Sheffield ILS eLearning Service

Improving outcomes . Embracing technology

Sheffield Primary Computing Progression Framework - Teach Computing Curriculum -

This framework is mapped to the progression of units in the Teach Computing Curriculum from the National Centre for Computing Education: https://teachcomputing.org/curriculum.

Statements starting with **-** indicate declarative knowledge

Statements starting with **>** indicate procedural knowledge

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Foundation (NB above and beyond Early Learning Goals – can be used to assess pupils working below age expectations in KS1)

Computing Systems & Networks / Key Skills	Creating Media	Data & Information	Programming
> Use different digital devices. - Recognise that you can access content on a digital device. > Use a mouse, touchscreen or appropriate access device to target and select options on screen. - Recognise a selection of digital devices. - Recognise and begin to name the basic parts of a computer, e.g. mouse, screen, keyboard - Select a digital device to fulfil a specific task, e.g. to take a photo. - Are aware that some online content is inappropriate. - Are aware that information can be public or private. - Know to tell an appropriate adult if they see something on the computer that upsets them.	> Use technology to explore and access digital content. > Operate a digital device with support to fulfil a task. > Create simple digital content, e.g. digital art. > Choose media to convey information, e.g. image for a poster.	> Access content in a range of formats, e.g. image, video, audio. > Answer basic questions about information displayed in images e.g. more or less.	> Explore technology. > Repeat an action with technology to trigger a specific outcome. - Recognise the success or failure of an action. > Follow simple instructions to control a digital device. - Recognise that we control computers. > Input a short sequence of instructions to control a device.

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Year 1

Computing Systems & Networks / Key Skills

- Explain that technology is something that helps us

- Recognise a range of digital devices.

- Name a range of digital devices, e.g. laptop, phone, games console.

> Log on to the school computer / unlock the school tablet with support.

- Identify the main parts of a computer, e.g. mouse, keyboard, screen.

> Use a suitable access device (mouse, keyboard, touchscreen) to control an activity on a computer.

> Open key applications independently.

> Save and open files with support.

> Use the keyboard to type and edit text.

- Explain why we use passwords.

- Identify rules to keep safe and healthy when using technology

- Know who to tell if concerned about content or contact online.

- Talk about their use of technology at home.

Creating Media

> Create simple digital content, e.g. digital art.

> Select basic tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush.

- Recognise that you can edit digital content to change its appearance.

> Choose appropriate tools to change the appearance of digital content for a purpose

- Recognise the difference between creating content on a computer and on paper.

- Recognise that digital content belongs to the person who created it.

Data & Information

> Identify an appropriate label for a group of objects.

- Recognise that we can label and group objects according to their properties.

- Recognise that computers require input from humans to perform tasks.

> Group similar objects according to a given property.

- Make choices about how to group objects.

> Answer questions about groups of objects.

- Recognise examples of personal information e.g. name, image.

Programming

- Recognise that we control computers by giving them instructions.

> Input a simple program e.g. to control a floor robot.

> Predict the outcome of a simple algorithm or program.

> Plan out a simple program to control a floor robot or sprite on a screen.

> Debug an error in a simple algorithm or program.

> Create a simple algorithm.

- Recognise that an algorithm is a precise set of ordered instructions which can be turned into code.

- Explain that we can use algorithms to plan out our programs.

> Make decisions about the design of a program.

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Year 2

Computing Systems & Networks / Key Skills	Creating Media	Data & Information	Programming
- Recognise examples of information technology. - Recognise that a range of digital devices contain computers, e.g. phone, games console, smart speaker. - Explain what the basic parts of a computer are used for e.g. mouse, keyboard > Open key applications independently. > Save and open files to/from a given folder. > Move and resize an image in a document. - Explain that information technology is a computer or something that works with a computer. - Talk about uses of information technology in the real world. - Remember a simple password to log onto the computer or a website. - Identify rules for acceptable use of technology in school.	> Create simple digital content for a purpose, e.g. digital music. - Recognise that we can use technology in different ways, e.g. to make music or take and view photographs. > Apply edits to digital content to achieve a particular effect, e.g. add a filter to a photo. > Present ideas and information by combining media, e.g. text and images. - Explain how content has been improved. - Describe the features of a good piece of content, e.g. a photo. - Recognise that we can use different types of media to convey information, e.g. text, image, audio, video. - Recognise what personal information is and the need to keep it private. - Recognise that images can be changed.	- Recognise different forms of digital content, i.e. text, image, video and audio. > Collect simple data (e.g. likes/dislikes) on a topic. > Present simple data using images, e.g. number of animals. - Recognise charts and pictograms and why we use them. > Explain information shown in a simple chart or pictogram. > Modify simple charts or pictograms, e.g. add title, item or labels. - Identify the key features of a chart or pictogram. > Collect data on a topic (eye colour, pets etc.) and present in a pictogram or chart.	- Explain that computers have no intelligence and we have to program them to do things. > Create a program with multiple steps e.g. to control a floor robot. > Predict the outcome of an algorithm or program with multiple steps. > Identify and correct errors in a given algorithm or program, and recognise the term debugging. - Recognise that there may be more than one solution to a problem. - Recognise that the order of instructions in a sequence is important. - Explain what an algorithm is, and that when inputted on a computer it is called a program. > Plan out a program by creating an algorithm and evaluate its success.

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Year 3

Computing Systems & Networks / Key Skills

- Describe what a computer is (input > process > output).

- Explain the difference between input and output devices on a computer.

- Know where to save and open files (e.g. in shared folder).

> Save files with appropriate names.

> Use a keyboard effectively to type in text.

> Use left-, right- and double-click on the mouse.

> Use a search engine to find simple information.

- Recognise that school computers are connected.

- Identify the parts of a network, including switch, server and wireless access point.

- Explain why we need to keep our password safe

Creating Media

> Present ideas and information by combining media independently, e.g. text and images.

> Design and create simple digital content for a purpose/audience, e.g. poster.

> Edit digital content to improve it, e.g. resize text.

- Identify the features of a good piece of digital content.

- Explain why we use technology to create digital content.

- Identify use of desktop publishing in the real world.

- Recognise why we use different types of media to convey information, e.g. text, image, audio, video.

- Recognise that digital content belongs to the person who first created it, but we can give permission for others to use it.

Data & Information

> Identify suitable attributes to separate objects into groups.

- Recognise charts, pictograms and branching databases, and why we use them.

> Identify an object using a branching database

> Recognise an error in a branching database.

> Create a branching database using pre-prepared images and questions

- Identify the features of a good question in a branching database.

> Independently plan out and create a branching database.

> Evaluate a given branching database and suggest improvements.

- Compare different ways of presenting data.

- Recognise when to share personal information and when not to.

Programming

> Predict the outcome of a block or text-based program (Scratch/Logo).

> Successfully modify an existing program, e.g. change background, number of times things happen.

- Explain what a sequence is.

- Recognise that different inputs (events) can be used to start a program.

> Create a program using a range of events/inputs to control what happens

> Identify errors in a block or text-based program and correct them.

- Recognise that we can create an algorithm to help plan out a program.

- Recognise that we need to test out programs to check that they work.

> Make choices about the design of a program and implement them,

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Year 4

Computing Systems & Networks / Key Skills

- Recognise that you can organise files using folders.

> Know how to copy and paste text or images in a document.

> Use a search engine to find specific information.

- Describe the different parts of a network.

- Recognise that the Internet is a network of computers and other digital devices connected together all around the world.

- Know that you use a web browser to access information stored on the internet.

- Recognise that the World Wide Web is the part of the internet that contains websites and web pages.

- Recognise that websites are created by people.

- Recognise what kinds of websites are trustworthy sources of information.

> Remember and use an individual password.

Creating Media

> Plan out and create digital content for a specific purpose, e.g. podcast.

> Edit digital content to improve it according to feedback.

- Identify the features of a good piece of digital content and apply these in own design.

- Explain the benefits of using technology to present information.

- Know where to find copyright-free content, e.g. creative commons images.

> Combine digital media for a purpose, e.g. layer up recorded audio and music, add text to images.

- Explain that an image can be altered and what this might mean for the images they see around them.

- Recognise that the media can portray groups of people differently.

Data & Information

> Draw conclusions from information stored in a database, chart or table.

- Recognise that we can use computers to collect data over time.

- Recognise that sensors are used to capture data from the real world.

> Choose a question and collect data to answer it..

> Choose appropriate formats to present data in order to convey information.

- Explain the benefits of using a data logger.

Programming

> Identify repeated steps in a program or algorithm.

> Create examples of algorithms containing count-controlled loops.

> Use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient.

- Recognise a forever loop in a program or algorithm.

> Use a forever loop in a program to keep something happening.

- Recognise that we can decompose projects to make them easier to plan and debug.

- Explain when to use forever loops and count-controlled loops, and use them effectively in programs.

- Recognise common mistakes in programs and how to correct them.

> Design, implement code, test and debug a program.

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Year 5

Computing Systems & Networks / Key Skills

> Type using fingers on both hands.

> Use common keyboard shortcuts, e.g. ctrl C (copy), ctrl V (paste).

- Explain what makes a strong password.

> Use folders to organise files.

- Recognise the elements of a computer system

- Recognise that there is more than one search engine, and they may produce different results.

> Use a search engine effectively to find information and images.

- Recognise how search engines select results.

- Explain the factors that affect how webpages are ranked by search engines.

- Critically evaluate websites for reliability of information.

> Demonstrate responsible use of an online services and know a range of ways to report concerns.

Creating Media

- Identify and use appropriate hardware and software to fulfil a specific task.

> Consider the audience when designing and creating digital content.

> Combine media and effects effectively to create complex digital artefacts.

- Identify success criteria for creating digital content for a given purpose and audience.

> Evaluate their own content against success criteria and make improvements accordingly.

- Know where to find copyright free images and audio, and why this is important.

Data & Information

- Recognise charts, pictograms and databases, and why we use them.

> Present information using a suitable chart

> Explore a record card database to find out information.

- Name the key parts of a database, e.g. record, field, search.

> Answer questions about information stored in a database.

> Use advanced search techniques in a database to find out specific information.

- Name some benefits of using a computer to create charts and databases.

> Use a database to find out specific information and present findings.

Programming

- Recognise a range of input and output devices in a physical system, including sensors.

- Recognise selection in a program or algorithm.

> Use simple selection in algorithms and programs to change what happens depending on if a condition is met, e.g. *if...then...*

> Design a program for a purpose. Decompose into parts and create an algorithm for each part.

- Explain why we use selection, and use two-way selection in programs and algorithms, i.e. *if...then...else...*

- Recognise that different solutions may exist for the same problem.

> Predict what will happen in a program or algorithm when the input changes (e.g. sensor, data or event).

> Evaluate a program and make improvements accordingly.

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Year 6

Computing Systems & Networks / Key Skills

> Type efficiently using both hands.

> Organise files effectively using folders and files names.

> Use the advanced search tools when using a search engine to find specific information and images.

- Explain the basic function of an operating system.

- Recognise how data is transferred across the Internet in packets.

- Identify different ways of communicating and sharing information online.

- Explain that devices connected to the Internet have unique addresses called IP addresses.

- Explain what makes a strong password and why this is important at school and in the wider world.

- Explain how algorithms are used to track online activities with a view to targeting advertising and information.

- Recognise that communication on the Internet may not be private.

Creating Media

> Select, combine and remix a range of media to create original content.

- Recognise the benefits of using a computer to create 3D designs.

> Consider all steps of the design process when creating content (e.g. identify problem, plan, create, evaluate, share.)

- Identify the most effective tools to present information for a specific purpose.

- Explain the benefits of using technology to collaborate with others.

- Recognise common features of web pages.

> Evaluate existing digital content in terms of effectiveness, design and user experience.

- Know where to find copyright free images and audio, and how to credit the creator if required.

Data & Information

- Recognise what a spreadsheet is and what it is used for.

> Use simple formulae in a spreadsheet to find out information from a set of data.

- Recognise different data types (e.g numbers, words) and why this is important.

> Collect data for a purpose and plan out a spreadsheet to present it effectively, using relevant formulae.

> Produce graphs from data in a spreadsheet to answer a question.

> Analyse and evaluate data and information in a spreadsheet, chart or database.

- Recognise that poor quality data leads to unreliable results.

Programming

- Recognise variables in a program and what they do.

> Create and use simple variables, e.g. to keep score.

- Explain why we use variables in programs.

- Recognise that a variable has a name and a value.

- Explain common errors in programs and how to fix them.

> Design and program a physical computing system that uses sensors.

> Plan out a program in detail, including task, algorithm, code and execution level.

- Name a range of sensors in physical systems.

- Recognise key concepts (sequence, selection, repetition and variables) in a range of languages and contexts, and how these influence the flow of a program.

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