Laurel Avenue
Community Primary School

Curriculum Statement Design and Technology
Intent, Implementation and Impact

At Laurel Avenue Community Primary we define learning as a change to long term memory. Our aim is to ensure that our pupils experience a wide breadth of study and have, by the end of each Milestone, long term memory of a body of knowledge that they can use well across the curriculum, and that will support them in later life.

Design and technology helps to prepare pupils for the developing world. The subject encourages pupils to become creative problem-solvers, both as individuals and as part of a team. Through the study of design and technology they combine practical skills with an understanding of aesthetic, social and environmental issues. Design and Technology helps all pupils to become discriminating and informed consumers and potential innovators. It should assist pupils in developing a greater awareness and understanding of how everyday products are designed and made.

Our curriculum includes 'Threshold Concepts' (the ideas that shape pupils' thinking), taken from Chris Quigley's 'Essentials Curriculum' in each subject to track pupils' learning through the Milestones.

Each Threshold Concept is explored within different contexts so that it has tangibility and meaning. Breadth of contexts ensures that children gain relevant knowledge and can transfer this knowledge.

Our Aims – The Essential Characteristics of our Design and Technology Curriculum
• Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.

• An excellent attitude to learning and independent working.

• The ability to use time efficiently and work constructively and productively with others.

• The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.

• The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.

• A thorough knowledge of which tools, equipment and materials to use to make their products.

• The ability to apply mathematical knowledge.

• The ability to manage risks exceptionally well to manufacture products safely and hygienically.

• A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.

Intent

At Laurel Avenue Community Primary our curriculum is designed to cater for the range of needs that our children bring to our school. We adopt fully inclusive practice which means all children are able to access the curriculum we offer, regardless of their learning requirements.

The breadth of our curriculum is designed with two main goals in mind:
1) To give our pupils appropriate experiences to develop as confident, responsible citizens.
2) To provide a coherent, structured academic curriculum that leads to a sustained mastery for all and a greater depth of learning for those who are capable.

1. Appropriate experiences
We have developed three curriculum drivers that shape our curriculum and reflect the unique needs of our children. They complement the core values that are at the heart of our school and reflect our resilient and ambitious drive for all children to achieve their best. These drivers are used to give the children aspiration as they become the citizens of the future.

Our drivers are identified as:

Ambition and Possibilities
To have a life-long love of learning that inspires them to look to the future
To have high expectations of themselves and their future
To recognise opportunities beyond the local community
To increase knowledge of different career choices
To develop self-confidence and a 'have a go' attitude
Process
Planning to ensure opportunities to raise children's self-belief and develop a positive attitude towards risk and challenge
Focus on ambition, identifying different jobs and possibilities through topics, visits and visitors; role models for success
Regular opportunities to work as a team, especially Key Stage 2

Life Skills and Enterprise
To develop questioning and research skills, applying to a range of hands-on learning experiences
To work effectively as a team to organise themselves and create an end product
To work independently and be organised and ready for learning
To listen and communicate with others
To complete set tasks in a given period and not give up
To have excellent attendance
To think 'creatively' to solve problems
To be equipped for life beyond Primary School

Process
Opportunities for learning through each of the 5 learning skills - reflective, relationships, resilient, resourceful and risk taking will be provided
Through each topic, children will have opportunities, through a wider range of skills based lessons, to take ownership of their learning and direct it more

Wider opportunities for learning beyond the curriculum to equip children with relevant life skills; health and economic well-being, cooking, e-safety
Encouraged expectation that children attend school and are ready to learn with appropriate equipment and kit and take responsibility to be ready and prepared

Knowledge and Understanding of the World
To experience opportunities that broaden their horizons
To enhance their insight into the community and world by providing meaningful learning opportunities
To celebrate/appreciate diversity and culture at national and international level
To widen general knowledge
To give opportunities to pursue their own lines of enquiry

Process
Using the 'news flash' feature of Espresso and First News newspapers to keep in touch with current issues
Providing opportunities through visits, local exploration and the use of visitors to ask questions and explore the diversity of people, society, culture
Discussing local and global issues and the impact that they have
Asking questions and research historical events in the local and wider communities

2. Cultural capital gives our pupils the vital background knowledge required to be informed and thoughtful members of our community who understand and believe in British values. For example specialist Design and Technology weeks and projects.

3. Curriculum breadth is shaped by our curriculum drivers, cultural capital, subject topics and our ambition for pupils to study the best of what has been thought and said by many generations of academics and scholars.

4. Our curriculum distinguishes between subject topics and threshold concepts. Subject topics are the specific aspects of subjects that are studied.

5. Threshold concepts tie together the subject topics into meaningful schema. The same concepts are explored in a wide breadth of topics. Through this 'forwards-and-backwards engineering' of the curriculum, pupils return to the same concepts over and over, and gradually build understanding of them.

Master practical skills
This concept involves developing the skills needed to make high quality products (we have highlighted a range of skills but they may be added to or changed as appropriate for your school).

Design, make, evaluate and improve
This concept involves developing the process of design thinking and seeing design as a process.

Take inspiration from design throughout history
This concept involves appreciating the design process that has influenced the products we use in everyday life.

6. For each of the threshold concepts there are three milestones, each of which includes the procedural and semantic knowledge pupils need to understand the threshold concepts, provide a progression model.

7. Cognitive science tell us that working memory is limited and that cognitive load is too high if pupils are rushed through content. This limits the acquisition of long-term memory. Cognitive science also tells us that in order for pupils to become creative thinkers, or have a greater depth of understanding, they must first master the basics, which takes time.

8.Within each milestone, pupils gradually progress in their procedural fluency and semantic strength through three cognitive domains: basic, advancing and deep. The goal for pupils is to display sustained mastery at the advancing stage of understanding by the end of each milestone and for the most able to have a greater depth of understanding at the deep stage. The time-scale for sustained mastery or greater depth is, therefore, two years of study.

Curriculum Map for Years 1 and 2			Curriculum Map for Years 3 and 4			Curriculum Map for Years 5 and 6		
Threshold Concepts								
Milestone 1			Milestone 2			Milestone 3		
B	A	D	B	A	D	B	A	D
Year 1	Year 1/2	Year 2	Year 3	Year 3/4	Year 4	Year 5	Year 5/6	Year 6

9.As part of our progression model we use a different pedagogical style in each of the cognitive domains of basic, advancing and deep. This is based on the research of Sweller, Kirschner and Rosenshine who argue for direct instruction in the early stages of learning and discovery-based approaches later. We use direct instruction in the basic domain and problem-based discovery in the deep domain. This is called the reversal effect.

Implementation

10.Our curriculum design is based on evidence from cognitive science; three main principles underpin it:

• Learning is most effective with spaced repetition.

• Interleaving helps pupils to discriminate between topics and aids long-term retention.

• Retrieval of previously learned content is frequent and regular, which increases both storage and retrieval strength.

11. In addition to the three principles, we also understand that learning is invisible in the short term and that sustained mastery takes time.

12. Our content is subject specific. We make intra-curricular links to strengthen schema.

13. Continuous provision, in the form of daily routines, replaces the teaching of some aspects of the curriculum and, in other cases, provides retrieval practice for previously learned content.

Impact

14. Because learning is a change to long-term memory, it is impossible to see impact in the short term.

15. We do, however, use probabilistic assessment based on deliberate practice. This means that we look at the practices taking place to determine whether they are appropriate, related to our goals and likely to produce results in the long run.

16. We use lesson observations to see if the pedagogical style matches our depth expectations (see point 11).

Monitoring

The Design and Technology Co-ordinator and class teachers are responsible for monitoring the standard of the children's work and the quality of teaching in Design and Technology. The Co-ordinator is responsible for supporting teaching staff in the teaching of Computing, and for providing a strategic lead. The Co-ordinator completes an annual report where they evaluate the strengths and weaknesses in the subject and indicate areas for further improvement. Throughout each academic year, the Co-ordinator will undertake the monitoring of Design and Technology across the school.

Signed:
Chair of Learning, Teaching and Achievement Committee

Date:

Signed:
Co-ordinator

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