# Curriculum Intent for Computing

We have learned from former West Leigh children that they have been extremely well prepared for computing in the schools that they move onto. We recognise the growing importance of information technology and our intent is that all our children will be safe and responsible users of digital technology.

'We are computational thinkers…'

At West Leigh we choose to teach computing through a mix of dedicated computing lessons and by integrating the use of information technology into the subjects we teach in class. Dedicated lessons are taught by a specialist computer teacher while class teachers embed IT into their lessons. The objectives for these lessons have been drawn up using the National Curriculum alongside the National Centre for Computing Education (NCCE) with support from Computing at School to ensure they meet the very high aspirations for our pupils.

Our focus for lessons builds on teaching computational thinking whilst applying and developing understanding of computer science. Alongside this, we provide opportunities for children to engage the connections and communications possibilities of digital technologies so that they can generate, remix, repurpose and share new knowledge as well as simply deliver existing information. All this is done whilst teaching children to be responsible and careful users of online content and services.

Dedicated lessons are carefully crafted to ensure that purposeful tasks complement classroom learning. For example whilst learning about databases in Year 5 the children create a database of volcanoes or whilst learning about Egyptians in Year 4 they create hieroglyphic and symbolic images as part of learning about graphics. Each year group, when planning lessons, considers how information technology can be used both to support and develop children's understanding. To further aid this, English, maths, science and connected curriculum planning has space where teachers indicate what computing opportunities the children might apply in those lessons.

As children progress through West Leigh, they learn, build upon and apply the concepts of sequence, selection and repetition and are able to communicate ideas in a number of ways using a number of different applications. Children show through their engagement and comments that they love computing. By the time they leave us to move onto Key Stage 3, our children have learned to:

- ✓ use information technology safely and responsibly
- ✓ solve problems by applying computational thinking.
- ✓ design algorithms that are used to create purposeful coded solutions.
- ✓ collect and analyse information responsibly from online content.
- ✓ create content on a range of devices, using a range of applications to present data and information

### Year 3:

After joining us from the infant school, the children are introduced to the school online and networked systems. For many this is the first time they have used unique passwords and usernames and so are taught the importance of secure but memorable passwords. The children are taught about the need to keep personal information private and how they are responsible for their online presence. They are also taught how to respond to anything that is unpleasant and how to keep safe.

They learn about how to store and retrieve their work as well as how to create content when presenting information by word processing and being introduced to presentation software. They start to consider how their choice of fonts, style, size, colour and layout has an impact on their presentation. The Year 3 pupils explore simple branching databases to interrogate and sort information. They begin to use digital tools to produce and manipulate graphic images and experiment with graphics when creating "sprites" when they create an "etch a sketch" application in Scratch. The children are able to record audio files that can be saved.

They start to use algorithms, simple repetition and simple sequences to build up purposeful coded solutions to meet specific tasks. They begin to create sequences that involve a single sprite with or without concurrency.

*Year 4:*

The Year 4 children develop their understanding of responsibility when online and how they can keep safe. They are also made more aware of how online communication is presented and how to analyse online content.

The children begin to expand how they understand data can be collected by using sensors to detect volume and temperature. This helps them make connections in maths and science with understanding continuous and discrete data. They apply what they learnt about branching databases to their maths and science when sorting quadrilaterals or classifying living things. The children are introduced to Lego WeDo following guided projects where they create physical models that are controlled by the algorithms they write.

The children develop their ability to present information and begin to remix and repurpose information. They begin to consider how art can be created digitally by manipulating existing imagery or by compositing images through the use of a green screen. The children use online and iPad based tools to record and create their own audio files.

They develop their understanding of sequencing with multiple sprites and starting to experiment with concurrency. They build on the work of repetition in Year 3 and the use of numbered and forever loops as they apply it to their projects. Selection work is developed to include the use of (If... then…) statements.

*Year 5:*

As the children in Year 5 develop their understanding of staying safe online, they are taught to question the things that they read online for trustworthiness. They also are made aware of how their actions, comments and the material they post is interpreted by others and how to deal with unwanted communications.

In Year 5, for presenting information, the children build on the work in Year 4 as they repurpose and remix content for specific purposes. They start to develop their ability to evaluate online content before using it when researching and learn about how search results are selected. The children further refine the use of presenting information by considering when they use presentation software, how the effects that are included either enhance or detract from the final presentation. They have opportunities with art to create digital art through composing and modifying images. They further develop their ability to manipulate and create audio files using virtual instruments in music. The children learn about how flat-file databases are constructed and used to store and retrieve information.

The children continue to develop their understanding of simulating real life by using Lego WeDo and sensors to create physical models and write code to identify Earth tremors or to model flood barriers. In order to do this, they use a mix of guided and open-ended projects. Sequences are further developed by having multiple sprites that are co-ordinated by concurrency or time. Repetition is developed by experimenting with (Repeat... until…) and selection is developed by starting to nest loops. Selection is developed further by the inclusion of (If... then… else…) statements.

*Year 6:*

The children carefully consider how they can repurpose material they use for their work by considering the impact of who owns online material.

Within Year 6 they manipulate content for a range of purposes. They create audio and movie files that involve editing content, having multiple layers or composing and by considering the audience when presenting. They select the most appropriate tool to present information and carefully consider how the content is enhanced by including images, fonts and styles.

They further develop the use of physical computing with Lego WeDo when using a motor and sensors to explore the natural world by solving open-ended projects. They further develop their understanding of sequence with the use of "broadcast" and use variables to control events. Their understanding of sequence, selection and repetition is further demonstrated when they are asked to complete a project that is an amalgamation of all that has been covered at West Leigh. It involves them working in a team to meet a specific goal, for example a game or a wearable physical device to count steps.