# Stalyhill Junior School

## Curriculum Intent Statement

## Subject: Computing

| Computing Statement of Intent | | |
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| At Stalyhill Junior School, we want our children to be masters of computing. We aim to give our pupils the life skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to become digitally literate, confident and competent users of technology. We want our pupils to be able to operate in the 21st century workplace, opening their eyes to the range of professions a career in computing can offer. Our computing curriculum aims to create autonomous, creative users of computing technologies so that they can use technology to support learning across the entire curriculum. Not only do we want our pupils to be digitally literate, competent end-users of technology who can use a wide variety of software to present work in multimedia ways, we also want them to develop creativity, resilient and critical thinking skills through computer science. Our pupils will have the opportunity to encounter a breadth of computing experience to develop their understanding of themselves as members of a global community and as responsible digital citizens. | | |
| **Year 3** | | |
| **Desktop Publishing - An Introduction to Chromebooks and word processing**<br><br>In this unit, pupils will be introduced to the Chromebooks. They will practise their computer navigation skills before learning some of the functions within Google docs, e.g. editing text and formatting. | **Computer systems and networks – Connecting Computers**<br><br>During this unit pupils will be challenged to develop their understanding of digital devices, initially focusing on inputs, processes, and outputs. They will compare digital and non-digital devices and learn about computer networks including network infrastructure devices like routers and switches. | **Creating Media – Desktop Publishing**<br><br>Pupils will use desktop publishing software to create a magazine including images and text. They will become familiar with terminology such as 'template', 'orientation' and 'placeholder'. Pupils will explore a range of layouts such as letters and newspapers, and begin to think about the purpose of each.<br><br>**Endpoint – Pupils will create, and use, a template for a given purpose which links to their cross-** |

# Stalyhill Junior School

## Curriculum Intent Statement

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| **Endpoint – Pupils will create a cross-curricular Google document.** | **Endpoint – Pupils will use photographs of the school's network components to create a digital map of the school.** | **curricular learning. It could be an invite to parents for an event, or it could link to their English work, e.g. a persuasive poster.** |
| **Programming – Sequencing sounds**<br><br>During the unit, pupils will be introduced to Scratch, a computing programming software which allows users to code sprites by writing a set of instructions. They will learn how to move their sprite, change its costume, add audio and transform the backdrop. Pupils will also be able to explain what a sequence is.<br><br>**Endpoint – Pupils showcase their completed projects, drawing on the knowledge they have learnt as they evaluate each other's work.** | **Creating media – Stop Frame Animation**<br><br>In this exciting unit, pupils will explore the meaning of what animation is. They will design their own storyboards related to their learning in another subject (e.g. a storyboard of mummification).<br><br>**Endpoint – 'An Afternoon at the Oscars!' – Pupils will be part of a cinema experience where they watch everyone's creations and celebrate their achievements.** | **Programming – Events and Actions in Programs**<br><br>Pupils will build upon their knowledge acquired in unit 4 to use more advanced features of Scratch. They will learn how to resize a sprite, use programming extensions, build more sequences of commands and debug their program.<br><br>**Endpoint – Pupils will plan a maze project before creating it within Scratch. They will then test and debug their maze designs to perfect them.** |
| **Year 4** | | |
| **Computer Systems and Networks – The Internet**<br><br>Pupils will role-play as a network with one acting as a router passing messages from one network to another, showing how each network has a connection and the need for network security. They will learn the difference between the world wide web and the internet before discussing where information on the WWW is stored, what a website is and who owns the web. They will | **Creating Media – Audio production**<br><br>In this unit, pupils will listen to a range of podcasts and decide 'what makes a good audio recording?' They will write scripts then record their audio using Go Synth. Once recorded, pupils will learn how to edit their recording and add effects. | **Creating Media - Photo Editing**<br><br>Pupils will begin by comparing whether it is easier or harder to edit a paper, or digital, image. They will look at edited images and spot what has been edited. |

# Stalyhill Junior School

## Curriculum Intent Statement

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| explore their digital footprint and learn how to keep personal details safe. They will also practise setting passwords and recognising safe and unsafe websites.<br><br>**Endpoint – Can I believe what I read? Pupils will complete an off-screen activity which demonstrates how quickly information can spread.** | **Endpoint – Pupils will create a class checklist of 'what makes a good podcast'. In groups, they will listen to each other's podcasts and give feedback.** | **Endpoint – Pupils will look at images of a fake, imaginary place and discuss which image is most professional. They will then draw upon their learning to create a composite image from a number of pictures which they then evaluate in pairs.** |
| **Data and Information – Branching Databases**<br><br>In this unit, pupils will consider how and why data is collected over time. Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.<br><br>**Endpoint – Children work in pairs to create their own branching database on J2data choosing their own set of objects to sort.** | **Programming – Repetition in Shapes**<br><br>This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.<br><br>**Endpoint – Pupils will share their repeating pattern designs with a partner.** | **Programming – Repetition in Games**<br><br>This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.<br><br>**Endpoint – Pupils have the opportunity to play each other's completed games during a whole class gaming session.** |

# Stalyhill Junior School

## Curriculum Intent Statement

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| **Year 5** | | |
| **Creating Media – Vector Drawing**<br><br>In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work. This unit is planned using the Google Drawings app, other alternative pieces of software are available.<br><br>**Endpoint – Pupils to create something to be used within the classroom (e.g. an updated cloakroom label).** | **Data and Information – Flat-file Databases**<br><br>This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.<br><br>**Endpoint – Pupils will take the role of travel agent to find flights for different customers using a live database such as expedia.co.uk.** | **Computer Systems and Networks – Systems and Searching**<br><br>In this unit, learners will develop their understanding of computer systems and how information is transferred between systems and devices. Learners will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems. Learners will also take part in a collaborative online project with other class members and develop their skills in working together online.<br><br>**Endpoint – Pupils will adapt an existing Scratch program to create their own.** |
| **Creating Media – Video Editing**<br><br>This unit gives learners the opportunity to learn how to create short videos in groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software. Learners are guided with step-by-step support to take their idea from conception to completion. At | **Programming – Selection in Physical Computing**<br><br>In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program components (including output devices- LEDs and motors) through the application of their existing programming knowledge. Learners are introduced to conditions as a means of controlling the flow of | **Programming – Selection in Quizzes**<br><br>In this unit, pupils develop their knowledge of selection by revisiting how conditions can be used in programs and then learning how the If… Then… Else structure can be used to select different outcomes depending on whether a condition is true or false. They represent this understanding in algorithms and then by constructing programs using the Scratch programming environment. They use their knowledge of writing programs and using selection to control outcomes to design a quiz in |

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| the teacher's discretion, the use of green screen can be incorporated into this unit. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.<br><br>**Endpoint – A 'Stalyhill Private Screening' event for pupils to watch each other's videos and comment on the final edit; reflecting on the techniques used to create the videos rather than the content.** | actions and make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the if, then structure).<br><br>**Endpoint – Pupils will write an algorithm and test it by implementing it as a program, running it, identifying bugs, and debugging it if necessary.** | response to a given task and implement it as a program.<br><br>**Endpoint – Pupils will create a quiz before evaluating another pupil's quiz.** |
| **Year 6** | | |
| **Unit 1 – Computer Systems and Networks – Communication and Collaboration**<br><br>In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet. Note: Some of the content in this unit was previously included in the Year 5 – 'Computer systems and networks' unit, so some learners may have already completed similar activities. Where this is the case, the context for the activity has been changed. | **Creating Media – 3D Modelling**<br><br>Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.<br><br>**Endpoint – Pupils to create a photograph frame using their plan from the previous lesson and evaluate it in pairs.** | **Creating Media – Webpage Creation**<br><br>This unit introduces learners to the creation of websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.<br><br>**Endpoint – Pupils will evaluate the user experience when using their own website and that of a fellow pupil.** |

# Stalyhill Junior School

## Curriculum Intent Statement

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|---|---|---|
| **Endpoint – Pupils will consider the most appropriate way to communicate a message in different scenarios – reflecting on privacy and information security.** | | |
| **Data and Information – Spreadsheets**<br><br>This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked.<br><br>**Endpoint – Pupils will present their completed party spreadsheets.** | **Programming – Variables in Games**<br><br>This unit explores the concept of variables in programming through games in Scratch. First, learners find out what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, learners experiment with variables in an existing project, then modify them, before they create their own project. In Lesson 4, learners focus on design. Finally, in Lesson 6, learners apply their knowledge of variables and design to improve their games in Scratch.<br><br>**Endpoint – Pupils are given the opportunity to play each other's completed games.** | **Programming – Sensing Movement**<br><br>This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – 'Programming A'. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth.<br><br>**Endpoint – Pupils will create a micro:bit-based step counter using all four programming constructs: sequence, repetition, selection and variables.** |