Cam Woodfield Junior School Design and Technology Long Term Forecast

Year 3

DT -To take inspiration from design throughout history: Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.

Cooking and Nutrition:
- Know that a healthy diet is made up from a variety of different food and drink, as depicted in The Eatwell Plate.
- Measure ingredients using scales.
- Prepare ingredients hygienically and using the appropriate utensils by following a recipe.

Materials:
- Measure and mark out accurately.
- Cut materials accurately and safely by selecting appropriate tools.
- Cut slots and internal shapes

Construction:
- Strengthen frames using diagonal struts.
- Investigate how to make structures more stable e.g by widening the base.

Computing:
- Generate designs with annotated sketches and computer-aided design (CAD) where appropriate

To Design, Make, Evaluate and Improve:
- Investigate existing products to analyse and understand how they are made.
- Develop ideas to create a design.
- Generate designs with annotated sketches.
- Identify steps to make their product.
- Understand what a prototype is and make a basic model.
- Reflect on work and techniques as work progresses.
- Identify strengths and weaknesses of their design ideas.
- Talk about how closely their finished product meets their design criteria and meets the need of the user.

Year 4

DT -To take inspiration from design throughout history: Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.

Materials:
- Measure and mark out to the nearest mm.
- Use and explore complex popups.
- Create nets.

Electricals and Electronics:
- Create series circuits.

Textiles:
- Join fabrics using a range of stitches with increasing independence. Add further decoration to their work using buttons , beads, sequins etc
- Use a pattern
- Sewing skills are becoming more accurate.

Mechanics:
- Begin to use mechanical systems in their products

To Design, Make, Evaluate and Improve:
- Investigate existing products, including drawing them to analyse and understand how they are made.
- Develop more than one design.
- Generate designs with annotated sketches and computer-aided design (CAD) where appropriate.
- Plan a sequence of actions to make a product.
- Develop prototypes.
- Refine work and techniques as work progresses, continually evaluating the product design.
- Identify strengths and weaknesses of their design ideas, with suggestions on how the product could be improved.
- Analyse how closely their finished product meets their design criteria and meets the need of the user.

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Year 5

DT -To take inspiration from design throughout history: Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.

Computing:
- Control a model using an ICT control model.
- Use prototypes, cross-sectional diagrams, exploded diagrams and CAD software to represent designs.

Materials:
- Join/combine materials with temporary, fixed or moving joints.
- Measure and mark out to the nearest mm.
- Cut materials with precision.
- Cut accurately and safely to a marked line.

Mechanics:
- Understand and use mechanical structures in their products e.g. gears, pulleys, levers and gears.
- Use a cam to make an up and down mechanism.

Construction:
- Use a glue gun with close supervision.
- Join materials using appropriate methods.
- Use a hand drill to drill tight and loose fit holes.
- Cut wood accurately to 1mm. Build frameworks using a range of materials e.g. wood, card and corrugated plastic.

To Design, Make, Evaluate and Improve:
- Investigate existing products, including drawing them to analyse and understand how they are made.
- Develop more than one design.
- Generate designs with annotated sketches and computer-aided design (CAD) where appropriate.
- Plan a sequence of actions to make a product.
- Develop prototypes.
- Refine work and techniques as work progresses, continually evaluating the product design.
- Identify strengths and weaknesses of their design ideas, with suggestions on how the product could be improved.
- Analyse how closely their finished product meets their design criteria and meets the need of the user.

Year 6

DT -To take inspiration from design throughout history: Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.

Food:
- Assemble or cook ingredients, controlling the temperature of the oven or hob if cooking.
- Combine ingredients appropriately e.g. beating or rubbing.
- Measure ingredients to the nearest gram and millilitre and calculate ratios of ingredients to scale up or down from a recipe.
- Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.
- Create and refine recipes, including ingredients, methods, cooking times and temperatures.
- Understand the importance of correct storage and handling of ingredients.

Materials:
- Cut materials with precision and refine the finish with appropriate tools (such as sanding wood).
- Show an understanding of the qualities of materials to choose appropriate tools to cut and shape.

Textiles:
- Create products using pattern pieces and demonstrate an awareness of seam allowance.
- Pin and tack fabric pieces together.
- Join fabrics by over sewing, back stitch, blanket stitch.
- Make quality products with increasing accuracy and independence.

Electricals and Electronics:
- Create circuits that employ a number of components (such as LEDs, resistors and transistors).
- Create parallel circuits.

To Design, Make, Evaluate and Improve:

- Undertake research to inform design process including the use of surveys/interviews.
- Use prototypes, cross-sectional diagrams, exploded diagrams and CAD software to represent designs.
- Justify their decisions about materials and methods of construction of a product.
- Ensure products have a high-quality finish, using art skills where appropriate.
- Identify and implement actions on how their design/product could be improved, with justifications.
- Consider the views of the user when evaluating their own work.