



Long Term Plan

DT

KS3 (Year 7,8 and 9)

Rosaria Dell'Uomo d'Arme
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Subject intent/vision:

The Design and Technology Department is committed to deliver a curriculum that offers the broadest possible range of opportunities for our students. We are passionate about developing and encouraging creativity, teamwork, determination and resilience in all our students. We encourage students to be curious about the 'make' and 'functionality' of products, so they can develop an understanding of technological processes, products, manufacturers, and their contribution to our society. We want our students to be problem solvers who take creative risks. Students learn by 'doing' and they should be able to experiment and have multiple opportunities to design and make innovative products that solve real and relevant problems, within a variety of contexts.

At KS3, students study Design and Technology for one hour each week and at KS4 students study the subject for three hours each week. KS3 students follow a 10-week rotation of each of the four specialist subjects (Product Design, Resistant Materials, and Food Technology). This provides them with a strong foundation and the ability to make informed choices regarding further study at KS4 and beyond. Our DT KS3 curriculum is based on a variety of creative and practical activities where pupils will be taught the knowledge, understanding and foundation skills needed to engage in an iterative process of designing -make-evaluate- technical knowledge.

Enrichment:

We are offering weekly KS3 DT clubs in product Design and Electronics

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To enable all students to achieve, our subject curriculum is underpinned by the following principles:



Ambitious - *The art curriculum is planned backward ensuring a deep and purposeful sequence of activities for a wider knowledge, instead of narrow learning episodes.*



Sequenced / Spiral – *Key learning (and practical skills) is repeated throughout the curriculum for equal access, regardless of the students starting point during the academic year.*



Literacy - *Key learning is embedded through contextual studies, giving students a chance to think and write critically about responses or personal outcomes. Students also write about the process and materials relevant to their project.*



Cultural Capital – *The department is committed to expose students to a range of artists and designers throughout the curriculum and gallery visits and is working towards building a relationship with local creative people and institutions to organise visits and workshops.*

Long term plan:

KS3

Y7 Project 1 Electronics (Autumn Term)

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Exploration of the theme and developing design ideas a) Context & Design Brief Introduction - Introduce the project context and key design vocabulary using the 5Ws framework (<i>Who, What, Where, When, Why</i>). - Intro to the design brief to identify target user needs, client profile b) Product Analysis - Evaluate existing market products to analyze materials, aesthetics, functionality, ergonomics, and manufacturing methods. c) Design Idea Generation - Apply creative thinking techniques to develop a broad range of initial design concepts and sketches responsive to the brief. d) Introduction to Electronics & Circuit Building - Introduce core electronic components, standard schematic symbols, and basic circuit theory. - Engage in hands-on prototyping and testing of basic functional electronic circuits.	Make and Evaluate a) Skill Application & Tool Introduction - Introduce foundational workshop processes, safe working practices, and tool usage: Measuring & Marking: Precision layout, accuracy, and understanding tolerances. Drilling: Machine safety, hole positioning, bit selection, and workholding/clamping. Soldering: Thermal joining techniques, component preparation, and joint quality. - Provide structured practical tasks for students to develop, practice, and refine these core skills in the workshop. b) Product Assembly - Combine individual fabrication skills to sequence, align, and assemble components into a complete, functional product. c) Product Evaluation - Test the final product against functional requirements and brief specifications.
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y7 Project 2 Wooden car (Spring term)

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Exploration of the theme and developing design ideas a) Context & Design Brief Introduction - Introduce the project context and key design vocabulary using the 5Ws framework (<i>Who, What, Where, When, Why</i>). - Intro to the design brief to identify target user needs, client profile b) Product Analysis - Evaluate existing market products to analyze materials, aesthetics, functionality, ergonomics, and manufacturing methods. c) Design Idea Generation - Plan, shape, and build a functional wooden car from initial ideas through to the final model.	Make and Evaluate a) Skill Application & Tool Introduction Timbers: Learn the differences between hardwoods and softwoods and select the best timber for the build. Aerodynamics: Explore basic drag, friction, and streamlining to design an efficient car body shape. Hand Tools: Practice safe techniques using coping saws, rasps, files, and chisels to shape and smooth the wood. Machine Tools: Learn safe setup and operation of machinery such as scroll saws, pillar drills, and sanders. b) Product Evaluation Test the final product against functional requirements and brief specifications.
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y7 Food - Healthy Eating (Summer term)

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Introduction to H&S in a food classroom and to healthy eating • Intro to health and Safety rules in a food technology classroom • Intro to Tools and equipment used in Food Technology • Intro to cutting techniques • Eatwell plate and food groups and nutrients • Measuring Ingredients • Fruit salad (Practical)	Cooking techniques and design a recipe ○ Evaluation of Fruit salad ○ Apple Crumble - Rubbing in method ○ Apple Crumble Evaluation ○ Design a healthy breakfast ○ Rock buns- Practical ○ Evaluation
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y8 Resistant Materials-Mechanical Toy (Autumn term)

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Exploration of the theme and developing design ideas a) Context & Design Brief Introduction - Introduce the project context and key design vocabulary using the 5Ws framework (<i>Who, What, Where, When, Why</i>). - Intro to the design brief to identify target user needs, client profile b) Life cycle analysis (LCA) c) Design Idea Generation Design & Make: Plan, design, and build a functional mechanical toy from initial concept through to final assembly. Motions & Movement: Learn the four main types of motion (rotary, linear, oscillating, reciprocating) and how to convert movement from one type to another.	Make and Evaluate a) Skill Application & Tool Introduction Introduce foundational workshop processes, safe working practices, and tool usage across the following areas: Cams, Gears, Pulleys & Levers: Explore how mechanical components work to change force, direction, and speed within a mechanism. Timbers: Select suitable timber and manufactured boards based on their structural properties and working characteristics. Hand Tools: Use hand tools safely to cut, shape, and join mechanical parts with accurate tolerances. Machine Tools: Set up and safely operate workshop machinery—such as pillar drills, scroll saws, and sanders—to manufacture precise components. Provide structured practical tasks for students to develop, practice, and refine these core skills through hands-on workshop activities. c) Product Evaluation - Test the final product against functional requirements and brief specifications.
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y8 Resistant materials-Pencil Box (Spring term)

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Exploration of the theme and developing design ideas a) Context & Design Brief Introduction - Introduce the project context and key design vocabulary using the 5Ws framework (<i>Who, What, Where, When, Why</i>). - Intro to the design brief to identify target user needs, client profile b) Life cycle analysis (LCA) c) Design Idea Generation - Apply creative thinking techniques to develop a broad range of initial design concepts and sketches responsive to the brief. d) Introduction to Timbers - Sources, origins and properties of hardwoods and softwoods and manufactured boards with a focus on Plywood.	Make and Evaluate a) Skill Application & Tool Introduction Introduce foundational workshop processes, safe working practices, and tool usage across the following areas: Measuring & Marking: Precision layout, accuracy, datum points, and understanding manufacturing tolerances. Wooden Joints: Introduction to timber joining techniques, marking out joint profiles, and hand-tool fabrication. Coping Saw: Safe handling, blade tensioning, and executing controlled curved cuts and intricate shapes. Intro to 2D Design (CAD): Basic vector drawing techniques, layout tools, and preparing files for digital fabrication. Adhesives & Joining: Selecting appropriate adhesives, clamping methods, and mechanical/permanent fixing techniques. Provide structured practical tasks for students to develop, practice, and refine these core skills through hands-on workshop activities. b) Product Assembly - Combine individual fabrication skills to sequence, align, and assemble components into a complete, functional product. c) Product Evaluation - Test the final product against functional requirements and brief specifications.
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y8 Food - Cake Mixing Methods

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Introduction to H&S in a food classroom and to healthy eating WEEK 1 Intro to health and Safety rules in a food technology classroom WEEK 2 Intro to Creaming method (cupcakes) WEEK 3 Evaluation Skills & Sensory Analysis • How to evaluate texture, appearance, flavour • Introduction to star diagrams and sensory vocab WEEK 4 Intro to Rubbing - in method (Rock cakes) WEEK 5 Intro to the All-in-One method (Victoria Sponge) WEEK 6 Packaging and Labelling • How cakes are packaged commercially • Design considerations (branding, nutrition info)	Cooking techniques and design a recipe WEEK 7 Intro to the Whisking method' (Swiss Roll) WEEK 8 Theory- Cross Contamination WEEK 9 Chocolate Marble Cake (Practical) WEEK 10 : Evaluation & Peer Feedback • Use evaluation sheets, peer assess cakes • How to improve outcomes next time WEEK 11 Theory: Final Reflection & Assessment • Skills recap, what went well, what to improve • Link to food industry careers WEEK 12 Practical: Group Bake Off! • Teams choose a method and bake a showstopper
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y9 Electronics/CAD LED Frame (Autumn term)

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Exploration of the theme and developing design ideas a) Context & Design Brief Introduction • Introduce the project context and key design vocabulary using the 5Ws framework (<i>Who, What, Where, When, Why</i>). • Intro to the design brief to identify target user needs, client profile b) Design Idea Generation • Apply creative thinking techniques to develop a broad range of initial design concepts and sketches responsive to the brief. • • Plan, design, and manufacture a decorative LED frame from initial concepts through to final assembly.	Make and Evaluate a) Skill Application & Tool Introduction Introduce foundational workshop processes, safe working practices, and tool usage across the following areas: • CAD (Computer-Aided Design): Use 2D design software to create precise vector layouts and custom frame profiles. • CAM (Computer-Aided Manufacture): Prepare files and safely operate digital machinery (such as laser cutters) to produce accurate frame components. • Electronics: Understand basic circuit theory, LED polarity, resistor requirements, and power sources. • Soldering: Practice safe soldering techniques to wire, assemble, and test a functional LED light circuit. • Provide structured practical tasks for students to develop, practice, and refine these core skills through hands-on workshop activities. b) Product Evaluation • Test the final product against functional requirements and brief specifications.
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y9 Textile (Spring term))

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Exploration of the theme and developing design ideas a) Context & Design Brief Introduction ● Introduce the project context and key design vocabulary using the 5Ws framework (<i>Who, What, Where, When, Why</i>). ● Intro to the design brief to identify target user needs, client profile b) Design Idea Generation ● Research current sneaker trends, target users, and popular styles. ● Sketch initial ideas for shoe shapes, panel layouts, and color combinations. ● Refine the best idea into a clear final drawing with labels, dimensions, and material choices.	Make and Evaluate a) Skill Applications and Making Prototypes: Make simple 3D models to test the shape, fit, comfort, and overall look before building the final shoe. Papers & Boards: Use paper and card to draw flat nets, cut templates, and make quick structural test shapes. Textiles: Test different fabrics, select materials for the shoe upper, and practice stitching and joining methods. b) Product Evaluation ● Test the final product against functional requirements and brief specifications.
Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product	Assessment: Research, application of decorative techniques, Personal Outcome. Research: Carrying out investigations to identify problems and needs Designing: Communicating Design Ideas Making: Assembly and Manufacturing Evaluation: Evaluation of Final Product

Y9 Food - Special Diet

Half term 1 (Week 1 to week 6)	Half term 2 (Week 6 to week 12)
Introduction to H&S in a food classroom and to healthy eating WEEK 1 • Intro to health and Safety rules in a food technology classroom • Intro to Tools and equipment used in Food Technology WEEK 2 Introduction to Dietary needs Theory: • What are dietary requirements? • Difference between allergies, intolerances, preferences, and religious/cultural diets • Food labelling laws (allergens) WEEK 3 Gluten Free Pizza (using alternative flour base) WEEK 4 Dairy Intolerance Theory: • Lactose intolerance vs milk allergy • Dairy alternatives (oat, soy, coconut milk, vegan cheese) WEEK 5 Vegetarian Stir Fry WEEK 6 Vegan Diets Theory: • What is a vegan diet? • Benefits, challenges, and label reading	Cooking techniques and design a recipe WEEK 7 • Religious and Cultural Diets Theory • Cultural dish (vegetarian curry, falafel wraps etc.) WEEK 8 Low Sugar diets • Sugar and health (diabetes, obesity) • Natural sweeteners (fruit purée, stevia, honey) • How to read sugar content on labels WEEK 9 Sports Nutrition Theory: • Importance of protein in growth and repair • Complete vs incomplete proteins • Diet for active lifestyles and athletes WEEK 10 Gluten-free pasta dish with veggies and protein WEEK 11 Evaluation lesson Theory: • Recap key dietary principles • Peer feedback and self-evaluation • Discussion: how food impacts health and inclusion
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Learning Resources:

Food Technology

bbcgoodfood.com/recipes/collection/teenager-recipes

<https://www.bbc.co.uk/teach/class-clips-video/articles/zvjh8xs>

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

Design & CAD Tools

<https://www.bbc.co.uk/bitesize/examspecs/zby2bdm>

tinkercad.com

scratch.mit.edu

Textiles

instructables.com

<https://www.bbc.co.uk/bitesize/guides/zjc3rwx/revision/1>

https://www.vam.ac.uk/collections?srsId=AfmBOor_wkaK6nnlqX38_QDrrjaAYg2xl61slhhfqDkNrJKJeePDXzcG

<https://www.vam.ac.uk/young?srsId=AfmBOopGAwgDnt52hmGJwdtqStdWykRe6JVpGzQKwblRaBjc1RtcE41E>