Bricknell Primary School

Design and Technology Subject Policy

Design and Technology Policy
Subject Co-ordinator: Katie Goodson

Design and Technology

Curriculum Intent

At Bricknell Primary School, our Design and Technology Curriculum provides opportunities for the children to think of themselves as, and become, designers and producers of purposeful products that will be used in real-life contexts. We encourage the children to think and intervene creatively to solve problems both as individuals and as members of a team. The children consider their own and others' needs, wants and values. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and effectiveness and they are encouraged to become innovators and risk takers.

At Bricknell, we have developed our Design Technology curriculum to develop pupils as designers. Our subject leader has worked alongside the Curriculum Leader to create a Curriculum Overview Document which demonstrates the sequencing and mapping of their subject to ensure our pupils are given the acquired skills and knowledge to further their education journey into KS3 and life beyond the classroom.

Our aim is to provide inclusive and aspirational environments and learning experiences where pupils thrive and build the cultural capital they need to make ambitious choices about their own futures, overcoming any barriers. In order to achieve this, our curriculum is underpinned by the principles highlighted in our Aspiration Curriculum.

Within the Design and Technology Curriculum Overview Document, our progressive objectives identify what pupils should know by the end of each year group and link to prior learning. These enable teachers to identify and plug gaps in pupils' knowledge and skills. Within Design and Technology, pupils will develop a deep understanding of key concepts and second order concepts. These key concepts have been carefully considered and identified as the core knowledge and skills, required to successfully achieve in Design and Technology. The Key concepts are revisited and developed as the pupils move through the school to ensure the knowledge and skills are firmly embedded within the long-term memory. These key concepts compliment work carried out across the school in line with the Aspiration Curriculum. The expectation is that, by the end of Primary School, children will know and understand these key concepts and to give them a solid foundation to enter the Design Technology curriculum at KS3.

In addition to first order concepts, the subject leader has identified subject specific second order concepts. These can be used across all aspects of a subject to organise the substantive knowledge and skills taught.

The Design and Technology curriculum is structured into five **key concepts**:

- **Mechanics**
- **Textiles**
- **Structures**
- **Electric and digital**
- **Cooking and nutrition**

Second order concepts:

Second order concepts are fundamental knowledge and skills which are transferable across a range of curriculum subjects. For example, we introduce pupils to the concept of 'similarity and difference' early in their education, developing the observational skills and language needed to make comparisons. This is developed and applied as pupils move through the school so they can confidently apply this in all areas of the curriculum by upper Key Stage Two.
A summary of the second order concepts and how they apply to Design Technology are provided in the table below.

Curriculum subject	Significance	Similarity and difference	Cause and consequence	Continuity and change	Responsibility	Communication (Oracy & Written)	Enquiry
D&T	Significant designers and designs, real world examples of effective and successful products and designs	Making comparisons between products and designs to inform own plans, noting differences, drawing conclusions	Identifying how things work, how an action can cause change or movement/ strengthen	How design has changed over time	Working safely with different materials, responsibilities to customers to ensure quality products, healthy eating	Using correct terminology, evaluating, communicating designs accurately, labelling and annotating, explaining processes, presenting	

By the end of EYFS, pupils will:

- be able to explore and choose a range of materials to create and make things
- be able to investigate how things work
- draw, build and make things which fulfil a function

By the end of Key Stage 1, pupils will:

- learn the knowledge and skills needed to design and make products for a range of relevant contexts
- be able to design and test products that are purposeful and appealing
- select tools and materials which are most suitable to make their products from
- evaluate their products against existing products and design criteria
- develop the technical knowledge needed to build structures which are stronger and more stable and be able to use a range of mechanisms
- develop an understanding of where food comes from and how to use the basic principles of a healthy diet to make their own simple dishes

By the end of Key Stage 2, pupils will:

- develop further knowledge and skills to enable them to design and make purposeful and quality products in different contexts
- be able to research how existing products work and use this to develop designs and products to meet a design brief
- be able to produce more detailed, annotated designs and to test and refine their ideas
- be able to select and use a wider range of tools and materials according to their function and properties
- develop the technical knowledge required to make their products work effectively
- be able to evaluate the effectiveness and quality of their products and use this to improve their work
- develop an understanding of a healthy and varied diet and be able to prepare and cook a range of dishes.

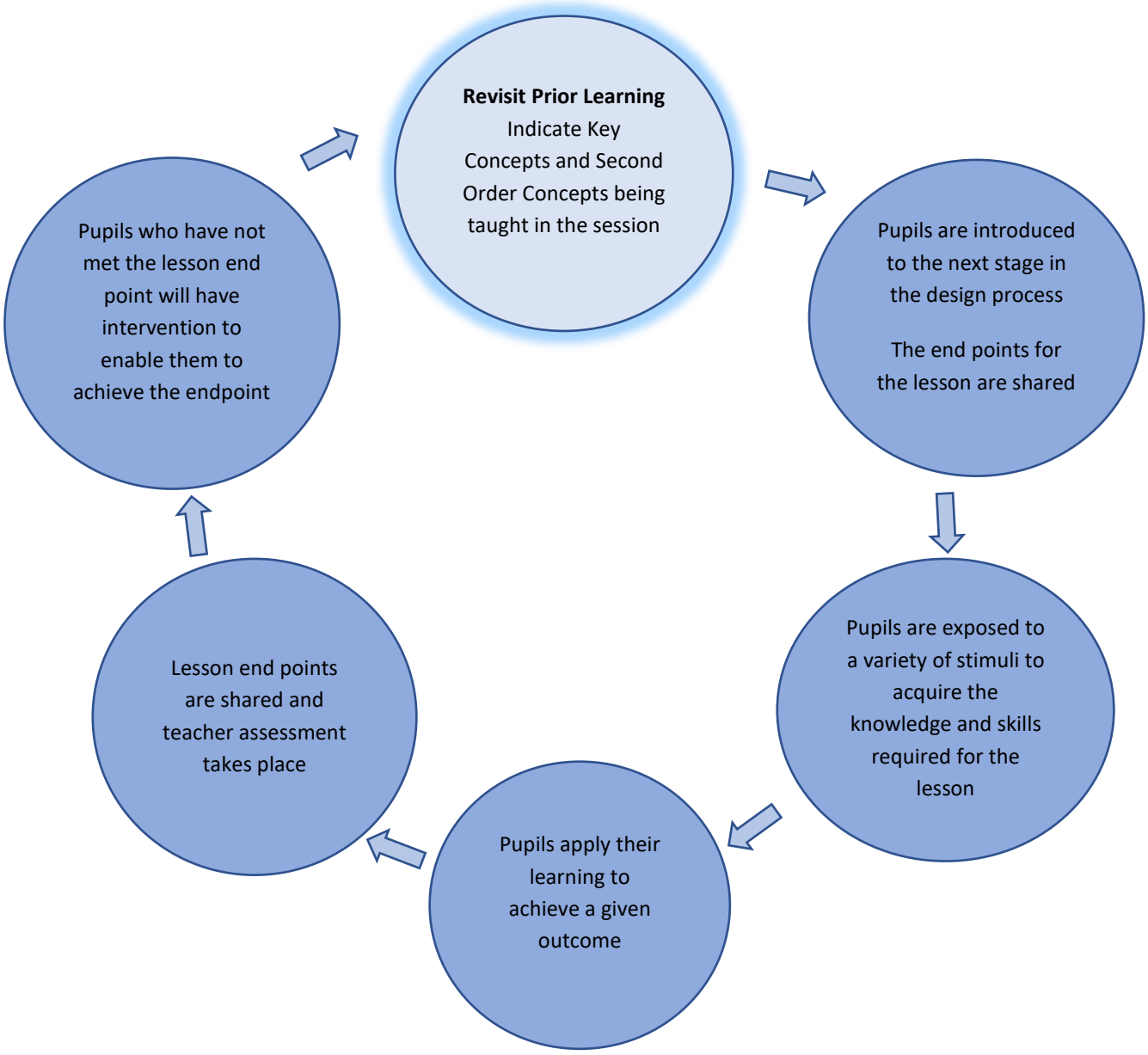
Any child working below their age-related expectation, will receive a tailored curriculum with personalised objectives taken from the Curriculum Assessment Toolkit. This will enable all children to build the skills and knowledge needed to bridge the gap between themselves and their peers, enabling them to reach their full potential.

Implementation

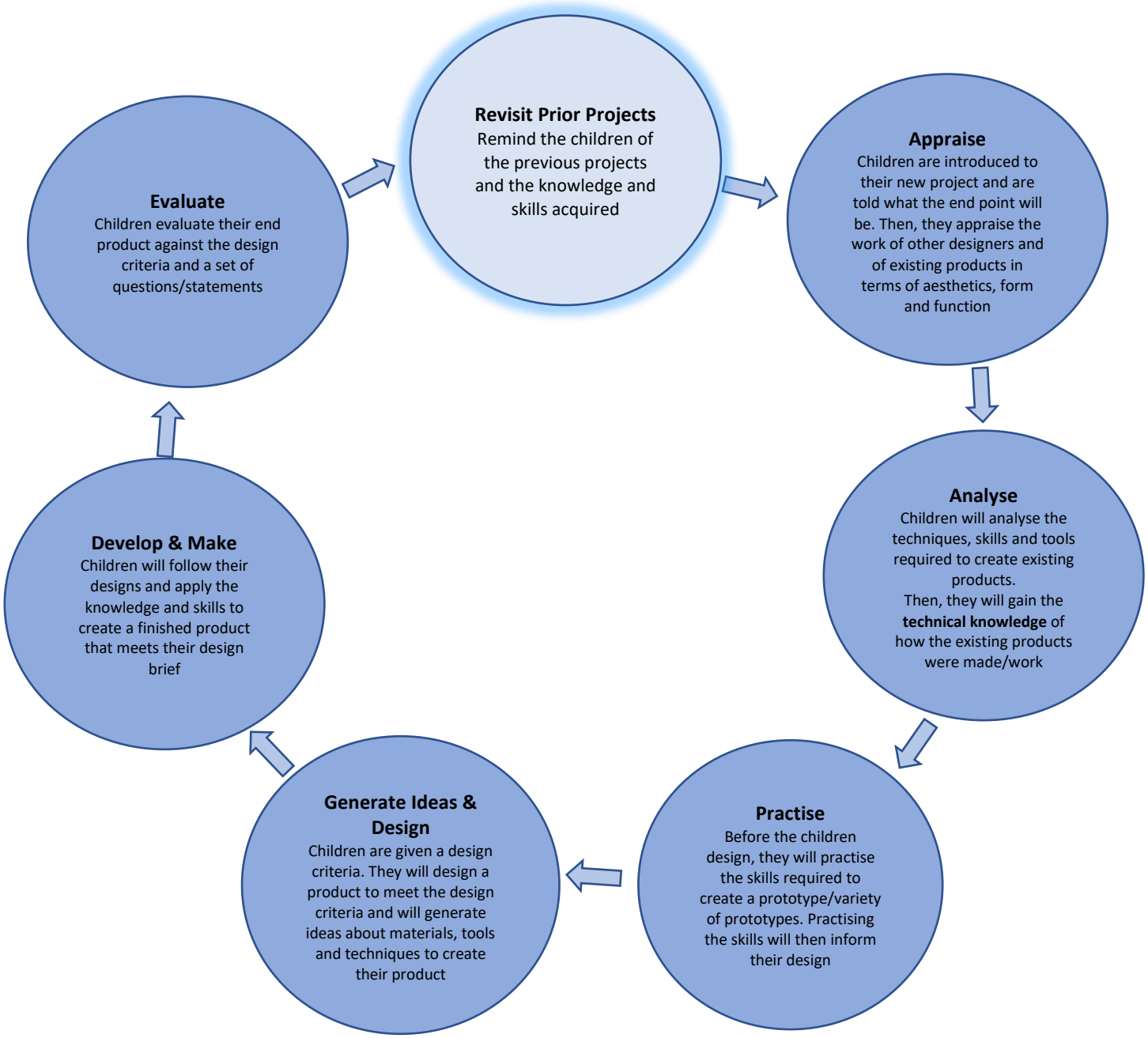
At Bricknell Primary School, our curriculum is carefully mapped out into a Long-Term Plan by our highly skilled subject coordinator. This enables links between subjects to be identified and carefully planned for to support pupils' retention of knowledge and skills.

The academic year is broken down into 3 overarching themes. During these themes, each year group will carry out a Design and Technology project. The class teachers have the freedom to block the subject to ensure the children are fully immersed in the design process or can teach the lessons as an unblocked unit. Cross curricular links are sought where possible and outcomes are demonstrated in Design and Technology books as well as photographic or video evidence.

At Bricknell, Design and Technology lessons will follow the same teaching sequence outlined below.



At Bricknell, all Design and Technology projects will follow the same teaching sequence outlined below. Each unit is planned to last 6 lessons.



In light of Covid 19 and Bricknell's Recovery Curriculum, subject leaders have identified key concepts across the curriculum which need to be prioritised in each year group to ensure that pupils have the knowledge required to access their next progressive steps in their education and enable them to access the National Curriculum.

Impact

A wide range of strategies are used to measure the impact of our Design and Technology curriculum. Our teaching sequence allows children to revisit prior learning at the start of each unit and each lesson. This enables the knowledge and skills taught to be transferred from the thinking memory into the long-term memory and to be recalled. Formative Assessments are carried out by teachers after each lesson which will allow them to prepare interventions and inform future planning. Additionally, summative assessments are carried out by using an internal assessment tool. As a result of these assessment tools, pupils' misconceptions or gaps in subject knowledge, skills, behaviours and attitudes are addressed and additional teaching and support is provided.

In EYFS, staff professional judgements are valued. Assessments are formative so that they quickly make a difference to children's learning. They inform the provision of activities and experiences which develop children's skills and knowledge as well as giving opportunity for further practise. We record WOW moments on Tapestry and build up a detailed picture of each child using a Child on a Page document.

The Design Technology coordinator will monitor the effectiveness of their curriculum through carrying out regular subject 360 evaluations. These evaluations are quality assured by the Curriculum Lead, Senior Leadership and Governors.

The effectiveness of Design and Technology is also monitored through pupil and parental voice throughout the course of the year.

Extra-curricular

An afterschool 'Cookstars' club is available for children of Key Stage 1 and Key Stage 2 to attend. It covers nutrition and healthy eating, instilling a love of cooking which is a crucial life skill that enables pupils to feed themselves and others. Children in KS2 also have access to the Graduate Awards Programme, where they can study in their own time to deepen their learning of Design Technology.

Cross curricular connections.

We teach Design and Technology within our themes. Design and Technology projects, particularly food technology, often link to Science and Geography.

Equality

We believe that pupils at Bricknell Primary School should not be discriminated against in terms of the 9 protected characteristics (Age, Disability, Gender reassignment, Marriage/Civil partnership, Pregnancy/Maternity, Race, Religion/Belief, Sex and Sexual orientation). This intent is embedded and implemented across the whole Design and Technology curriculum. All children should have the opportunity to participate fully in classroom Design and Technology lessons, extra-curricular and whole school activities, therefore reasonable adjustments are made to accommodate all pupils.

SEND

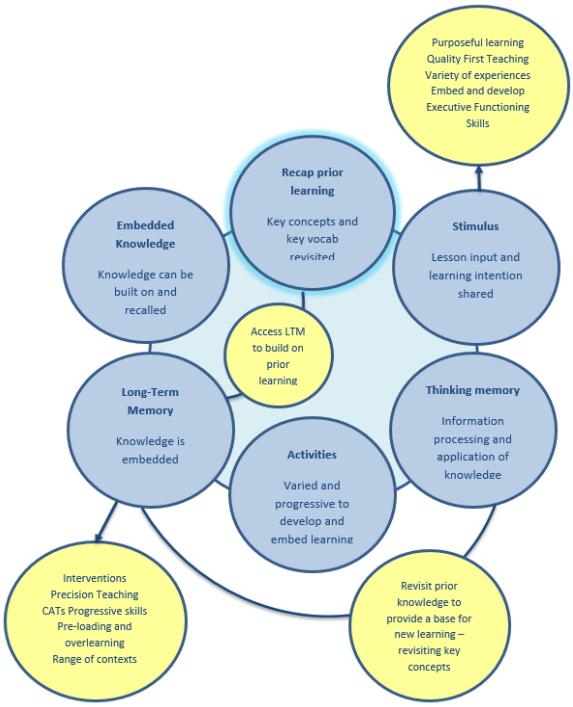
At Bricknell, we have a high SEND population and our pupils are fully immersed into the broad and balanced curriculum. However, we tailor the curriculum to meet the individual needs of SEND pupils. Where a child's need prevents them from accessing the Age Related Expectations for

subjects, planning is tailored to meet the individual needs of all pupils using the CATs document. This document breaks down each objective across the curriculum to enable all pupils to achieve success at an appropriate level for their needs. This ranges from P4 to Year 6 to ensure that there is no ceiling on any child's learning. In addition to this, some pupils are given the opportunity to take part in an AQA life skills programme. This programme consists of a sequence of skills that children work towards and develop their independence. This programme has been developed by the external agency IPASS and is tailored to meet the individual needs of our pupils. Each skill, when mastered, is rewarded with a qualification and certificate. Prior to the children starting this at the age of seven, pupils take part in the CATs PSHE scheme of work which was developed alongside a local special school. This programme aims to plug gaps and remove barriers to learning.

Metacognition

Metacognition relates to thinking about thinking. It is a mechanism to enhance student learning, both for immediate outcomes and for helping students to understand their own learning processes. Metacognitive strategies are embedded into all areas of our curriculum and opportunities are planned to develop these skills over time. These skills include; self-questioning, reflection, developing an awareness of strengths and weaknesses and an awareness of personal learning styles. Developing this metacognitive understanding is a skill for life. When learners "think about their thinking" they are more capable of independent self-improvement. At Bricknell, metacognitive strategies are learned, practised and made into habits in order to improve learning, self-understanding and thinking skills impacting both the present and future.

Our metacognition and working memory model is shown below:



All staff have had extensive CPD, in collaboration with the Educational Psychologist, to support their understanding of child development and metacognition strategies to enable them to develop the knowledge and skills required to enable children to learn progressively over time.

Evaluation
In evaluating the effectiveness of our teaching of Design and Technology, we should be aware of the following:

- Do we allow children to express creative and original thinking through Design and Technology?
- Do we provide children with opportunities to work with a variety of tools, materials, techniques and mediums?
- Do we provide children with opportunities to take risks?
- Do we provide children with opportunities to take ownership of their learning and develop self-confidence?
- Do we provide children with regular opportunities to develop their practical skills?
- Do we allow children to express their feelings and opinions about Design and Technology?

Resources
Bricknell Primary School has dedicated time and resources to update the facilities and equipment needed to enable children to achieve in Design Technology. To support lessons, a good range of resources are available at school and staff are given the opportunity to request additional items as necessary.

Staff CPD
At Bricknell Primary School, invest heavily in CPD to ensure all staff feel empowered to deliver lessons, across all curriculum subjects, and have the ability to embed and assess the metacognition strengths of all pupils.