cooking skills to ensure students develop a thorough understanding of Nutrition and health, Food science, Food safety, Food choice, Food provenance and the working characteristics of food materials/ingredients. The focus is on nurturing students' practical cookery skills and encourages them to demonstrate effective and safe cooking skills by planning, preparing and cooking using a variety of food commodities, cooking techniques and equipment. They acquire a knowledge and understanding of the relationship between diet, nutrition and health, including the physiological and psychological effects of poor diet and health and the economic, environmental, ethical, and socio-cultural influences on food availability, production processes, and diet and health choices. They demonstrate knowledge and understanding of functional and nutritional properties, sensory

qualities and microbiological food safety considerations when preparing, processing, storing, cooking and serving food. They are provided with the opportunity to understand and explore a range of ingredients and processes from different culinary traditions (traditional British and international), to inspire new ideas or modify existing recipes.

### **OCR Child Development - KS4**

- Child development is an inspiring, rigorous, engaging and informative subject where students learn the essential knowledge and understanding for Child Development, covering reproduction, parental responsibility, antenatal care, birth, postnatal checks, care, conditions for development, childhood illnesses and childhood safety. They gain knowledge of the equipment needs of babies and young children and an understanding of the factors to be considered when choosing appropriate equipment to meet all these needs. They acquire a knowledge and understanding of nutrition, hygiene practices and the opportunity to evaluate dietary choices. They are encouraged to gain knowledge of, and skills in, developing activities to observe developmental norms in children up to the age of five years old. They have the opportunity to research, plan, carry out activities with children and observe and review these activities, as well as an understanding of the development norms and benefits of play in child development.

### **Eduqas GCSE Design & Technology:**

- To prepare students to participate confidently and successfully in an increasingly technological world.
- To gain awareness & learn from wider influences in D&T including historical, social, cultural, environmental & economic factors.
- To work creatively when designing and making and applying technical and practical expertise.
- To understand and know core technical and designing and making principles, including a broad range of design processes, materials, techniques and equipment.
- To understand and know specialist technical principles in greater depth.

### **Eduqas GCSE Food Preparation and Nutrition:**

- To know and understand the topics of Nutrition, Health, Food Science, Food safety, Food choice and Food provenance
- To understand the working characteristics, functional and chemical properties of ingredients.
- To gain knowledge, skills and understanding in relation to the planning, preparation, cooking, presentation of food and application of nutrition when making food products and set menus.
- To develop the skills and knowledge to prepare, cook and present a final menu of dishes demonstrating technical skills and the safe and competent use of tools and equipment

### **OCR Cambridge Nationals Child Development:**

- To learn the essential knowledge and understanding for Child Development, covering reproduction, parental responsibility, antenatal care, birth, postnatal checks, care, conditions for development, childhood illnesses and childhood safety
- To gain knowledge of the equipment needs of babies and young children and an understanding of the factors to be considered when choosing appropriate equipment to meet all these needs.
- To gain knowledge of nutrition and hygiene practices and the opportunity to evaluate dietary choices.
- To gain knowledge of, and skills in, developing activities to observe developmental norms in children up to the age of five years old.
- To research, plan, carry out activities with children and observe and review these activities, as well as an understanding of the development norms and benefits of play in child development.

## Academic Year September 2023 - July 2024

### Autumn Term 2024

Topic/Unit	Eduqas GCSE Design & Technology	Eduqas GCSE Food Preparation & Nutrition	OCR Cambridge Nationals Child Development
<b>Knowledge (Content covered)</b>	<p>Robotics, automation &amp; production in industry Production techniques &amp; systems. Automation. Enterprise. Market pull &amp; technology push. People, society and culture. Sustainability &amp; the environment. Critical evaluation of new &amp; emerging technologies. Planned obsolescence. Design for maintenance. Ethics.</p> <p>Renewable &amp; non-renewable resources. Nuclear energy. Energy storage. Kinetic pumped storage systems</p> <p>Alkaline and rechargeable batteries. Systems. Types of motion. Functionality. Aesthetics. Environmental factors. Availability. Cost. Social factors. Ethical factors. Modern material. Smart materials. Composite materials. Technical textiles. Material properties. Wood, metals, plastics. 6'R's. Ecological issues in design &amp; manufacture. Properties of materials. Commercially available types &amp; sizes of materials. Manufacturing specification &amp;</p>	<p>Safety and hygiene, Hazard analysis, Risk assessment, PPE, Tools and equipment, Preparation and cooking processes, Practical skills, Recipes, Macronutrients, Micronutrients, Functions and Food sources of nutrients, Nutritional needs and health, Meal planning, Cooking of food Heat transfer including:</p> <p>Conduction Convection, Radiation, Microwave, Functional and chemical properties of food.</p> <p>Food spoilage, Contamination.</p> <p>Factors affecting food choice, British &amp; International cuisines, Sensory analysis &amp; evaluation</p>	<p>Factors affecting preconception health for women and men. Relationships, Finance, Parental age, Social/Peer expectations, Pre-conceptual health, diet, exercise, Contraception, Parental responsibility, Antenatal care, Birth, Postnatal checks, care, Conditions for development, Reproduction, male &amp; female reproduction system, Signs and symptoms of pregnancy.</p> <p>Antenatal care and birth, health professionals antenatal classes &amp; clinic, specialist diagnostic tests, stages of labour, pain relief, home/hospital birth. The role of the partner through pregnancy and birth.</p> <p>Postnatal checks, postnatal care and the conditions for development. Postnatal care of the mother and baby. The developmental needs of children from birth to five years. Childhood illnesses and a child safe environment. Signs and symptoms of illness in children. When to seek emergency help. Meeting the needs of the ill</p>

	working drawings. Tools, equipment & processes. Quality control. Health & safety, PPE, Hazard analysis, Risk assessment,		child. Ensuring a child-friendly safe environment. Hazards and preventing hazards. Safety labelling.
<b>Skills</b>	Designing, Sketching, Modelling, Drawing, Researching, Recording, Explaining, Investigating, Evaluating, Measuring, Sawing, Drilling, Soldering, Sanding	Researching, Recording, Planning, Explaining, Investigating, Analysing. Evaluating, Practical skills including: veg, meat, fish prep, boiling, grilling, baking, frying, knife skills, whisking, pastry, sauce & cake making,	Researching, Recording, Explaining, Investigating, Designing, Sketching, Considering factors/needs, Interviewing, Decision making, Assessing, Analysing, Comparing, Planning, Reviewing, Justifying, Evaluating
<b>Assessment</b>	Teacher assessment Self assessment Peer assessment Verbal assessment Testing 50% Coursework 50% Examination	Teacher assessment Self assessment Peer assessment Verbal assessment Testing End of unit assessment 50% Coursework 50% Examination	Teacher assessment Self assessment Peer assessment Verbal assessment Testing End of unit assessment Unit R057: Examination Unit R058 & R059: Coursework
<b>Gatsby 4 (Linking curriculum learning to careers)</b> <a href="#">GATSBY BENCHMARK 4</a>	Architect, CAD technician, CAD engineer, Design engineer, Illustrator, App developer, Games designer, Software engineer, Digital media, designer, Electronics engineer, Civil engineer, Electrician, Website designer,	Agricultural engineer, Hotel & Catering jobs, Chef/cook, Restaurant staff/manager, Nutritionist, Dietician Food technologist, Food scientist, Food production, Food journalist, Product developer, Microbiologist	Early years, reception & primary teacher, Nursery nurse, Nanny, Social worker, Learning support assistant, Family support worker, Child psychologist, SCBU & Children's nurse, Midwife, Health visitor, Family practitioner, Play therapist

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## Spring Term 2024

Topic/Unit	Eduqas GCSE Design & Tech	AQA GCSE Food Preparation and Nutrition	OCR Cambridge Nationals Child Development
<b>Knowledge (Content covered)</b>	Tools, equipment and processes. Quality control. How materials are cut, shaped and formed to a tolerance. The preparation and application of surface treatments and finishes. Types of forces and reinforcing materials. Manipulating materials to resist/work with forces. Investigate, analyse and evaluate the work of past and present designers/companies. Generating imaginative and creative designs. Using primary and secondary data to understand client and/or user needs.	Meal planning for different groups. Costing. Portion size. Children, teenagers, elderly. Lactose intolerance, allergies, coeliac disease, vegetarians. Reasons why food is cooked. Methods of cooking. Heat transfer - conduction, convection, radiation Changing properties of protein, fats and carbohydrates. Chemical and biological raising agents. Food spoilage. Microorganisms, high risk foods, Enzymes, moulds and yeast. Storing food safely. Freezing, refrigerating, ambient temperatures. Preparing food safely.	Create a safe environment and understand the nutritional needs of children from birth to five years. Reasons why accidents happen in a childcare setting. Types of childhood accidents. Planning to prevent accidents happening in a childcare setting. Essential equipment and factors for choice. Indoor and outdoor playing for babies and children from birth to five years. Factors affecting suitability and choice for babies and children from birth to five years.
<b>Skills</b>	Researching, Decision making. Recording, Explaining, Investigating, Drawing, Designing, Modelling, Measuring, Analysing, Evaluating,	Researching, Recording, Explaining, Investigating, Considering factors/needs, Analysing, Planning, Evaluating	Explaining, Investigating, Designing, Sketching, Considering factors/needs, Interviewing, Decision making, Assessing, Analysing,

	Market research, interviewing, Writing design briefs. Generating imaginative & creative designs. Writing design specifications. Isometric and perspective designs. Exploding diagrams. Using computer-based tools. Use of workshop tools and equipment: Pillar drills, coping saws, files, glass paper, polish, paint, sanding machine and disk sander. Laser cutting. Vinyl cutting. CAD/CAM skills.	Practical skills including veg, meat, fish prep, boiling, grilling, baking, frying, knife skills, whisking, pastry, sauce & cake making, Weighing & measuring. Using tools and equipment safely & hygienically.	Comparing, Planning, Reviewing, Justifying, Evaluating
<b>Assessment</b>	Baseline test Teacher assessment, Self assessment, Peer assessment Verbal assessment. Tracking progress. End of unit assessment 50% Coursework & 50% Exam	Baseline test Teacher assessment, Self assessment, Peer assessment Verbal assessment. Tracking progress. End of unit assessment 50% Coursework & 50% Exam	Baseline test Teacher assessment, Self assessment, Peer assessment Verbal assessment. Tracking progress. R057: Examination R058 & R059: Coursework
<b>Gatsby 4 (Linking curriculum learning to careers)</b> <a href="#">GATSBY BENCHMARK K4</a>	Architect, CAD technician, CAD engineer, Design engineer, Illustrator, App developer, Games designer, Software engineer, Digital media designer, Electronics engineer, Civil engineer, Electrician, Website designer	Agricultural engineer, Hotel & Catering jobs Chef/cook, Restaurant staff/manager, Nutritionist, Dietician Food technologist, Food scientist, Food production, Food journalist, Product developer, Microbiologist	Early years, reception, primary teacher, Nursery nurse, Learning support assistant, Learning mentor, Family support worker Health play specialist, Child psychologist, Children's nurse, Midwife, SCBU nurse, Health visitor Social worker, Family practitioner, Nanny, ChildMinder, Play therapist



## Summer Term 2024

Topic/Unit	Eduqas GCSE Design & Tech	AQA GCSE Food Preparation and Nutrition	OCR Cambridge Nationals Child Development
<b>Knowledge (Content covered)</b>	Materials selected based on functionality, cost & availability. Working accurately. Cutting, shaping & forming materials to tolerance. Planning the cutting of materials to minimise waste. Using measuring & marking out to create an accurate & quality prototype. Drawing, modelling & photography techniques. Design process & meeting the needs of a target group. Card & paper models. Selection of correct hand tools & machinery. Safe use of tools. Selection & use of specialist techniques (used to shape, fabricate, construct). Preparing and applying material for a surface finish. How materials can be altered to change their properties. Scales of production. Commercial processes. Safety & hazard analysis. CAD/CAM PPE and safe working practice.	Meal planning for different groups. Costing. Portion size. Children, teenagers, elderly. Lactose intolerance, allergies, coeliac disease, vegetarians. Reasons why food is cooked. Methods of cooking. Heat transfer - conduction, convection, radiation.	Nutritional needs of children from birth to five years. The nutritional guidelines and requirements for children from birth to five years. Current government guidelines. The Eatwell Guide. Essential macronutrients and micronutrients and their function in the body and food sources. Breastfeeding and bottle feeding and weaning. Nutritional analysis. Hygiene practices. Planning balanced diets.
<b>Skills</b>	Researching, Analysing, Decision making. Recording, Explaining, Investigating, Drawing, Modelling, Photography, Measuring, Evaluating, Designing. Graphics. Card modelling. Laser cutting. Vinyl cutting	Researching, Recording, Explaining, Investigating, Considering factors/needs, Analysing, Planning, Evaluating Practical skills including veg, meat, fish prep, boiling, grilling, baking, frying, knife skills, whisking, pastry, sauce & cake making, Weighing & measuring. Using tools and equipment safely & hygienically.	Explaining, Investigating, Designing, Sketching, Considering factors/needs, Interviewing, Decision making, Assessing, Analysing, Comparing, Planning, Reviewing, Justifying, Evaluating

<b>Assessment</b>	Baseline test Teacher assessment, Self assessment, Peer assessment Verbal assessment. Tracking progress. 50% Coursework 50% Examination questions.	Baseline test Teacher assessment, Self assessment, Peer assessment Verbal assessment. Tracking progress. End of unit assessment 50% Coursework 50% Examination questions.	Baseline test Teacher assessment, Self assessment, Peer assessment Verbal assessment. Tracking progress. R057 Examination R058: Coursework
<b>Gatsby 4 (Linking curriculum learning to careers)</b> <a href="#">GATSBY BENCHMARK 4</a>	Architect, CAD technician, CAD engineer, Design engineer, Illustrator, App developer, Games designer, Software engineer, Digital media designer, Electronics engineer, Civil engineer, Electrician, Website designer	Hotel & Catering jobs, Chef/cook, Restaurant staff/manager, Nutritionist, Dietician Food technologist, Food scientist, Food production, Food journalist, Product developer, Microbiologist	Early years, reception & primary teacher, Nursery nurse, SEND teacher, Learning support assistant, Learning mentor, Family support worker, Health & play specialist/therapist, Child psychologist, SCBU & Children's nurse, Midwife, Health visitor Social worker, Family practitioner, Nanny, ChildMinder,