English Martyrs' CATHOLIC VOLUNTARY ACADEMY

UKS2 Design and Technology Curriculum and Knowledge Map

St Ralph Sherwin Catholic Multi Academy Trust

KS3
Learn about basic components in a simple circuit.
• Learn about soldering equipment.
• Learn about H&S quality using the soldering equipment.
• Practice using the Soldering Equipment to make a simple circuit
Learning about different types of mechanisms and where they are used in the real world.
• Learn about linkage mechanisms and use in the real world
• How to design and draw.
• How to create a working toy with a mechanism
• Health and safety within the workshop
• Basic Tools within the workshop
• Decorating and finishing to make a high-quality product.
• Critically Evaluating yours and others work

Year 5/6

Pentecost 1
Mechanical systems: Making a pop-up book (4 weeks)
B 5- Create a pop- up book design
B 5/6- create layers and spacers to cover the workings of mechanisms
A 5/6- Give an overview of the structure of the book and begin to draw and assemble components necessary for the structures/mechanisms.
A 6- Explain mechanism choices and why their suit the product.
D 6- Select a wider range of more sophisticated mechanisms and structures to apply to their product justifying decisions to make high quality design choices

Lent 1
Cooking and nutrition: Developing a recipe (6 weeks)
B 5- Describe how ingredients are reared and processed.
B 5/6- Name adaptations to design a recipe.
A 5/6- Compare and contrast nutritional values using a nutrition calculator.
A 6- Explain key health and safety precautions taken when preparing food.
D 6- Justify ingredient choices and evaluate the final product.

Advent 1
Electrical systems: Doodlers (4 weeks)
B 5- describe how motors are used in electrical products.
B 5/6- Create a DIY kit for another individual to assemble their product.
A 5/6- Summarise why their doodler has a certain configuration based in research and investigation.
A 6- Explain the steps required to assemble a doodler as part of a set of instructions explaining how to identify if it is functional or not.
D 6- Compile instructions explaining potential areas for error and ways to troubleshoot if the product is functional providing constructive criticism to improve a set of instructions following testing.

Year B

Pentecost 1
Digital world: Navigating the world 4 weeks
B 5- Create a design brief and criteria based on a clients request.
B 5/6- Create a program to include multiple functions as part of a navigation device.
A 5/6- give evidence to support material choices against given criteria.
A 6- Compare and contrast product concepts against a list of design criteria.
D 6- Propose a product pitch plan that includes key information such as functions of the program, materials chosen drawn from the rest of the project.

Lent 2
Structure: Playgrounds
B 5- Create a playground design with a variety of structures.
B 5/6- Create a range of structures suited to the design.
A 5/6- Compare and contrast structures and make improvements based on observations.
A- 6 identify a range of landscape features from a range of materials which enhance the apparatus.
D 6- Using imaginative use of materials propose landscape creation and securely attach the apparatus.

Advent 1
Textiles: Waistcoats 4 weeks

B 5- Create a waistcoat design
B 5/6- Describe how to mark and cut fabric according to the design
A 5/6- Summarise how to use a template to mark and cut out panels neatly with accuracy.
A 6- Explain how to join fabric using a strong running stitch to make a functional waistcoat.
D- 6 justify and evaluate design choices made highlighting areas of success and suggestions on how it could be developed.

Year A

LKS2

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UKS2

Year 3/4

Pentecost 1
Structure: Constructing a castle (4 weeks)
B 3- Describe how multiple shapes combine to make a strong and stable structure
B 3/4- Create a castle design with key features identified
A- 3/4 Explain how to construct Geometric shapes using nets.
A- 4 Select and apply unique features to their initial design
D- 4 Investigate how to build complex structures from simple geometric shapes with accuracy and creativity.

Lent 1
Cooking and nutrition: Eating seasonally (6 weeks) TESCO in
B 3- describe how food comes from different places around the world.
B 3/4- Name the benefits of seasonal food
A 3/4- Explain which equipment will be best suited to preparing different food types.
A 4- Organise information about the flavours of different foods expressing preferences for the ingredients tasted and explaining which work well together.
D 4- select an array of seasonal vegetables and fruits based on specific criteria such as taste, appearance and nutritional value to construct a tart.

Advent 1
Digital world: Wearable technology (6 weeks)
B 3- Name and describe existing products
B 3/4- Develop design criteria.
A 3/4- Identify patterns in programming to debug and initiate a flashing LED panel when a button is pressed.
A 4- Explain to a user what each feature on the intended product does using annotations on a drawing which represents the product.
D-4 Justify additions to the design requirements to their product when it is at point of scale stage.

Year B

Pentecost 1 4 weeks
Electrical systems: Torches
B 3- List electrical items and describe how they work
B 3/4- Create a working switch.
A 3/4- Compare and contrast features of a torch and explain what makes a torch successful
A 4- create suitable designs and explain how they fit the success criteria and personal design preferences.
D 4- select special features in the creation of a torch to suit a client and discuss how they could be used in other products.

Lent 1 4 weeks
Mechanical systems: Making a slingshot car
B 3- Create a car chassis
B 3/4- create and define a shape that reduces air resistance.
A 3/4- Identify significant design features that are suitable for the project.
A- 4 Explain how certain panels will fit the chassis better and how they can be assembled effectively using tabs.
D 4- draw conclusions from testing as to the ways their car could be improved.

Advent 1 4 weeks
Structures: Pavilions
B 3- Create a range of different shaped frame structures
B 3/4- Create a structure design
A 3/4- Compare and contrast materials and construction techniques to create a stable, free-standing frame reflecting the design.
A 4- explain choices of materials and techniques to add cladding to the pavilion which clearly reflects the chosen theme and design criteria.
D 4- Experiment with and research a wide range of materials to create and attach cladding which has strong links to the theme and design criteria.

Year A

KS1

English Martyrs' CATHOLIC VOLUNTARY ACADEMY

KS1Design and Technology Curriculum and Knowledge Map

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LKS2

Year 1/2

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Pentecost 1

Cooking and Nutrition: Smoothies (6weeks)

B 1- Describe where fruits and Vegetables Grow

B 1/2- Name how to be safe when preparing food.

A 1/2- Organise information about different fruit and juices in order to select which to use in a smoothie.

A 2- Identify which ingredients to chop and which to juice using senses to compare and contrast smoothies.

D 2- Suggest other combinations which might work well and justify ideas.

Lent 2

Textiles: Puppets (4 weeks)

B 1- name and apply different methods to join fabrics together.

B 1/2- Create a template to apply to my design

A 1/2- Explain how to align to pieces of fabric in my puppet design and why this is important.

A 2- Compare joining methods and apply the most effective to decorate a puppet.

D-2 Adapt a design so that it represents a chosen character and features a range of joining techniques to decorate the puppet

Advent 1

Structures: Constructing a windmill (4 weeks)

B 1- list individual preferences and requirements in a design.

B 1/2- Create a stable structure

A 1/2- Assemble the components of my structure

A 2- Articulate historical and contemporary uses of windmills and cut and assemble components with accuracy.

D 2- Compile more sophisticated products through greater attention to accuracy and precision during the making process.

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Year B

Pentecost 1

Mechanisms: Making a moving monster 4 weeks

B 1- Describe how certain objects move.

B 1/2- describe key terms accurately such as levers, linkages and pivots.

A 1/2- Explain how to create functional linkages with desired input and output motions.

A 2- identify important design criteria using suitable linkage systems and apply them to a design.

D 2- select suitable materials and assemble creatively to make planned monster features.

Lent 2

Mechanisms: Fairground Wheel 4 weeks

B 1- Explore wheel mechanisms and create a Ferris wheel design.

B 1/2- List Appropriate materials to apply to the design.

A 1/2- Consider materials, shape, construction and mechanisms of the wheel and label designs.

A 2- create and evaluate a structure with a rotating wheel using a design plan.

D 2- predict based on evidence and use this to make sure that the structure rotates smoothly without resistance.

Advent 2

Structures: Baby Bear's chair 4 weeks

B 1- Name the features of structures and the stability of different shapes

B 1/2- Describe how the shape of a structure can effect its strength

A 1/2 – Explain how ideas would suit a design brief.

A 2- Explain how you have made a structure so that it is strong, stiff and stable.

D-2 Select from a range of materials to produce a model that meets a brief explaining how strength has been established.

Year A

Reception

- Safely explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Share their creations, explaining the processes they have used
- Make use of props and materials when role-playing characters in narratives and stories
- Uses a range of tools, including scissors, paint brushes and cutlery