

# Technology Department: KS4 Long Term Plan



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## Vision

Technology is developing rapidly around the world, our aims are to encourage all our students to participate, discover and engage with this new world of technological advancement through independent learning, innovative and creative thinking. This will enable them to have astute opinions to develop a product concept from visualisation to prototype with a solution driven mindset. At Eastlea Community School, Design and Technology is an inspiring, fun, rigorous and practical subject. We are passionate about developing and encouraging creativity, teamwork, determination and resilience in all our students. Also, the world is becoming more aware and in tune with the importance of healthy eating. To achieve this, we aim to encourage and equip our students with knowledge, skills and understanding of effective application of nutrition knowledge to develop and contribute to human health, well-being and the prevention of disease.

## Teaching and Learning

The philosophy of our teaching and learning is based on the belief that all students should be risk takers and problem solvers. We are passionate about the use of new technologies such as 3D printers, Laser cutters, Programmable devices, IoT technology, and Robotics. The D.T. & F.N. subjects consist of researching, designing, creating, making and evaluating.

## Reading

### Catering/ Food Preparation and Nutrition:

Textbook: Wjec Eduqas GCSE Food Preparation and Nutrition.  
Etextbook of Wjec Eduqas GCSE Food Preparation and Nutrition.

## **Design and Technology**

Textbook: Wjec Educas (9 – 1) Design and Technology  
E-textbook of Wjec Wducas GCSE (9 – 1) Design and Technology.

## **Writing**

Students will study using the above named text books. They will also keep a 'theory' based workbook: where they will write down notes, stick in assignments and complete all set tasks. The purpose of this book would be for the students to show their understanding of the required knowledge as revision for their exam and what they need to apply within their coursework.

## **Design and Making D.T.**

Core knowledge and understanding that learners are required to develop and apply is presented in ten clear topic areas:

- Understanding design and technology practice
- Understanding user needs
- Writing a design brief and specifications
- Investigating challenges
- Developing ideas
- Investigating the work of others
- Using design strategies
- Communicating ideas
- Developing a prototype
- Making decisions

## **Design and Making Food and Nutrition**

- Core knowledge and understanding that learners are required to develop and apply is presented within these areas:
- Food commodities

- Macronutrients and Micronutrients
- Energy requirements of Individuals
- Calculate energy and nutritional values of recipes, meals and diets
- Plan balance diets
- The effect of cooking on food and food choice
- Food spoilage and Provenance
- Food manufacturing
- Preparation and cooking techniques
- Developing recipes and Meals

**Enrichment Programme:**

- Educational Visits.
- Clubs: Healthy Eating & Cooking Club
- 3D Designing/Modelling Club
- Fashion Designing Club
- Study Club

**Learning Resources:**

**Recommended Internet Sites to help students achieve:**

How stuff works

[www.howstuffworks.com](http://www.howstuffworks.com)

Design and Tech. online

[www.dtonline.org](http://www.dtonline.org)

Design and Technology. On the web

[www.design-technology.info](http://www.design-technology.info)

Technology Student

[www.technologystudents.com](http://www.technologystudents.com)

Mr D & T

[www.mrdnt](http://www.mrdnt)

Design and Technology Association

<https://www.data.org.uk/>

BBC GCSE Revision

<http://www.bbc.co.uk/schools/gcsebitesize/design/>

V&A Museum

<http://www.vam.ac.uk/>

Designers guide to manufacturing

<http://www.designinsite.dk/>

Sustainability navigator

<http://www.bsigroup.com/en-GB/Sustainability-Standards-Navigator/>

University of Cambridge D&T resources

<http://www-materials.eng.cam.ac.uk/mpsite/default.html>

Food and Nutrition

<https://www.wjec.co.uk/home/student-support/past-papers/>

<https://www.bbc.co.uk/bitesize/subjects/zm6wfg8>

<https://illuminate.digital/eduqasfood/>

## Design and Technology Programme of Study

Year 10 Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Impact of new and emerging technologies</p> <p>Sustainability - 6Rs of sustainability</p> <p>Generation of Energy Understanding</p> <p>Materials - modern, smart, composite and technical textiles</p>	<p>Contextual NEA Project Investigation &amp; <b>Research Section:</b></p> <p>Understanding iterative process, contexts, users and purposes</p> <p><b>Designing Section:</b></p> <p>Generating, Developing, modelling and communicating ideas.</p> <p><b>Making Section:</b> Planning. Making Section: Practical Skills and Techniques Evaluating Section: Evaluating own ideas and Products.</p>	<p>Electronic Systems Programmable microcontroller and customisation of operations.</p> <p>Mechanical devices, motion and forces Paper and Boards</p>	<p>Contextual NEA Project Investigation &amp; Research Section:</p> <p>Understanding iterative process, contexts, users and purposes</p> <p><b>Designing Section:</b> Generating, Developing, modelling and communicating ideas.</p> <p><b>Making Section:</b> Planning. Making Section: Practical Skills and Techniques Evaluating Section: Evaluating own ideas and Products.</p>	<p>Natural &amp; Manufactured Timber</p> <p>Ferrous and Non-Ferrous Metals</p> <p>Thermoforming and Thermosetting Polymers</p>	<p>Natural, synthetic, blended and mixed fibres, and woven, non-woven and knitted textiles</p> <p>GCSE Contextual NEA Project starts: Investigation &amp; Research Section:</p> <p>Understanding iterative process, contexts, users and purposes</p>
Assessment	Assessment		Assessment		

<b>Year 11 Autumn1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<p>GCSE Contextual NEA Project continue:</p> <p>Investigation &amp; Research strategies Statistical analysis</p> <p>Presentation Context: analysis of context, target market, users' needs, generation of research questions</p> <p>Design specification.</p> <p>Structural and statistical calculations</p> <p>Motions, Forces, levers, gears, simple machines and mechanical devices and calculations.</p>	<p>Design Strategies and applications</p> <p>Design presentation and sketching techniques and enhancement.</p> <p>Design enhancement, dimensioning and annotation</p> <p>Modelling materials, properties and applications</p> <p>Modelling techniques and joining of modelling materials</p> <p>Electrical systems, circuit, components, devices.</p>	<p>Fibres and textiles applications.</p> <p>Paper and Board application &amp; finishing.</p> <p>Smart &amp; Modern Materials applications Mix</p> <p>Materials &amp; composite materials</p> <p>Applications</p> <p>Metals and Polymers applications</p> <p>Wood and Timber Prototyping Evaluation and further improvement.</p>	<p>CAD/CAM Applications</p> <p>Manufacturing methods, quality control and assurance</p> <p>Reflection, evaluation of finished product and improvement, suggestion for improvements.</p> <p>Calculations of surface areas and volumes.</p> <p>Calculate surface area and volume e.g. determining quantities of materials</p> <p>Decimal, standard form, ratio, fraction and scaling drawings.</p> <p>Prefixes</p>	<p>Conversion of 2D to 3D and 3D to 2D.</p> <p>Tessellation and visualisation.</p> <p>Geometry and Trigonometry.</p> <p>Oxidation and Corrosion.</p> <p>Energy sources and application.</p> <p>Analysis of professionals and companies</p>	<p>GCSE Revision &amp; Exam preparation</p>

<p>Programmable devices and applications.</p>	<p>Design communication.</p> <p>Considering context - spiritual, moral, ethical, cultural and social aspects of users' lives.</p> <p>Prototyping Evaluation and further improvement. Finishing.</p>	<p>Considering context - spiritual, moral, ethical, cultural and social aspects of users' lives among others stated in the specification.</p>	<p>Powers of Ten, quantitation and measurements.</p> <p>Sustainability and life cycle analysis.</p>		
<b>Assessment:</b>		<b>Assessment:</b>		<b>Assessment:</b>	
<p>Mock Exam 1: Exam paper Section A (75%)</p>	<p>Mock Exam 2: Exam paper – Sections A &amp; B (50%) + NEA Practice Tasks (50%).</p>		<p>Mock Exam 3: Exam paper – Sections A &amp; B (50%) + NEA Practice Tasks (50%).</p>	<p>GCSE Exam Starts</p>	

**KS4 Food Preparation and Nutrition Programme of Study**

<b>Food Preparation and Nutrition Year 10</b> Autumn1	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
Understanding Analysis Critical Control Point (H.A.C.C.P.)  Food Preservation  Cooking methods  Food and preparation	The science of food  Cultures and cuisines  Food provenance  Food waste and presentation skills.	Commodities  Practical skills  Food Spoilage  Cooking skills and Techniques  Pasta & theory  Pastry  Meat  Offal	Principles of nutrition  Commodities in depth  Basic mixtures and recipes: cakes, pastries biscuits, butter Sauce	Cultures & Cuisines  Factors affecting food choice.  Multi- cultural cuisine  The science of cooking  Commodities: Practical Fruit and vegetables  Diet and Health  Technology Developments	Mock NEA1 Project  Characteristics and functional properties  Whole task analysis  Summary research  Research Methods  Hypothesis  Plan of Action  Analysis  EVALUATION
<b>Assessment</b>		<b>Assessment</b>		<b>Assessment</b>	



<b>Food Preparation and Nutrition Year 11</b> Autumn1	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Start C.A. NEA1</b> Hypothesis Plan of Action Analysis of task Whole task analysis Summary research Research method	Hypothesis Plan of Action <b>C.A. NEA1 Practical Exam</b> EVALUATION Complete gaps	<b>Start NEA2</b> Analysis of task Brainstorm Plan of action Research Moodboard Questionnaire	Research Methods Analysis Strengths <b>Trials</b> Evaluations Justification Reasons for choice  Planning & Dovetailing <b>C. A. NEA2 practical Exam</b>	Evaluation Triangle testing Analysis Costing/nutrition Complete all gaps	Exam Revision Interventions
<b>Assessment: Mock 1</b>		<b>Assessment: Mock 2 &amp; 3</b>		<b>Assessment: GCSE Examination</b>	

