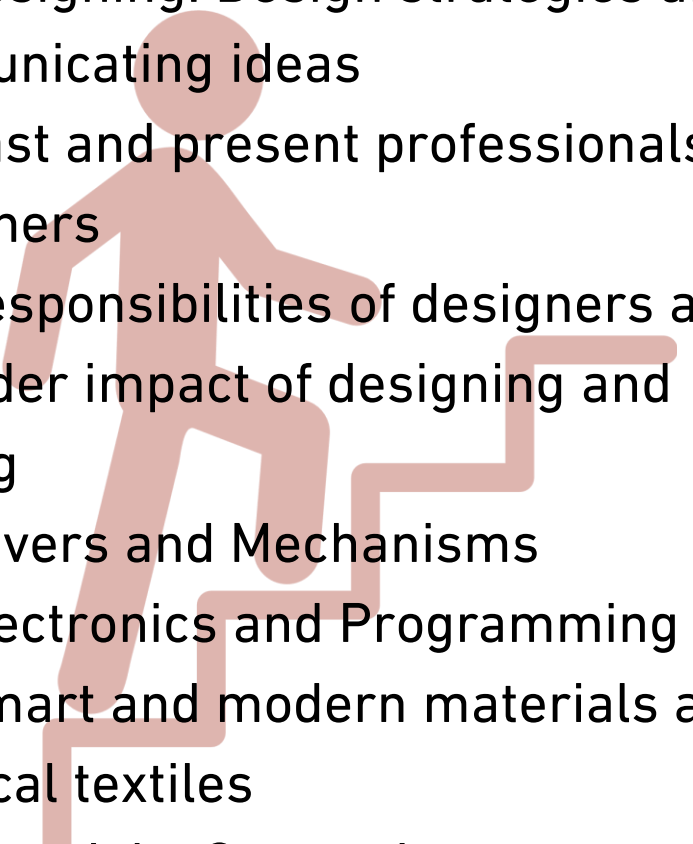


Our KS3 curriculum is based on an iterative design process and relevant project-based learning, that covers the National Curriculum for Design and Technology. We believe that all pupils should have the opportunities to be innovative and passionate when designing and making to develop new and transferable skills, knowledge, curiosity and inspiration. Pupils have access to a rich curriculum that offers challenge and excitement in order to foster creative and critical thinkers needed for the 21st century

THRESHOLD CONCEPTS

- 
- TC1 Users, needs & design contexts
 - TC2 Designing: Design strategies and communicating ideas
 - TC3 Past and present professionals and others
 - TC4 Responsibilities of designers and the wider impact of designing and making
 - TC5 Levers and Mechanisms
 - TC6 Electronics and Programming
 - TC7 Smart and modern materials and technical textiles
 - TC8 Materials: Categories, sources and origins, selection and properties
 - TC9 Forces and Stresses
 - TC10 Making: Working with specialist materials and techniques.


SUPPORT AT HOME

- Students are regularly set homework planned to extend and bring together their learning in class. Visits to art galleries and museums. Independent research on artists designers, materials, techniques and processes. Cooking at home - [bbc good food/foodafactoflife](http://bbc.co.uk/goodfood). Support with homework tasks
- Youtube - Tesco Eat Happy / War on plastic / drowning in plastic
- www.stem.org.uk
- [bbc.co.uk/ bitesize](http://bbc.co.uk/bitesize)
- BBC News - <https://www.bbc.co.uk/news/technology>
- Introduction to Isometric Drawing - Youtube <https://www.youtube.com/watch?v=LY5OqKhEP9k>
- Simple Pewter Casting - Instructables <https://www.instructables.com/id/Simple-Pewter-casting/>

CURRICULUM LINKS

- Art: Past and present artists/designers. Communication of design ideas, rendering skills, observational drawing, perspective drawing, 3D modelling techniques
- Maths: 3D and mathematical modelling, costings. Units and measurements. Calculations, Time. Use of geometry and angles in mathematics.
- Geography: Sustainability. Social, cultural and moral issues.
- RS: Different cultures
- English: Reading subject specific text, instructions, analysis and evaluation. Verbal and written communication
- Science: appropriate use of scientific terms. Mechanical systems, material properties
- Business Studies: Enterprise. Client needs/wants
- IT: CAD designing, 2D Design software, Google Sketchup modelling, programming.

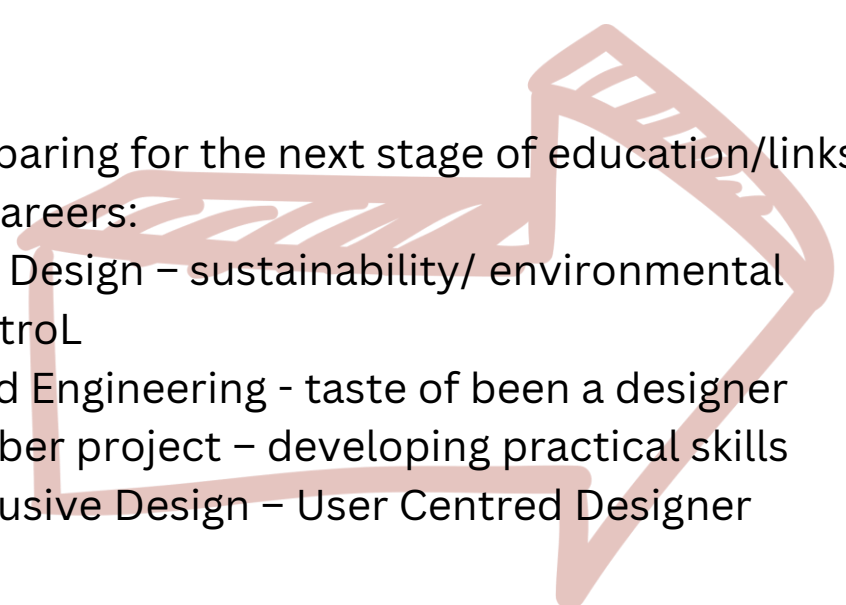
ENRICHMENT

- 
- Trips
 - Guest speaker- visiting artists/designers
 - Chef of the year
 - Cookery Club
 - Textile Club
 - Design and Technology Club

PERSONAL DEVELOPMENT

- The Design and Technology department aims to foster students' individuality through design, creativity, and the development of personal preferences, while promoting awareness of others' beliefs, diversity, values, and morality.
- Creative design skills and practical application help students develop cognitive and decision-making abilities, enhancing their overall sense of wellbeing through self-expression.
- We encourage students to explore new ideas, pathways, and communication skills, embracing the learning process even through mistakes.
- Students will gain confidence in expressing themselves through their design and practical work, fostering their creative journey.
- Learners will be inspired to cultivate a passion for design and technology.

CAREERS

- 
- Preparing for the next stage of education/links to careers:
- Eco Design – sustainability/ environmental control
 - Card Engineering - taste of been a designer
 - Timber project – developing practical skills
 - Inclusive Design – User Centred Designer

WHAT

Eco Design: Focuses on environmental and sustainability issues in design, exploring the environmental, social, and cultural impacts of various products through life-cycle analysis. Students will redesign a product to enhance its sustainability and create products tailored for the school allotment.

Bots: Covers the stock forms and physical properties of different wood types. Students will learn to use hand tools for measuring and cutting, practice workshop health and safety protocols, ensure quality control in practical lessons, and study the working properties of timber.



WHY

Morality and value are core aspects of Eco Design, focused on environmental sustainability. Students gain a thorough understanding of timber forms and apply this knowledge practically to design and produce industry-standard products. They learn how material properties influence selection criteria, including working properties, functionality, aesthetics, sustainability, availability, cost, and ethics.

Students tackle practical challenges posed by timber's forces and stresses, enhancing designs with reinforcement for durability and functionality. They explore manufacturing processes and timber's unique characteristics, broadening their material knowledge and making informed decisions in design and production. Analytical skills developed include assessing economic benefits of production methods, ensuring efficiency and cost-effectiveness.

The curriculum emphasizes safe practices and hands-on skill development with machinery, tools, and processes. This not only improves technical proficiency but also fosters confidence in applying practical skills in workshop environments.

1 TERM : Design and Technology

THRESHOLD CONCEPTS : TC4, TC8, TC10

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

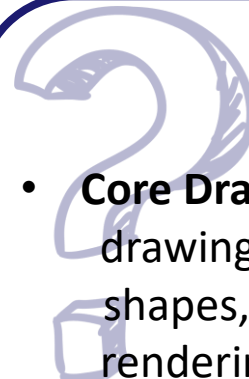
Design
Technology
Sustainability
Environment
Climate change
Rethink
Lifecycle
Analysis
Quality
Assurance
Economic
Accuracy

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

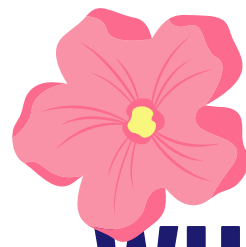


WHAT



DT (A)

- **Core Drawing Skills:** Includes drawing basic and complex shapes, isometric drawing, rendering, and annotation. Emphasizes understanding the differences between freehand and technical drawing.
- **Card Engineering:** Focuses on various types of card mechanisms, covering the four types of motions and exploring the properties of paper and boards.
- **Inclusive Design:** Addresses real-life design challenges, emphasizing designing for a diverse range of users and ensuring accessibility in designs.



WHY

Why is this taught:

- To foster a passion for creativity and embrace the creative process, allowing students to develop skills in communicating ideas using a variety of strategies such as annotated sketches, detailed plans, 3-D and mathematical modeling, as well as oral and digital presentations.
- Students will explore mechanisms through experimentation and iterative design to understand how changes in movement and force occur. They will learn to assess the impact of forces on mechanical systems and apply reinforcement and stiffening techniques as needed.
- In the Inclusive Design Unit, students are introduced to the concept of identifying design needs versus wants. They critically analyze human needs, prioritize solutions, and discernively categorize wants into different priority groups.

1 TERM: Design and Technology

THRESHOLD CONCEPTS :TC1, TC2, TC4, TC5, TC8, TC10

HOW

ASSESSMENT

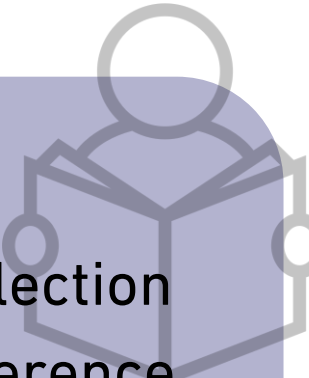
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VOCABULARY

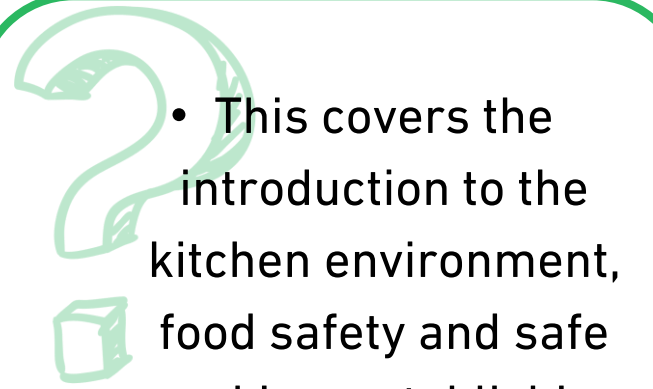
Visual communication
Render
Sketch
Technical
Reciprocating
Linear
Rotary
Oscillating
Mechanism
Inclusive
Design inclusion

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation



WHAT



- This covers the introduction to the kitchen environment, food safety and safe working, establishing routines and building basic culinary skills. It considers food safety through personal hygiene and the 4 Cs, as well as investigating healthy eating principles.
- Practical lessons have students making fruit salad, gnocchi bake, spaghetti bolognese, flapjack & Fruit crumble.

WHY

This unit allows pupils to understand the Health and safety precautions needed in food technology and how pupils will work effectively and safely.

Pupils will understand the safety precautions when using knives, hob and oven to cook a variety of dishes.

Pupils will develop a clear understanding of nutrition and the needs of each food group in the diet. Pupils will investigate portion sizes linked to 5 a day and be able to identify each of the food groups and its need and function in the body.

Pupils will develop a wide range of practical skills throughout the topic and develop key skills such as health and safety in a classroom, personal hygiene when cooking, knife skills, using a hob/oven safely, how to adapt & season dishes.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
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VOCABULARY

Weighing
Measuring
Bacteria
Hygiene
Equipment
Healthy
Knife
Scales
Cross contamination
Bolognese

READING SKILLS



- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification

WHAT

Textiles

Students will create a book bag using different materials, and textiles techniques – including tie dye, batik, embellishment, hand sewing, machine sewing.

Students will use transferable subject skills to measure, use patterns, consider enterprising elements to meet the design brief and target market requirements.

Additionally, they will operate a sewing machine. Emphasis will be placed on following Health & Safety protocols throughout the process, with rigorous quality control and assurance applied to the final product.

WHY

Students learn to apply their knowledge of materials and production processes to design products and develop practical solutions that meet specific purposes. Emphasis is placed on teaching safe working practices and fostering hands-on skills with practical machinery, specialist tools, and processes, thereby enabling students to gain confidence in practical life skills. In the textile industry.

Furthermore, students deepen their understanding of the principles of good design, existing solutions, and technological knowledge to innovate in product development and processes. Through risk-taking and exploration, students employ iterative design methods to cultivate experimental ideas that integrate knowledge of materials, components, and user needs.

Students also develop effective communication skills by using various strategies such as annotated sketches, detailed plans, monitoring and evaluating of design ideas

Additionally, students analyze existing designer products to gain insight into the aesthetic, environmental, technical, economic, ethical, and social dimensions of design and manufacturing, emphasizing their impact on society and the world.

HOW

ASSESSMENT

- Termly assessment - progress test.
 - Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

- Textiles
- Batik
- Embellishment
- Tye-Dye
- Sewing
- Synthetic Fibres
- Ecological
- Environmental
- Prototypes
- Fastenings

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

WHAT

Resistant Materials

- **Stationery Holder Project:** Students will create a stationary holder using specialist equipment. They will utilize hand tools for measuring, cutting, and templates. Additionally, they will operate the pillar drill and sanding machine to meet standards of quality and safety in workshop settings. Emphasis will be placed on following Health & Safety protocols throughout the process, with rigorous quality control and assurance applied to the final product.
- **CAD/CAM:** Students will explore the advantages and disadvantages of Computer-Aided Design (CAD). They will use CAD software to model and test their designs, comparing hand-drawn sketches to CAD-drawn versions. Introduction to both 3D and 2D design packages will be provided, along with initial exposure to the laser cutter technology.

WHY

Students learn to apply their knowledge of materials and production processes to design products and develop practical solutions that meet specific purposes. Emphasis is placed on teaching safe working practices and fostering hands-on skills with practical machinery, specialist tools, and processes, thereby enabling students to gain confidence in practical life skills.

Furthermore, students deepen their understanding of the principles of good design, existing solutions, and technological knowledge to innovate in product development and processes. Through risk-taking and exploration, students employ iterative design methods to cultivate experimental ideas that integrate knowledge of materials, components, and user needs.

Students also develop effective communication skills by using various strategies such as annotated sketches, detailed plans, and 3-D and mathematical modeling to convey concepts clearly.

Additionally, students analyze existing designer products to gain insight into the aesthetic, environmental, technical, economic, ethical, and social dimensions of design and manufacturing, emphasizing their impact on society and the world.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Applique
Quality control
Embellishments
Computer aided design
Computer aided manufacture
Technical
Iterative design
Accuracy
Evaluate
Specification
Brief

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

WHAT

Students will investigate the Eatwell guide and take a more indepth look at each nutrient and its function in the body. Students practical sessions will link to each nutrient to develop their understanding further.

Students will look at making healthy swaps within food choices and how to adapt dishes to lower fat and sugar content.

Practical's will include Jambalaya, Curry, Pizza, Bread & scones

Key Learning: Developing a wider knowledge of diet, healthy eating and the functions of nutrient in the body. Wider range of ingredients and cooking methods.

Skills: preparation and cooking of a variety of ingredients, applying good food safety practices, researching suitable dishes, handling high risk foods.

WHY

Students will continue to develop their knowledge and understanding of a range of nutrients, diets, and healthy eating.

Throughout the rotation students will develop a range of preparation and cookery methods linked to different nutritional dishes. They will be able to list the sources and functions of a range of nutrients in the diet and explain the different needs linked to life stages.

Pupils will begin to develop their knowledge and understanding of special diets.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Fat
Protein
Carbohydrates
Vitamins
Minerals
Vegetarian
Vegan
Calcium
Nutrition
Kneading

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation



WHAT

Jewellery Design Project

Students learn about metals used in jewellery design, focusing on sources, properties, and applications. They apply this knowledge to create a phone holder, emphasizing skills in measuring, numeracy, and precision cutting with hand tools. Health & Safety protocols and quality control are strictly observed. Students interact with professionals and local designers in the field.

Systems and Control

Students explore crumble kits and basic electronic components, understanding input, process, and output functions in electrical systems. They study system operation and manufacturing processes, using computing to program, monitor, and control products. They integrate inputs (e.g., heat, light, sound, movement) and control outputs (e.g., motors) with microcontrollers to develop responsive, intelligent products.

WHY

Students learn to apply knowledge of materials and production processes to design practical, purpose-fit products. They acquire safe working practices and hands-on skills with machinery and specialist tools, developing confidence in practical life skills. They gain insight into industrial production techniques through team activities, critically evaluating production costs and their impact on final sale prices.

Further development includes understanding good design theory, existing solutions, and technological knowledge to innovate products. Through iterative design methods and risk-taking, students explore experimental ideas that meet user needs using materials and components knowledge.

Students develop effective communication skills through annotated sketches, detailed plans, and 3-D and mathematical modeling. They analyze existing designer products, understanding their aesthetic, environmental, technical, economic, ethical, and social impacts.

Students explore diverse cultural needs and major environmental issues, such as flooded farmland and settlements, to develop practical solutions that enhance users' lives. This involves experimenting with different structural, physical properties, and material functionalities.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Component

Electronic

Algorithm


LDR

Sensor

Microcontroller

programmable

READING SKILLS

- 
- Selection
 - Inference
 - Analysis
 - Information Retrieval
 - Vocabulary Development
 - Justification
 - Evaluation

WHAT

Students will be required to research and investigate diets through life stages – child, teenager, adult & elderly and the different dietary needs of each age group. This will allow pupils to begin to develop and adapt dishes based on these diets.

Focus will then move to medical diets (coeliac, diabetic), religious beliefs and choices such as vegetarian and vegan. Students will be able to adapt and explain how they would adapt a range of dishes for each.

Practical's will focus on chow mein, sweet & sour and Macaroni cheese and cinnamon buns, sausage rolls and Chocolate brownie.

For each practical pupils will evaluate their skills and suggest ways to improve and adapt their products.

Pupils will also look at types of food service and they most suitable types of dishes for each

Key Learning: Special diets and adapting dishes

WHY

Students will develop a broader understanding of special diets, including the reasons behind their adoption and the consequences of not adhering to them.

They will learn to suggest adaptations and modifications for dishes suitable for different age groups and dietary needs, culminating in creating their own baked products.

Emphasis will be placed on developing confidence and proficiency in cooking techniques using hobs and ovens. Focus will include precision in knife skills, hygiene practices, and mastering multiple cooking techniques.

Additionally, students will acquire knowledge about ingredient sources such as fairtrade, organic, and Red Tractor, enabling them to discuss the benefits and challenges associated with each.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Coeliac
Diabetes
Lactose intolerance
Evaluation
Contingency
Quality
Adaption
Environmental
Recycling

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

