

## Computing in Year 4

**Topics:** The Internet, Audio Production, Repetition in Shapes, Data Logging, Photo Editing, Repetition in Games

### The Internet

#### National Curriculum Statements:

- Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.
- Use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- Use technology safely, respectfully and responsibly; recognise acceptable and unacceptable behaviour, identify a range of ways to report concerns about content and contact.

#### Knowledge:

- Can explain how digital devices function.
- Recognise how digital devices can change the way that we work.
- Know how a computer network can be used to share information.
- Understand computer networks and key network components.

#### Implementing Skills:

- Identify and classify input and output devices and describe a simple process.
- Create 2 pieces of work using digital and non-digital tools and suggest differences between using digital and non-digital tools.
- Explore how and why computers are joined together to form networks and how messages are passed through multiple connections.
- Examine device's functionality and look at the benefits of networking computers.

#### Assessment:

- Can children explain the role of a switch, server and wireless access point?
- Can children outline how websites can be shared via the WWW and describe how content can be added & accessed on the WWW?

### Audio Production

#### National Curriculum Statements:

- Use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- Use technology safely, respectfully and responsibly; recognise acceptable and unacceptable behaviour, identify a range of ways to report concerns about content and contact.

#### Knowledge:

- Recognise that sound can be recorded.
- Know how to edit audio recordings and relate to the job of a recording engineer.
- Understand the different parts of creating a podcast project and use this to plan content for a podcast.

#### Implementing Skills:

- Identify input devices used to record sound and output devices needed to listen to it and record their voices using a computer.
- Improve audio by re-recording, editing, removing long pauses and inspect sound wave to know where to trim recording.
- Plan and create their own podcast by recording content, editing, trimming.

- Enhance their podcast by adding sound effects and background music.

**Assessment:**

- How successful was their podcast?
- Can they apply audio editing skills independently and combine audio to enhance a podcast project?

**Repetition in Shapes**

**National Curriculum Statements:**

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems, solve problems by decomposing them into smaller parts.
- Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
- Use logical reasoning to explain how some simple algorithms work and to detect and connect errors in algorithms and programs.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

**Knowledge:**

- Learn the basic Logo commands and this to read and write codes.
- Know how to create algorithms to produce a given outcome.
- Recognise patterns in everyday life and recognise where numbers, shapes and symbols are repeated.
- Know how to modify a count-controlled loop to produce a given outcome.
- Know how code snippets can be broken down to make them easier to plan and work with.

**Implementing Skills:**

- Program a computer by typing commands and create a code snippet for a given purpose.
- Write an algorithm to create their initials using Logo commands.
- Use a count-controlled loop to produce a given outcome.
- Use count-controlled loops in regular 2D shapes and trace codes to predict which shapes will be drawn and modify existing codes by changing values within the code snippet.
- Create, name and call procedures in Logo, which are code snippets that can be reused in their programming.
- Design wrapping paper using more than one shape which they will create with a program that uses count-controlled loops.

**Assessment:**

- Can they create a program that uses count-controlled loops to produce a given outcome?
- Can they modify a count-controlled loop to produce a given outcome & create a program that uses count-controlled loops to produce a given outcome?

**Data Logging**

**National Curriculum Statements:**

- Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

**Knowledge:**

- Know what data can be collected, how it can be collected and how it can be used to answer questions.
- Know how to use a digital device (data logger) to collect data automatically.
- Recognise how a computer can help us analyse data.
- Identify data needed to answer questions.

**Implementing Skills:**

- Think about questions that can / cannot be answered using available data and reflect on the importance of collecting the right data to answer questions.
- Collect data using sensors and data loggers.
- Analyse data which shows how hot water cooled over time.
- Choose a question to focus on and plan the data logging process needed to answer it. Then carry out the process needed to answer the question.

**Assessment:**

- Can children use the data loggers to collect the appropriate information to answer a question?
- Can they describe the benefits of using a data logger?

**Photo Editing****National Curriculum Statements:**

- Use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content.
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- Use technology safely, respectfully and responsibly; recognise acceptable and unacceptable behaviour, identify a range of ways to report concerns about content and contact.

**Knowledge:**

- Explain how the composition of digital images can be changed.
- Know how to change colours in digital images.
- Explain how cloning can be used in photo editing.
- Know how images can be combined.

**Implementing Skills:**

- Edit images by rotating and cropping an image. Discuss whether it is ethical to edit images.
- Explore the effect that different colours and filters can have on an image and choose appropriate effects to fit a scenario and explain their choices.
- Add to the composition of an image by cloning it. Consider what parts can be retouched and use techniques to make this as unnoticeable as possible.
- Use different tools to select areas of an image. Then use copy and paste within one image and between 2 images to produce a combined image.
- Plan their own image from given range, open them and edit them to create their own project. Evaluate image and suggest ways to improve.

**Assessment:**

- Can they explain how cloning can be used in photo editing?
- Can they explain that the composition of digital images can be changed and explain that colours can be changed in digital images?
- Can they explain that images can be combined, combine images for a purpose and evaluate how changes can improve an image?

**Repetition in Games****National Curriculum Statements:**

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems, solve problems by decomposing them into smaller parts.
- Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
- Use logical reasoning to explain how some simple algorithms work and to detect and connect errors in algorithms and programs.

- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

**Knowledge:**

- Know how to use count-controlled loops in a different programming environment.
- Explain that in programming there are infinite loops and count-controlled loops.
- Know how to create a design that includes 2 or more loops which run at the same time.
- Know how to modify an infinite loop in a given program.
- Know how to design and create a project that includes repetition.

**Implementing Skills:**

- Explore real-life examples of repetition in instructions then use Scratch to create shapes using count-controlled loops. Modify existing codes to create a new code.
- Explore infinite and count-controlled loops and practice using these within Scratch.
- Create designs for an animation of the letters in their name. Use repetition to change the costume of the sprite.
- Make changes to a sprite in an existing game: add a sprite, re-use and modify code blocks within loops and explain the changes made.

**Assessment:**

- Could the children use count-controlled loops in a different programming environment and explain that in programming there are infinite loops & count-controlled loops?
- Could they create a design that includes 2 or more loops which run at same time and modify an infinite loop in a given program?
- Did they design and create a project that includes repetition?