

Hopton C of E Primary Academy

DT Subject Overviews

LKS2

Title	<u>Textiles: Egyptian Collars</u> Using cross stitch and applique skills to create Egyptian collars
Overview of Unit	Children develop their sewing and textile skills by designing and making an Egyptian collar inspired by Ancient Egypt. They learn new techniques including cross-stitch and appliqué, using these to decorate fabric with increasing accuracy. Children design their collar based on specific criteria, selecting appropriate materials and planning their ideas through sketches and templates. They then cut, assemble, and decorate their collar, developing control and precision in their sewing techniques. Finally, children evaluate their finished product against the design criteria, reflecting on what they have made and suggesting improvements. The unit links practical textile skills with historical learning about Ancient Egyptian culture.
Key Vocabulary	asymmetrical, appliqué, cotton, cross-stitch, embellish, fabric, patch, pinking, polyester, running stitch, silk, symmetrical, template, thread, unique
Key Learning Objectives	- I am learning how to sew cross stitch and applique. - I am learning to develop and use a template. - I am learning to assemble fabric parts into a fabric product. - I am learning to decorate fabric using applique and cross stitch.
Key Knowledge	1. Cross stitch is used to join or decorate fabric. 2. Appliqué is a technique where fabric shapes are attached onto another fabric. 3. Templates help create accurate and repeated shapes. 4. Running stitch is a simple sewing method used to join fabric. 5. Different fabrics have different properties and purposes. 6. Embellishments can improve the appearance of a textile product.
Skills to be Covered	Design: ● Designing and making a template for a collar and applying individual design criteria. Make: ● Following design criteria to create an Egyptian collar. ● Selecting and cutting fabrics with ease using fabric scissors. ● Threading needles with greater independence. ● Tying knots with greater independence. ● Sewing cross stitch to join fabric. ● Decorating fabric using appliqué. ● Completing design ideas with embellishment based on design ideas. Evaluation: ● Evaluating an end product and thinking of other ways in which to create similar items.



End of assessment quiz	<i>Each quiz should also revisit two questions from previous units</i> 1. What is cross stitch used for? 2. What does appliqué mean? 3. Why are templates useful in textiles? 4. What is a running stitch? 5. Why might different fabrics be chosen for different products? 6. How can embellishments improve a design?
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Title	Cooking and Nutrition: Eating Seasonally Using local produce, we will prepare fruit skewers, make fruit crumbles and cook tarts
Overview of Unit	Children learn about where food comes from and how climate and seasons affect the growth of fruits and vegetables. They explore the concept of seasonal food and understand why certain foods grow better at different times of the year. Children investigate the benefits of eating seasonal produce, including environmental impact and taste. They design a seasonal recipe using a range of ingredients, developing skills in selecting, preparing, and combining foods. Children follow a recipe safely and hygienically to create a finished dish, then evaluate their work and consider feedback to improve their ideas. The unit builds understanding of seasonality, sustainability, and cooking skills.
Key Vocabulary	appearance, arid, climate, complementary, country, cut, design, evaluate, export, fruit, grate, import, ingredients, Mediterranean, mock-up, mountain, peel, polar, seasonal, seasons, snip, taste, temperate, texture, tropical, vegetable, weather
Key Learning Objectives	- I am learning to explain why food comes from different places around the world. - I am learning to explain the benefits of seasonal foods. - I am learning to develop cutting and peeling skills. - I am learning to evaluate seasonal ingredients. - I am learning to design a mock up using criteria. - I am learning to evaluate a dish.
Key Knowledge	1. Seasonal food grows naturally at certain times of the year. 2. Climate affects which foods can grow in different countries. 3. Eating seasonal food can reduce environmental impact. 4. Seasonal ingredients are often fresher and tastier. 5. Fruit and vegetables can be prepared safely using different tools. 6. Recipes are designed using ingredients that meet a purpose or brief.
Skills to be Covered	Design: • Describing how climate affects where foods grow. Make: • Identifying seasonal ingredients from the UK. • Following the instructions within a recipe. • Tasting seasonal ingredients. • Peeling foods by hand or with a peeler. • Cutting ingredients safely.



	- Choosing ingredients based on a design brief. Evaluation: - Describing the texture and flavour of ingredients. - Describing the benefits of seasonal fruits and vegetables and the impact on the environment.
End of assessment quiz	<i>Each quiz should also revisit two questions from previous units</i> 1. What does seasonal food mean? 2. How does climate affect food growth? 3. Why can seasonal food be better for the environment? 4. Why might seasonal foods taste fresher? 5. Which tools can help prepare fruit and vegetables safely? 6. Why do designers choose ingredients carefully?

Title	<u>Digital World: Wearable Technology</u> Design a digital wearable technology and develop a program and housing for a micro-bit.
Overview of Unit	Children explore the concept of wearable technology and how digital systems can be used to monitor, control, and enhance products. They research existing wearable products and evaluate their features and purpose. Children develop a product concept based on a design brief, creating annotated sketches and design ideas using computer-aided design (CAD). They learn to write and adapt simple programs to control a virtual Micro:bit, including creating patterns or flashing LEDs. Children then design and develop a wearable product, considering how it will be attached to a user and how it meets design criteria. Finally, they evaluate their finished product using feedback and improve their design based on suggestions. The unit develops understanding of programming, digital design, and the role of technology in modern products.
Key Vocabulary	analogue, analyse, annotate, badge, computer-aided design (CAD), control, design criteria, develop, digital, digital revolution, digital world, display, electronic, electronic products, fastening, feature, feedback, form, function, initiate, layers, monitor, net, opinion, point of sale, product, product design
Key Learning Objectives	- I am learning to research and evaluate existing products. - I am learning to develop design criteria. - I am learning to use code to program and control a product. - I am learning to develop and communicate ideas. - I am learning to develop ideas through computer aided designs. - I am learning to improve a design based on feedback.
Key Knowledge	1. Wearable technology is electronic equipment worn by a user. 2. Design criteria explain what a product must do. 3. CAD stands for computer-aided design. 4. A Micro:bit can be programmed to control lights and inputs. 5. Programs use instructions called algorithms. 6. Feedback can help improve a design.



Skills to be Covered	Design: • Problem solving by suggesting which features on a micro:bit might be useful and justifying my ideas. • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. • Developing design ideas through annotated sketches to create a product concept. • Developing design criteria to respond to a design brief. Make: • Following a list of design requirements. • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. Evaluate: • Analysing and evaluating wearable technology. • Using feedback from peers to improve design.
End of assessment quiz	<i>Each quiz should also revisit two questions from previous units</i> 1. What is wearable technology? 2. What are design criteria? 3. What does CAD stand for? 4. What can a Micro:bit be programmed to do? 5. What is an algorithm? 6. Why is feedback important in design?

Title	<u>Structure: Constructing a Castle</u> We will be designing and creating our own Roman Forts.
Overview of Unit	Children explore how structures can be designed, built, and reinforced to create strong and stable castles. They learn that castles are made from a combination of 2D and 3D shapes and investigate how these shapes can be joined to form stable structures. Children design their own castle based on specific criteria, using nets to construct 3D shapes accurately. They develop skills in scoring, cutting, folding, and assembling materials to build a freestanding structure. Children evaluate their finished castle, reflecting on how well it meets the design brief and suggesting improvements. The unit develops understanding of structure, stability, and how shapes are used in design and construction.
Key Vocabulary	2D, 3D, castle, design, key features, net, scoring, shape, stable, stiff, strong, structure, tab
Key Learning Objectives	- I am learning to recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure. - I am learning to design a castle. - I am learning to construct 3D nets. - I am learning to construct and evaluate my final product.



Key Knowledge	1. Structures must be strong and stable. 2. 2D shapes can be folded into 3D shapes using nets. 3. Tabs help join parts of a net together. 4. Scoring helps card fold neatly. 5. Castles are made from a combination of 2D and 3D shapes. 6. Designers evaluate products to improve them.
Skills to be Covered	Design: • Design a castle with key features to appeal to a specific person/purpose • Draw and label a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials need and colours • Design and/or decorate a castle tower on CAD software Make: • Constructing a range of 3D geometric shapes using nets • Creating special features for individual designs. • Making facades from a range of recycled materials. Evaluation: • Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs.
End of assessment quiz	<i>Each quiz should also revisit two questions from previous units</i> 1. What makes a structure stable? 2. What is a net? 3. What is the purpose of tabs? 4. Why is scoring useful? 5. Why are 3D shapes important in structures? 6. Why do designers evaluate products?

Title	<u>Mechanical Systems: Pneumatic toys</u> Designing and making Henry the 8th pneumatic toys.
Overview of Unit	Children explore how pneumatic systems work, learning that compressed air can be used to create movement within a mechanism. They investigate how air can be pushed and released to produce motion, linking this to real-world uses of pneumatic systems. Children apply this knowledge by designing and making a pneumatic toy linked to their history learning about the Tudors and Henry VIII. They generate ideas through sketches and diagrams, developing designs based on specific criteria. Children construct their toy using materials such as syringes, tubing, and balloons to create movement. They evaluate their finished product, considering how effectively it works and how it could be improved. The unit combines technical understanding of mechanisms with creative design and historical context, helping children see how design can communicate ideas and bring learning to life.



Key Vocabulary	diagram, evaluate, feedback, housing, linkage, mechanical system, mechanism, pivot, pneumatic system, thumbnail sketch
Key Learning Objectives	- I am learning to explore how pneumatic systems create movement within mechanisms. - I am learning to use different diagrams to summarise information. - I am learning to design a toy that uses a pneumatic system. - I am learning to create a pneumatic system for a moving toy. - I am learning to test and finalise ideas against design criteria.
Key Knowledge	1. Pneumatic systems use air to create movement. 2. Syringes and tubing can move air through a system. 3. Mechanisms help parts move in a controlled way. 4. Exploded diagrams show how products fit together. 5. Materials are chosen for both function and appearance. 6. Testing helps improve the effectiveness of a product.
Skills to be Covered	Design: • Designing a toy which uses a pneumatic system. • Developing design criteria from a design brief. • Generating ideas using thumbnail sketches and exploded diagrams. • Learning that different types of drawings are used in design to explain ideas clearly. Make: • Creating a pneumatic system to create a desired motion. • Building secure housing for a pneumatic system. • Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create different effects by cutting, creasing, folding and weaving. Evaluation • Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.
End of assessment quiz	<i>Each quiz should also revisit two questions from previous units</i> 1. What is a pneumatic system? 2. How can syringes help create movement? 3. What is a mechanism? 4. What does an exploded diagram show? 5. Why are materials selected carefully? 6. Why is testing important?

Title	Electrical Systems
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	Using an electrical system to create an electric poster
Overview of Unit	Children develop their understanding of electrical systems by designing and creating an electric poster for a specific purpose. They learn how simple circuits work, using components such as bulbs, batteries, and wires, and apply this knowledge to create a functional product. Children explore information design, researching a topic and generating initial ideas through sketches before developing a final design based on criteria and feedback. They assemble their poster, incorporating a working circuit, and evaluate how effectively it communicates information to an audience. The unit combines technical knowledge of electricity with creative design and purposeful making.
Key Vocabulary	battery, bulb, circuit, circuit component, crocodile wire, design, design criteria, develop, electric product, electrical system, feedback, final design, information design, initial ideas, peer-assessment, public, research, self-assessment, sketch
Key Learning Objectives	- I am learning to understand the purpose of information design. - I am learning to research a set topic to develop a range of initial ideas. - I am learning to develop an initial idea into a final design. - I am learning to assemble my final product and incorporate a simple circuit.
Key Knowledge	1. A circuit needs a power source to work. 2. Batteries provide electrical energy. 3. Bulbs light up when connected in a complete circuit. 4. Wires connect circuit components together. 5. Electrical systems can be added to products for a purpose. 6. Design criteria help make products successful.
Skills to be Covered	Design: ● Carrying out research based on a given topic to develop a range of initial ideas. Make: ● Generating a final design for the electric poster with consideration for the client's needs and design criteria. ● Planning the positioning of the bulb (circuit component) and its purpose. ● Mounting the poster onto corrugated card to improve its strength and withstand the weight of the circuit on the rear. ● Measuring and marking materials out using a template or ruler. ● Fitting an electrical component (bulb). ● Learning ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge). Evaluation: ● Learning to give and accept constructive criticism on their work and the work of others. ● Testing the success of initial ideas against the design criteria and justifying opinions. ● Revisiting the requirements of the client to review developing design ideas and check they fulfil their needs.
End of assessment quiz	<i>Each quiz should also revisit two questions from previous units</i> 1. What does a circuit need to work? 2. What is the job of a battery? 3. When does a bulb light up?



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4. What do wires do in a circuit?
 5. Why might electrical systems be added to products?
 6. What are design criteria used for?

