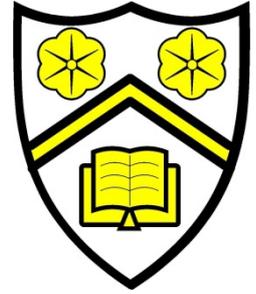


WHITEHILL COMMUNITY ACADEMY (3-11).

A rationale for the Teaching of Design Technology.



Purpose.

To ensure that the Design Technology curriculum shows breadth of coverage and progression throughout the Academy.

That Design Technology is essentially the designing and making of products for a purpose.

The planning for this document involved Miss Melissa Harker and Miss Judith Edwards (D.T coordinators).

Design Technology unit aims (Taken from the NC).

Aims include:

- To build and apply knowledge, understanding and skills in order to design, make prototypes and products for a purpose.
- To be able to evaluate and test their own and others ideas and products.
- To understand the importance of nutrition and learn how to cook.

Design Technology overview for EYFS, KS1 and KS2.

Year group	Autumn	Spring	Summer
Nursery	Children will explore a variety of materials, tools and techniques experimenting with colour, design, texture, form and function.		
Reception			
Year 1	Materials – Homes	Mechanics- Moving pictures	Food - Fruit and vegetable kebabs
Year 2	Textiles – Puppets	Construction - Vehicles	Food – Pizza
Year 3	Mechanics – Moving monsters	Food – Sandwich snacks	Materials – Photo frames.
Year 4	Electronics- Alarms	Textiles/materials Money containers	Food – Seasonal foods
Year 5	Food – Bread	Mechanics - Moving toys	Textiles – Drawstring bag

Year 6	Electronics/ materials – Fairground	Materials – Bridges	Food – Burgers
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Year 1.

Autumn: Homes

Begin by exploring different types of houses including igloos to explore their similarities and differences.
To investigate the materials and interior features needed to make their house.
To design, make and evaluate their own house.

Working towards	Is able to cut materials safely and use some joining techniques with support.
Working at Expected	Demonstrates some joining techniques and ability to cut a materials safely.
Greater depth	Demonstrates a wide range of joining techniques and is able to cut materials safely using a good level of control

Spring: Moving Pictures

To explore sliders, levers, pivots and wheel mechanisms and how they can be used to make different parts of the picture move.
They will then design, make and evaluate their own moving picture.

Working towards	To produce a product using levers and winding mechanisms with the support of a teacher.
Working at Expected	With growing independence and developing understanding of mechanisms, products using levers and winding mechanisms are made.
Greater depth	With a high level of independence and a good understanding of mechanisms, good quality products using levers and winding mechanisms are made.

Summer: Fruit and vegetable Kebab

To explore a variety of fruit and vegetables including what they look, taste and feel like.
To learn how to prepare fruit and vegetables through cutting, grating and peeling.
To design, make and evaluate their own fruit and vegetable Kebab.

Working towards	With the support of a teacher ingredients are prepared safely and hygienically.
Working at Expected	There is a growing awareness of safety and hygiene procedures when preparing food.
Greater depth	There is a good understanding of the need to work safely and hygienically when preparing food.

Year 2.

Autumn: Puppets

To begin by looking at finger puppets and exploring the different ways materials can be joined.

To develop the use of running stitch and over stitch to combine pieces of fabric. To explore different embellishments such as buttons, sequins and ribbon.

To design, make and evaluate a glove puppet

Working towards	With support of a teacher textiles are shaped using templates. Textiles are joined with a basic running stitch and a number of decoration techniques are experienced.
Working at Expected	Templates are beginning to be created and used to shape textiles. A basic running stitch is used to join textiles well and a growing number of decoration techniques are used.
Greater depth	Templates are created to a good standard and used to shape textiles. A controlled running stitch is used to securely joining textiles and effective decoration techniques are chosen and applied to good effect.

Spring: vehicles

To explore different features of a vehicle such as handles, seats, windscreens and wheels.

They will learn all about wheels, axels and chassis and how they are combined to make the frame work of the vehicle.

To make, design and evaluate a vehicle.

Working towards	With the support of a teacher materials are combined to make products.
Working at Expected	With growing independence materials are combined to make products.
Greater depth	Good choices of materials and how to combine them are made when making a wide range of products.

Summer: Pizza

They will sort the components of their favourite pizza toppings on to a balanced plate.

They will explore breads including the appearance, texture and taste.

To design, make and evaluate a pizza.

Working towards	With the support of a teacher ingredients are prepared safely and hygienically and weighing and measuring is accurate.
Working at Expected	There is a growing awareness of safety and hygiene procedures when preparing food. There is also a growing ability to weigh and measure accurately.
Greater depth	There is a good understanding of the need to work safely and hygienically when preparing food. There is also a good understanding of how to weigh and measure accurately using a range of scales.

Year 3.

Autumn: Moving Monsters

To explore the uses of pneumatic systems and investigate familiar objects that use air to make them work such as whistles and bicycle pumps.

To design, make and evaluate their own monster with moving parts.

Working towards	When reminded, knowledge of science is applied to creating mechanism products.
Working at Expected	Generally, knowledge of science is applied to creating mechanism products.
Greater depth	Knowledge of science is readily applied when creating mechanism products.

Spring: Sandwiches

To explore the food pyramid and different types of bread and sandwiches

To taste and test their design ideas.

To understand food hygiene and how to work safely with food.

To design, make and evaluate their own sandwich snacks.

Working towards	When reminded, appropriate utensils are chosen to safely and hygienically prepare food. To have a basic understanding of food groups.
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Working at Expected	Appropriate utensils are generally chosen to safely and hygienically prepare food. To have a growing awareness of food groups.
Greater depth	Appropriate utensils are chosen to safely and hygienically prepare food with clear explanations for the choices made.

Summer: Photograph frames

They learn how to strengthen and join card using a variety of tools and techniques.
 To experiment with different materials to see which is the strongest or sturdiest.
 To design, make and evaluate a free standing photo frame.

Working towards	When reminded, appropriate tools are chosen to safely cut materials. With the support of a teacher accurate measurement and marking to the nearest millimetre is experienced. Appropriate cutting, shaping and joining techniques are used.
Working at Expected	Appropriate tools are generally chosen to safely cut materials. Measurement and marking are generally accurate to the nearest millimetre. Appropriate techniques are generally chosen to cut and shape materials and joining techniques are selected and used well.
Greater depth	Appropriate utensils are chosen to safely cut materials with clear explanation for the choices made. There is accurate measurement and marking to the nearest millimetre using a variety of scales. Appropriate techniques are chosen to cut, shape and join with reasons for choices clearly explained.

Year 4.

Autumn: Alarms

To investigate the purpose of alarm systems.
 To experiment with various components of circuits and switches such as tilt and push to break.
 To design, make and evaluate an alarm system for a purpose such as guarding treasure.

Working towards	When reminded, knowledge of science is applied to create series and parallel circuits in products.
Working at Expected	Generally, science knowledge is applied well to create series and parallel circuits in products.
Greater depth	Science knowledge is readily applied to good effect in creating series and parallel circuits in products.

Spring: Money containers

To explore the common features of a money container.

To practise embroidery techniques to be used on their money container.

To learn about materials and components used to make money containers before designing, making and evaluating their own.

Working towards	When demonstrated by a teacher and support provided appropriate allowances are made when joining fabrics. Appropriate stitching is attempted with some good effects. When reminded appropriate techniques are used to decorate textiles.
Working at Expected	Generally, appropriate allowances for joining fabrics are used, stitching is appropriate to the product and effective. Interesting and appropriate techniques are used to decorate textiles.
Greater depth	Accurate and well planned allowances for joining fabrics are used. Confident and carefully chooses stitches suitable for the products purpose is well executed. Excellent choices of appropriate techniques provide interesting and eye-catching textile decorations.

Summer: Seasonal Food

To explore the seasonal agriculture in Britain and foods that are available all year round such as cereals, fruit, vegetables, meat and seafood.

To make a selection of dishes to support the food groups such as meatballs and stuffed peppers.

To design make and evaluate a meal.

Working towards	When reminded appropriate utensils are chosen to safely and hygienically prepare food. With support from a teacher accurate measurement to the nearest gram is experienced.
Working at Expected	Appropriate utensils are generally chosen to safely and hygienically prepare food. There is generally accurate measurement to the nearest gram.
Greater depth	Appropriate utensils are chosen to safely and hygienically prepare food with clear explanations for the choices made. There is accurate measurement to the nearest gram using a variety of scales.

Year 5

Autumn: bread

To discover a range of breads from different countries and cultures. To survey how much bread people eat.

To explore the ingredients used and their purpose in the bread recipe.

To design, make and evaluate their own bread.

Working towards	There is some awareness of the principles of safe food storage and handling. When reminded mathematical knowledge is applied to accurately calculate ratios of ingredients. When guided a range of baking and cooking techniques are demonstrated. With support from a teacher as range of recipes are created.
Working at Expected	Science knowledge is applied to the safe storage and handling of ingredients. Mathematical knowledge is generally applied to calculate ratios of ingredients. A developing range of baking and cooking techniques are demonstrated and a developing range of interesting recipes are created.
Greater depth	A thorough scientific understanding of micro-organisms are rigorously applied to the practises of storage and handling ingredients. Knowledge of mathematics is readily applied to calculate ratios of ingredients. A good range of baking and cooking techniques are demonstrated. A wide repertoire of recipes with interesting combinations of ingredients are created.

Spring: Moving toys

To investigate different toys with cam mechanisms and look at how cam mechanisms work by changing rotary movement into linear movement.

To explore how cams of different shapes and sizes affect linear movement

To create a structure that is strong enough to support different components.

To design, make and evaluate a moving toy.

Working towards	With support cam are created and combinations of design components are used in product designs.
Working at Expected	A range of differently shaped cams are created. There is some interesting experimentation with combinations of design components in product design.
Greater depth	Combinations of differently shapes cams are used to create interesting and useful movement. There are some innovative combinations of design components in product designs.

Summer: Fashion and Textiles

To explore the ways in which products are constructed and made using textiles.

To investigate ways in which different hand-sewing and machine-stitches are used to join and decorate products.

To learn how pattern pieces are used by fashion designers and garment manufacturers.

To learn how to transfer designs to cloth using the skills of measuring marking and cutting.

To design, make and evaluate a drawstring bag.

Working towards	There are good examples of precision cutting and of effective joins. There are some good examples of art skills being used to provide decoration.
Working at Expected	There are many good examples of precision cutting using a growing range of cutting implements. There is a growing range of examples of effective joining techniques that show control and some precision. There is evidence of art skills being applied to good effect to provide visual and tactile decoration.
Greater depth	There are wide spread examples of precision cutting using a wide variety of cutting implements. Effective joining techniques show a high level of precision and control. Art skills are well chosen to create eye-catching decoration.

Year 6.

Autumn: Fairground Rides.

To explore how different fairground rides rotate before looking at electrical circuits and motors including the use of belt and pulley systems to transfer motion.

To create strong and stable structures.

To design, make and evaluate a fairground ride.

Working towards	With support and reminders of science knowledge a range of circuits are created and used in products.
Working at Expected	Science knowledge is generally applied to the design process to create products that employ a range of electronic components.
Greater depth	Science knowledge is readily applied to the design process creating high-quality products that employ a broad range of electronic components.

Spring: Bridges

To describe the features of bridges and test how beams and pillars are used to span gaps and distribute weight.

To investigate how compression and tension forces are changed and distributed in different bridge designs.

To test the strength of arches of different shapes and size.

To design, make and evaluate a bridge.

Working towards	When reminded the qualities of materials are considered when selecting tools.
Working at Expected	The properties of materials are generally considered in choosing tools.
Greater depth	An in depth understanding of the properties of materials is used to carefully select appropriate tools.

Summer: Burgers

To begin by looking at nutrition fact labels on food packaging.

To explore the making of turkey, beef and vegetarian burgers.

To consider flavour combinations when making a burger sauce.

To design, make and evaluate their own burger.

Working towards	To have an awareness of nutritional values on food packaging. When reminded, evaluations are carried out throughout and at the end of the design process.
Working at Expected	To have a growing understanding of the nutritional values on food packaging. Evaluation are generally ongoing and thorough. They relate to user experience.
Greater depth	To have an in depth understanding of the nutritional values and use on food packaging. The user experience drives critical self-evaluation and helps to identify current and future improvements.

