BILSTON CHURCH OF ENGLAND PRIMARY

CURRICULUM STATEMENT – DESIGN AND TECHNOLOGY

Design and Technology is an inspiring, rigorous, and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Bilston Church of England, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants, and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, engineering, computing, and art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The children design and create products that consider function and purpose, and which are relevant to a range of sectors (for example, the home, school, leisure, culture, enterprise, industry, and the wider environment).

When designing and making, the children are taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at individuals or groups.
- generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional diagrams, prototypes, pattern pieces and computer-aided design.

Make

- select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining, and finishing, as well as chopping and slicing) accurately.
- select from and use a wider range of materials, ingredients, and components, including construction materials, textiles, and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.

Evaluate

- investigate and analyse a range of existing products.
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- understand how key events and individuals in design and technology have helped shape the world.

Develop, Use and Apply Technical Knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- understand and use mechanical systems in their products.
- understand and use electrical systems in their products.
- apply their understanding of computing to program, monitor and control their products.

- Understand some of the ways that food can be processed and the effect of different cooking practices (including baking and grilling).

Key skills and key knowledge for Design and Technology have been mapped across the school to ensure progression between year groups. The context for the children's work in Design and Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons are also taught as a block over a half term so that children's learning is focused throughout each unit of work.

Each new unit of work begins with a recap of the previous related knowledge from previous years. This helps children to retrieve what they have learnt in the earlier sequence of the programme of study and ensures that new knowledge is taught in the context of previous learning to promote a shift in long term memory. Key vocabulary for the new topic is also introduced as part of this 'unit introduction' and children are shown the 'Topic Vocabulary (ipad) Mat. This provides definitions and accompanying visuals for each word to ensure accessibility to all. This approach also means that children can understand the new vocabulary when it is used in teaching and learning activities and apply it themselves when they approach their work.

The KWL (Know, want to know, learned) process is used throughout each unit of work. Once children know the new vocabulary for the unit and how it relates to previous learning, the children are asked what they already know specifically about the new topic. This provides the teacher with an insight into the children's 'starting points' for the topic, to enable the use of assessment to inform planning. The children are then also asked what they would like to know and class responses are collated and used to inform the programme of study to ensure an aspect of 'focussed interest planning'. A record of this process kept in children's Art and DT books. At the end of the topic, children take part in a review of what they now know. This involves a review of the key knowledge, with reference to the ipad (knowledge) mat. The teacher is then able consolidate any of the key knowledge which is identified at this part of the process as not yet being secure.

Within all lessons, teachers plan a phase of progressive questioning which extends to and promotes the higher order thinking of all learners. Questions initially focus on the recall or retrieval of knowledge. Questions then extend to promote application of the knowledge in a new situation and are designed to promote analytical thinking, such as examining something specific. In design and technology, an example of this level of questioning might ask children to consider how a mechanical system (such as gears and pulleys) might speed up, slow down, or change the direction of movement. The questions that teachers ask within the same lesson phase, then focus on the children's own work and how they might change or create an outcome and justify a choice they have made which is based on their evaluation.

We ensure the children:

- develop the creative, technical, and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- build and apply a repertoire of knowledge, understanding and skills to design and make high-quality prototypes and products for a wide range of users and critique, evaluate and test their ideas and products and the work of others.
- understand and apply the principles of nutrition and learn how to cook. Children will design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child.

Children learn how to take risks, becoming resourceful, innovative, enterprising, and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth, and well-being of the nation.