THE EARLS HIGH SCHOOL

EXCELLENCE | CARE | PARTNERSHIP

KS3 Curriculum overview: Design & Technology

Why doe we study Design & Technology at The Earls High School?

The purpose of studying DT is to give students the opportunity to experience creative problem solving through a range of media including fabrics, wood, metal, plastics and graphic materials.

Also to develop the ability to communicate ideas and intentions visually and verbally.

What skills and knowledge do we anticipate students will have in this subject before they begin at The Earls High School?

We would expect students to have learned the following at KS2.

- To be able to use a pair of scissors
- To be able to identify basic equipment e.g. needle, pin etc…
- Have the ability to use basic graphic equipment e.g. pencil, pencil crayons, ruler etc…
- To be able to measure accurately in *cm* and *mm*
- To be able to cut materials accurately using basic equipment
- To be able to make basic evaluations of their work and the work of others
- To have the ability to design using a computer

What skills and knowledge would we like students to have in this subject at the end of their time at The Earls High School?

Core knowledge and skills based on wood, metal, plastic, fabrics and graphic media, these will include

- Properties of a range of materials
- SMART materials
- Mechanisms, forces and motion
- Environmental impact
- Scales of production
- The role of people in DT

Specialist technical principles including, tools, equipment and processes.
The ability to select an appropriate context and work independently on a chosen project.
Design and make a product that meets the needs of a user (client)

Year 7, 8 and 9 Curriculum Map: Engineering Design

Year 7	Year 8	Year 9
Task: LED key light and packaging To learn about: • 2 D drawing skills and presentation. • Annotating to aid design communication. • Using 2D design software. • The process of laser cutting. • The process of vacuum forming. • Health and safety in the workshop. • Packaging and marketing. • Existing product research to aid designing. Main home learning tasks: Students will be given three online multiple-choice quizzes. For task 2&3, students will be given a PDF file that they will have to read independently before completing the quizzes Task 1 – General D&T Task 2 – Plastic manufacturing techniques Task 3 – Design movements Key assessment: Skills and knowledge, designing, practical outcome and home learning. Assessment conditions: Designing, practical piece and home learning.	Task: Drawing techniques, design presentation and CAD To learn about: • Oblique drawing. • Isometric drawing. • One-point perspective. • Orthographic drawing • Rendering techniques. • Design presentation techniques • Using 3D design software • Evaluating. Main home learning tasks: Students will be given three online multiple-choice quizzes. They will be given a PDF file that they will have to read independently before completing the quizzes Task 1 – Modern, smart, and composite materials Task 2 – Properties of materials Task 3 – Renewable energy Key assessment: Skills and knowledge, drawing and presentation, computer aided design outcome and home learning. Assessment conditions: Drawing techniques, design presentation, computer generated models and home learning.	Task: Designing: Drawing techniques and CAD Practical: Watch/bracelet stand To learn about: • 2D/3D freehand sketching techniques. • Orthographic drawing • Health and safety in the workshop. • Line bending • The use of templates. • The use of formers and jigs • Project planning for time utilisation. • Testing and evaluating a product. Main home learning tasks: Students will be given three online multiple-choice quizzes. They will be given a PDF file that they will have to read independently before completing the quizzes Task 1 – Sources and origins materials Task 2 – Scales of production Task 3 – Metal manufacturing processes Key assessment: Skills and knowledge, designing, practical outcome and home learning. Assessment conditions: Designing, practical piece and home learning.

Year 7, 8 and 9 Curriculum Map: Resistant Materials

Year 7	Year 8	Year 9
TASK A company has asked you to design and make a storage box using a mixture of materials using a range of techniques and processes, including CAD/CAM. To learn about: • Classifications of materials (timbers, metals and polymers) • Environmental impacts • Health and safety • Tools, equipment and machinery • Practical skills and knowledge required to make a small storage box • The use of CAD/CAM • Various design-based activities: (3D shading, rendering materials, final design, production diary & evaluations) Main home learning tasks: Three online tests with a mixture of multiple choice and short answer responses. Task 1 -Health & safety Task 2 -Materials Task 3 -Tools, equipment, materials & machinery Key assessment: • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Design folder, practical piece and home learning	TASK A company called 'Camtastic' has asked you to develop to humorous mechanical toy to their range and based on the theme of 'Wonderful creatures'. To learn about: • Mechanisms and motions theory and examples • Design development and Evaluation • Using templates in manufacture • Tools, equipment and machinery • Practical skills and knowledge required to make a mechanical toy • Various design-based activities: (Design ideas, annotation, final design, production storyboard & evaluations) Main home learning tasks: Three online tests with a mixture of multiple choice and short answer responses. Task 1 -Types of motion Task 2 -Mechanisms Task 3 - Tools, equipment, materials & machinery Key assessment: • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Design folder, practical piece and home learning	TASK You will explore possibilities before creating a design brief for a smartphone docking station with a passive speaker. To learn about: • Drawing techniques (isometric, rendering and annotation) • Key aspects of the design and make process • Using jigs in manufacture • Tools, equipment and machinery • Practical skills and knowledge required to make a smart phone docking station • The use of CAD/CAM • Various design-based activities: (Design ideas, annotation, final design, production plan, product testing & evaluations) Main home learning tasks: Three online tests with a mixture of multiple choice and short answer responses. Task 1 -Modern materials Task 2 -Smart materials Task 3 - Tools, equipment, materials & machinery Key assessment: • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Design folder, practical piece and home learning

Year 7, 8 and 9 Curriculum Map: Textiles

Year 7	Year 8	Year 9
TASK: A company has asked you to design and make a bird/bug using a mixture of fabrics and a range of techniques and processes To learn about: • Meaning of 'textiles' and use in everyday life. • How to modify and manipulate designs. • Tools, equipment and machinery. • Developing design ideas. • Practical skills and knowledge required to make a 3Dimensional bird/bug • Safe working practices in a practical lesson. • Analysis and evaluations – use of language. Main home learning tasks: • Zentangle patterns • Textiles in the Home • Fact file – Clare Youngs Key assessment: • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Design folder, practical piece and home learning.	Task: A company has asked you to design and make a 3Dimensional creative fungi using a mixture of fabrics and a range of processes and techniques To learn about: • The range of fungi, its shapes, patterns and colours • How to compose creative and original design ideas. • How to effectively develop design ideas • How to needle felt and create 3Dimensional pieces • Safe working practices in a practical lesson • Peer and self-evaluations of existing work. Main home learning tasks: • Fungi Research • Mythical Fungi Creature • Mr Finch – Fact file Key assessment: • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Design folder, practical piece and home learning.	Task: Project 1 – Repeat pattern Project 2 – Maurizio Anzeri To learn about: Project 1 * The use of repeat pattern in everyday life. • How to print by hand • Safe working practices in a practical lesson. Project 2 • Using emotions and their links to colour to create design ideas • Analysis of an artist's work Main home learning tasks: Project 1 • Repeat pattern examples Project 2 • Maurizio Anzeri – Fact file • Analysis and evaluation of Anzeri's work Key assessment: Project 1 • Skills and knowledge • Making Project 2 • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Design folder, practical pieces and home learning.

Year 7, 8 and 9 Curriculum Map: Food and Nutrition

Year 7	Year 8	Year 9
To learn about: Hygiene, safety, equipment, scientific principles, basic nutrition and healthy eating, consequences of a poor diet, food waste, food miles and provenance practical skills and knowledge required to make Fruit Salad, pasta salad, Scones, sausage rolls/Danish swirls and quesadilla. Main home learning tasks: Research: commodity exotic fruit Evaluation: Scones Test: all topics- on line quiz Key assessment: Scones and quesadilla and quiz Assessment conditions: Knowledge and skills, practical work and home learning.	To learn about: Healthy eating and nutrition, safe food storage, allergens, international cuisines/religious influence, heat transfer, food labelling, scientific principles, practical skills and knowledge required to make pineapple upside down cake, lasagne, pizza, stir fry and pancakes. Main home learning tasks: Research: commodity meat Evaluation: lasagne Test: all topics- on line quiz Key assessment: Lasagne and pizza and quiz Assessment conditions: Knowledge and skills, practical work and home learning.	To learn about: High/low risk foods, planning experiments, sensory types, sugar experiments in cakes, seasonality, Eatwell guide recap/nutrition, the environment and food, scientific principles, functions of ingredients, practical skills and knowledge required to make jam tarts, iced buns, Swiss Roll, Goujons with Potato Wedges and mac n cheese. Main home learning tasks: Research: Commodity: Sugar Evaluation: Swiss roll Test: all topics- on line quiz Key assessment: Jam tarts, iced buns, swiss roll and goujons and wedges and quiz Assessment conditions: Knowledge and skills, practical work and home learning.

Year 7, 8 and 9 Curriculum Map: Graphics

Year 7
TASK: An ice lolly company called 'Icicle' are developing a new tetrahedron shaped ice lolly called 'Tropical Tang'. Your designs should include cartoon characters and consideration must be given to the colours used. To learn about: • Development of colour skills • Typography • Designing characters and logo's • Developing Design ideas • 3Dimensional paper construction Main home learning tasks: • Mood board • Product analysis Key assessment: • Skills and knowledge • Designing • Making • Home learning Tasks Assessment conditions: Knowledge and skills, practical work and home learning.