Medium Term Plan: Supporting Implementation of LTP/Progression Grid

Subject: DT – Electrical Systems: Torches.
Year: 4

NC/PoS:

- Use research & develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
- Generate, develop, model & communicate their ideas through discussion, annotated sketches, cross-sectional & exploded diagrams, prototypes, pattern pieces & computer- aided design.
- Select from & use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.
- Select from & use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
- Investigate & analyse a range of existing products.
- Evaluate their ideas & products against their own design criteria & consider the views of others to improve their work.
- Understand how key events & individuals in design & technology have helped shape the world.
- Understand & use mechanical systems in their products [for example, gears, pulleys, cams, levers & linkages].

Prior Learning (what pupils already know and can do)

- Explain what information design is and understand its impact, considering what could happen if we had no signage, posters or written communication in public places of interest.
- Complete design criteria based on a client's request.
- Roughly sketch four initial poster ideas, indicating where a bulb will be located for each.
- Review their initial ideas against the design criteria and peer feedback, developing a final design.
- Assemble an electric poster, including a functional, simple circuit with a bulb, following a demonstration.
- Test that the simple circuit works by adding a battery.

End points (what pupils MUST know and remember)

- Identify electrical products and explain why they are useful.
- Help to make a working switch.
- Identify the features of a torch and how it works.
- Describe what makes a torch successful.
- Create suitable designs that fit the success criteria and their own design criteria.
- Create a functioning torch with a switch according to their design criteria.

Key Vocabulary

Battery, bulb, buzzer, circuit, diagram, component, conductor, electrical item, electricity, electronic item, insulator, series, circuit, switch, target, audience, test, torch, wire.

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Session 1: Electrical products.
To learn about electrical items and how they work.
Introduce electricity & how it is used then batteries. Using Pupil Video, model how to make a circuit then children to create their own circuit. Continue with Pupil Video to model how to make a switch, children to then make their own switch.
Vocab: battery, bulb, buzzer, conductor, circuit diagram, electrical item, electricity, electronic item, insulator, series circuit, switch, wire.

Session 2: Evaluating torches.
To analyse and evaluate electrical products.
Use Presentation: Torches to display different torches & discuss the different parts / features. Children to then work in pairs to look at then evaluate different torches.
Vocab: component, design criteria, evaluation, LED (light emitting diode), shape, target audience, torch.

Session 3: Torch design.
To design a product to fit a set of specific user needs.
Explain that the children will design a torch for a particular person (**target audience**) based on that person's profile. Using Presentation : Designing Torches, children to recognize & note their design criteria. Children to then design their torch referring to their design criteria & labelling each part / feature.
Vocab: conductor, design, design criteria, insulator, target audience.

Session 4: Torch assembly.
To make and evaluate a torch.
Using their designs & design criteria from previous lesson, children to now make their torch. Once completed, children to test then evaluate their torch.

Vocab: assemble, design criteria, evaluation, model, series circuit, test.

Future learning this content supports:
KS2 (Y5) – Electrical Systems: Doodlers.