Laurel Avenue
Community Primary School

Curriculum Statement for Computing
Intent, Implementation and Impact

At Laurel Avenue Community Primary we define learning as a change to long term memory. Our aims are to ensure that our pupils experience a wide breadth of study and have, by the end of each key stage, long-term memory of an ambitious body of procedural and semantic knowledge, that will support them in later life.

Computing prepares pupils to actively engage in a rapidly changing world in which work and other activities are increasingly transformed by access to varied and developing technology.
We recognise that Computing is an important tool in both the society we live in and in the process of teaching and learning. Pupils use Computing to find, explore, analyse, exchange and present information responsibly, creatively and with discrimination.

Our vision is for all teachers and learners in our school to become confident users of technology so that they can develop the skills, knowledge and understanding which enables them to use appropriate Computing resources effectively as powerful tools for teaching and learning.

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 Computing Curriculum

We aim to ensure that all pupils gain:
- *Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.*
- *The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.*
- *An understanding of the connected nature of devices.*
- *The ability to communicate ideas well by using applications and devices throughout the curriculum.*
- *The ability to collect, organise and manipulate data effectively.*

Curriculum Intent
Our Curriculum is underpinned by our core values and the three drivers. We use both the EYFS framework and the National Curriculum to shape the content and expectations of our curriculum. The Chris Quigley Essentials curriculum is used to help us structure this in each year group and look at progress within each phase. We have structured this so that each year group has:
a) A clear list of what must be covered.

b) The threshold concepts pupils should understand.
c) Criteria for progression within the threshold.
d) Criteria for the depth of understanding (Basic, Advancing and Deep)

1.Curriculum drivers shape our curriculum breadth. They are derived from an exploration of the backgrounds of our pupils, our beliefs about high-quality education and our values. They are used to ensure we give our pupils appropriate and ambitious curriculum opportunities.

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 E-safety weeks, Safer Futures events, specialist teaching sessions with curriculum advisors.

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.

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.

Code
This concept involves developing an understanding of instructions, logic and sequences.

Connect
This concept involves developing an understanding of how to safely connect with others.

Communicate
This concept involves using apps to communicate one's ideas.

Collect

This concept involves developing an understanding of databases and their uses.

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.
The Diagram below shows a model of our curriculum structure:

<table>
<tr><td colspan="3">Curriculum Map for Years 1 and 2</td><td colspan="3">Curriculum Map for Years 3 and 4</td><td colspan="3">Curriculum Map for Years 5 and 6</td></tr>
<tr><td colspan="9">Threshold Concepts</td></tr>
<tr><td colspan="3">Milestone 1</td><td colspan="3">Milestone 2</td><td colspan="3">Milestone 3</td></tr>
<tr><td>B
Year 1</td><td>A
Year 1/2</td><td>D
Year 2</td><td>B
Year 3</td><td>A
Year 3/4</td><td>D
Year 4</td><td>B
Year 5</td><td>A
Year 5/6</td><td>D
Year 6</td></tr>
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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 Computing Co-ordinator and class teachers are responsible for monitoring the standard of the children's work and the quality of teaching in Computing. 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 Computing across the school.

Maintenance

Maintenance is carried out by the school's shared technician who visits the school once a fortnight to give technical support and maintain the network to its optimum capability. In addition, he completes network tasks as designated by the Computing Co-ordinator. Any issues arising from use of Computing equipment/software need to be logged using the SE Portal. All teaching staff have access to this on their desktops.

Health and Safety

When working with tools, equipment and materials, in practical activities and in different environments, including those that are unfamiliar, pupils should be taught:

- *to never look into the projector lens*
- *the appropriate and safe use of all equipment, especially scanners and photocopiers due to the bright lights.*

School Liaison Transition

The school will regularly use IT to transfer information from school to school. However, it is appreciated that paper-based mail still has to be used and is, on occasion, the only acceptable method to use.

Legislation in Computing

When appropriate legislation appertaining to the use of IT changes, the Computing Co-ordinator will discuss this with all members of staff.

Software copyright is a serious issue and is taken seriously by Laurel Avenue Community Primary School. Only software where the correct user site license has been purchased will be loaded onto the network so that staff know it is acceptable to use on all machines.

Legislation covering Computing in schools includes:
The Copyright, Designs and Patents Act 1988
The Computer Misuse act 1990
The Data Protection Act 1998
The Freedom of Information Act 2000
The Protection from Harassment Act 1997
The Malicious Communications Act 1988
Section 127 of the Communications Act 2003
Public Order Act 1986
The Defamation Acts of 1952 and 1996

The school also has policies on:
- *E-safety*
- *Data Protection*
- *Anti – Bullying*
- *Acceptable use Policies*

Signed:

Chair of Learning, Teaching and Achievement Committee

Signed:
Co-ordinator

Reviewed: May 2019
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