Year 5

DESIGN TECHNOLOGY

Curriculum Intent

Through studying D&T at Walton Oak, children will create and design projects for a variety of purposes and contexts. Pupils will be able to consider safety and take appropriate risks using specialist tools, materials, mechanisms and equipment. Children will understand the process of planning, refining and modifying whilst considering key design criteria.

Themes:

1. **Designing**
   Researching, disassembly, understanding form and function, planning, sketching, communicating, affordability, management of materials

2. **Making**
   Selecting and using tools safely, measuring with precision, cutting, piercing and joining materials safely, safety in food technology

3. **Evaluating**
   Checking against design criteria, testing, refining and modifying

4. **Technical knowledge**
   Mechanical systems (cams, pulleys, wheels etc), how different materials behave, electrical systems

D&T Knowledge Organiser will all include an image of the 'Research – Design – Make - Evaluate' model. This will be referred to in all projects to help children understand how this process is used in technological design and also across the curriculum and in life.

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR FIVE

1. Designing

Core knowledge	Core skills	Core vocabulary	Taught through
● Research a range of ideas from different sources to understand how products are made. ● Understand how to design for a specific audience and function, including responding to real-world problems ● Know that designs must meet technical constraints, including materials, cost, and safety. ● Use research and develop design criteria to inform the design of innovative, functional, appealing products. ● Recognize that prototypes and models help test ideas before final construction. ● Produce a clear, detailed plan for final design based on the prototype. ● Explore how environmental, cultural and user factors influence design outcomes. ● Produce lists for the tools, equipment and materials they will be using ● Choose materials to use based on suitability of their properties and aesthetic qualities ● Identify who makes products, when they were made and what their purpose is ● Identify what the product has been made from and how environmentally friendly the materials are	● Identify the cost to make the product ● Research facts about famous inventors/chefs/designers ● Use research to inform and justify design decisions based on purpose and user. ● Understand and gather information about what a particular group or people want from a product, using questionnaires, surveys etc ● Describe the purpose of their product ● Create detailed annotated diagrams, including dimensions and components. ● Identify design features that will appeal to intended users ● Develop their own design criteria and use for planning ideas ● Generate innovative ideas that meet needs of user and take into account availability of resources ● Make prototypes to support the final design. ● Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) ● Consider the environmental impact of material choices and suggest sustainable alternatives.	● prototype ● specification ● criteria ● circuit ● sensor ● respond ● system ● efficient ● sustainable ● annotate ● evaluate ● constraint ● innovative	● Designing and planning a flood warning system with working electrical components. ● Sketching and creating Tudor pouches incorporating embroidery. ● Designing Indian samosas based on food groups and user preference.

Extended Skills and Vocabulary

- Begin to identify trade-offs in design decisions (e.g., cost vs quality).
- Reflect on the feasibility of design ideas and modify early concepts.

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR FIVE

2. Making

Core knowledge	Core skills	Core vocabulary	Taught through
● Know how to measure, cut, and assemble with increased independence and accuracy. ● Decide on pattern layout and cut using a range of fabrics. ● Understand how to wire and assemble simple circuits with integrated components. ● Recognize that embroidery techniques can be decorative and functional. ● Be able to follow complex sequences for food preparation and cooking. ● Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment. ● Understand how to safely use a variety of tools for food and materials. ● Use a range of food descriptors relating to flavour, texture and appearance with a wider range of food. ● Describe and design a balanced cooked meal, including appropriate portion sizes for serving.	● Build working systems using circuits, sensors, and switches. ● Cut evenly, sized finer pieces of ingredients. ● Crack an egg cleanly. ● Confidently cut materials and join components with precision to produce a well-finished, functional product. ● Stitch accurately using running, back, or cross stitches to enhance strength and design. ● Joining buttons and loops using over sewing and backstitch. ● Add applique decorations, beads, sequins using over sewing and backstitch. ● Use an electric hand mixer to cream fat and sugar together and combine with wet and dry ingredients. ● Follow multi-step recipes to prepare, cook, and present food. ● Use tools confidently, applying health and safety rules for sharp and hot equipment.	● assemble ● stitch ● circuit ● connect ● measure ● embroidery ● preparation ● sequence ● sensor ● switch ● accuracy ● durable ● secure ● Hygiene ● precision	● Constructing flood prototypes with circuits that respond to water or movement. ● Embroidering and sewing Tudor-style pouches. ● Preparing, filling, and folding samosas with attention to hygiene and presentation.

Extended Skills and Vocabulary

- Combine a range of materials effectively to suit structural or aesthetic purpose.
- Use terms such as reinforce, align, component, layout, and function.
- Apply spatial reasoning in construction and layout.

3. Evaluating

Core knowledge	Core skills	Core vocabulary	Taught through
● Use design criteria to evaluate product – identifying both strengths and areas for development ● Understand how to assess function and presentation using real testing and feedback. ● Recognize how user experience can guide improvement. ● Understand how small design changes can lead to greater functionality or appeal. ● Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	● Consider the views of others, including intended user, whilst evaluating product ● Suggest modifications to the original design. ● Test systems to ensure they respond appropriately to input. ● Evaluate food based on taste, texture, presentation, and cultural significance. ● Compare products against original criteria and real-world equivalents. ● Record feedback and use it to revise plans or prototypes.	● respond ● evaluate ● test ● feedback ● modify ● improve ● success ● criteria ● realistic ● analyse ● performance ● review	● Testing flood alarms in simulated water scenarios. ● Receiving peer evaluation on embroidery patterns. ● Comparing final samosa dishes to design criteria.

Extended Skills and Vocabulary

- Apply vocabulary such as refine, functionality, iteration, peer-assessment.
- Use structured formats like tables, rubrics or rating scales to evaluate.
- Suggest specific, evidence-based improvements to design or process.

4. Technical knowledge

Core knowledge	Core skills	Core vocabulary	Taught through
● Understand how textiles can be strengthened and personalised. ● Understand which foods are reared, caught, or grown and that this happens in the UK and across the globe ● Understand that the seasons can affect food produce ● Understand that sometimes raw ingredients need to be processed before they can be used in cooking (eg. defeathering a chicken) ● Understand that recipes can be adapted to change the appearance, taste and aroma of a dish ● Recognize how spices and ingredients contribute to nutrition and taste. ● Understand that mechanical and electrical systems have an input, process and output. ● Know how electrical systems respond to inputs (switches, sensors). ● Learn how systems can be connected to perform a function.	● Build complex series circuits using sensors or programmable inputs.Integrate mechanical, electrical and food technology components into cohesive projects. ● Demonstrate how mechanical systems such as cams or pulleys or gears create movement. ● Apply embroidery stitches to enhance aesthetics and durability. ● Select and combine ingredients for both flavour and nutrition.	● Sensor ● series ● circuit ● textile ● embroidery ● seasoning ● prototype ● function ● responsive ● reinforce ● integrate ● conductivity ● insulate	● Wiring flood warning models that light or sound when triggered. ● Designing and decorating pouches using fabric and stitch. ● Cooking Indian samosas with balanced filling ingredients.

Extended Skills and Vocabulary

- Use advanced terms such as interaction, trigger, electrical output, design integration.
- Describe the interaction of components within a system.
- Explore the cultural significance of ingredients and traditional dishes.