Cambridgeshire Progression in Computing Capability

Digital Literacy:

Purpose of study ~ Computing programmes of study: Key stages 1 and 2

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims:

- The national curriculum for computing aims to ensure that all pupils:
- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Theme Overview: Digital Literacy

Digital Literacy is the ability to effectively and critically navigate, find, evaluate, summarise, use, create and communicate information using a range of digital technologies. It deals with the appropriate use of technology generated words, images, sounds and motion. Developing digital literacy is increasingly important because it supports learners to be confident and competent in their use of technology in a wide variety of contexts. The inter-related components of digital literacy can and should be developed alongside subject specific knowledge and understanding.

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	Early Capability		Middle Capability		Later Capability	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	▪ Use technology purposefully to create, organise, store, manipulate and retrieve digital content		▪ 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			
Cambridgeshire Capability Statements	With adult guidance, pupils use a range of technology to enhance and present their learning. Within both specific computing lessons and cross curricular contexts, pupils are able to: • enquire with purpose, accessing **digital content** such as text, still and moving images, video and audio • collect **data** (e.g. numerical, research facts etc.) which they are able to retrieve, store and present as graphs, tables and charts • present and communicate their learning to others in a variety of ways using text, still images, video and audio, including combining 2 or more of these mediums		With increasing levels of autonomy, pupils are becoming confident and creative users of technology. Within both specific computing lessons and cross curricular contexts, pupils are able to: • follow and expand on agreed lines of enquiry, using key words and phrases to effectively access **digital content** such as text, still images, video and audio • identify, collect and manipulate different types of **data** (e.g. numerical, research facts etc.) which they present as **information**, showing a greater awareness of purpose and audience. • present and communicate their learning to others in a variety of ways using text, still images, video and audio. They combine **digital tools** to achieve **specific goals** and think carefully about the **impact on their audience.**		Pupils are confident, capable and creative users of technology. Within both specific computing lessons and cross curricular contexts, pupils are able to: • create and effectively follow lines of enquiry to support their learning, and are discerning in **evaluating digital content** they encounter • identify, collect and analyse different types of **data** (e.g. numerical, words, images, video etc.) which they manipulate and re-present as **information** for a variety of audiences and purposes. • select and make effective use of **digital tools** to create **digital artefacts** both under instruction and of their own choosing; • decide on the most appropriate way to present their learning - thinking about aesthetics, functionality and impact on the user, and responding appropriately.	
	More specific guidance for individual year group teachers can be found in the phase overviews at www.ccc-computing.org.uk					

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Data Handling

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Progression in Digital Literacy

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It may be useful to think of Digital Literacy as made up of several, intertwining elements, with aspects of collecting and manipulating data and presenting information running throughout.

The diagram opposite shows some, though certainly not all, of the elements which contribute to developing pupils' Digital Literacy capability. The remainder of this document is designed to support you in developing a progression in Digital Literacy Capability through the primary phase.

Cambridgeshire Progression in Computing Capability

		Early Capability	Middle Capability	Later Capability
		Year 1/2	Year 3/4	Y5/6
Research		Pupils **explore** and **navigate** around adult chosen / age appropriate **website** which includes text / images / sounds / video. **Relate** what they have found out. They begin to conduct **specific key word searches** using a **child friendly search engine** to **locate exact information** in text / images / sounds / video with the intention of **answering simple / closed questions**. For example, pupils **listen to stories** or **learn new things** using age appropriate websites.	Pupils can **navigate with purpose** a small, **chosen** collection of age / interest **appropriate texts and websites** to read, **discover** and follow widening **lines of enquiry**. **They conduct searches** and **compare results** from **child friendly search engines** to **locate precise facts** and demonstrate **comprehension**. They i**dentify** suitable **key words** and **phrases** to use in own lines of enquiry. For example, pupils **research the Solar System** with minimal adult input and **share their learning with others** or **use child friendly search engines** to answer questions they have raised.	Pupils **select** suitable **search terms** and use to **follow own areas of interest** filtering to show, access and garner information from a **range of media sources**. They start to **cross-reference** information. They q**uestion** and seek to **verify** and determine accuracy including **identification of source**. They create fact-files on each of Henry VIII's wives, **agreeing the information they need in advance** and then **using a variety of sources** (including text, audio, video and books) to track that information down and **check its validity**.

Data Handling (taken from National Curriculum for Maths)

Early Capability (Year 1/2)		Middle Capability (Year 3/4)		Later Capability (Y5/6)
Interpret and construct **simple pictograms**, **tally charts**, **block diagrams** and **simple tables**. Ask and answer simple questions by counting the number of objects in each category and **sorting** the categories by quantity. Ask and answer questions about **totalling and comparing categorical data**.	Interpret and present data using **bar charts**, **pictograms** and **tables** Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in **scaled bar charts** and **pictograms** and **tables**.	Interpret and present **discrete and continuous data** using appropriate graphical methods, including **bar charts** and **time graphs**. Solve comparison, sum and difference problems using information presented in **bar charts**, **pictograms**, **tables** and other **graphs**.	Solve comparison, sum and difference problems using information presented in a **line graph**. Complete, read and interpret information in **tables**, including **timetables**.	Interpret and construct **pie charts** and **line graphs** and use these to solve problems Calculate and **interpret the mean as an average**.

Presentations

Early Capability (Year 1/2)	Middle Capability (Year 3/4)	Later Capability (Y5/6)
Pupils use tools such as Microsoft's Photostory3, 2Publish, and apps such as Puppet Pals and Book Creator (often selected by an adult) to **mix together different media** (such as text and images) to **present what they have learned** and **plan and share their ideas with others**. For example, they to **create a photo slideshow of a recent school trip** – **adding text or sound to their photos** and choosing transitions with an adult. They take their tablets with them on a school trip, **recording images and sounds** and then use a digital book creator to create a class book back in the classroom.	When presenting what they have learned, pupils **use a wider range of tools**: comic strips, desktop publishers, animation tools etc. to **combine text, images, video and audio**. For example, they use a digital book creator to **make an e-book about the Ancient Romans, including their own artwork, text and a sound recording** of an interview with a Roman soldier. They use a comic strip designer to **record the stages in a science experiment** or **open-ended maths investigation** and then use this to write their recount of the experience.	They now **use digital tools much more confidently, choosing just the right tool for the job**. They can, for example, create a range of content using a video editor and then **combine content** using Augmented reality or multimedia tools. They **create a village or school trail** or use these tools to **bring a historical event to life**. They can **confidently move between different apps and programs** to create content.

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Communicating (**Must** be linked with work on E-safety)	Pupils **send simple messages** to others in their class / year group through a monitored messaging tool. They **actively participate** when the teacher models communicating through, for example, **video conferencing tools** such as E2BN's Flash meeting. Pupils **begin to use messaging tools to ask questions more purposefully**, making sure messages are clear and appropriate. They know what to do if something they receive upsets them. For example, they **send messages to Cinderella** to help her to plan an anniversary party, or **to the 3 little pigs** to tell them what to do about the wolf.	Pupils **widen the range of messaging tools they use** to include, for example, **discussion forums** and **blogs**. They write about something exciting or interesting which has happened recently (**such as a current news event or a visitor into school**), keeping personal information private. Pupils **maintain a blog more frequently**, perhaps to **present their learning** or share something they're personally interested in such as a favourite sport, pet or TV programme. They **comment appropriately on other people's blogs** and contribute to class discussions via **forums / noticeboards / collaborative tools**.	Pupils should be **much more confident** now at choosing the right tool for the job. They send and receive **attachments via email / messaging** tools. They use **blogs**, **forums** and other **collaborative tools** to communicate **safely and respectfully** using a wider range of media e.g. **pictures**, **video**, **audio** (see '*Presentations*'). Pupils communicate appropriately in spaces **within and beyond school systems** (e.g. in the Scratch community) and show an excellent understanding of how to do this **safely** and **responsibly**.
Audio	Pupils learn how to **make simple audio equipment work**. They begin to **listen to and learn from sounds** embedded in audio books, websites, sound buttons and other tools. Pupils **make their own recordings** using digital devices (microphones, tablets, talking postcards etc.) and **use these recordings purposefully**. For example, they **add a voiceover** to a Photostory project, e-book or animated film about a school visit or **make music digitally** using simple music making software.	Pupils **download, create and record sounds** and begin to **combine, edit and present** them. This includes learning to, for example, **delete unwanted sections of audio**, or **combine multiple recordings** to create one longer piece. They **begin to understand the impact** different types of music can have on an audience and think about what effect they want to achieve when recording or downloading music. For example, they use everyday objects to **create sound effects for a 'radio play'** or **record a percussion accompaniment for a short animation**. They learn to record and edit these in programs such as audio editing to create a finished product.	Pupils **confidently choose when to use audio to enhance their work or present their learning**. They learn how to **digitally manipulate audio** to create a desired effect, including **editing unwanted sections of a recording, copying and pasting sections and digitally manipulating volume**. They use a selection of apps / tools to **create and record their own music tracks and embed them** into other projects such as presentations or films. For example, pupils **combine voice and audio** when creating a 'river tour' **showing what they have learned about the structure of rivers**, or **create music to accompany a silent 'scary' film, thinking carefully about the impact on the audience.**
Digital Art (example of progression in Mark Making – other elements also apply)	Pupils progress from the approach in EYFS where they will be encouraged to **discover** and **explore what their fingers can do on, for example, a tablet,** showing enjoyment and ability to talk about what they have done. Pupils **experiment** with how to create a range of effects - **shades**, **patterns** and **results** using different **eTools**.	Pupils **demonstrate** an expanding repertoire of experiments with digital tools exploring **shade, shape, pattern, screen effects, marks and lines.** They can use what they have learned to **respond to specific tasks**, such as creating firework picture. They make effective use of **known techniques** to **create an intended artefact**, **reflecting** on and **refining** their work as appropriate.	Pupils **plan** and **develop**, in a **sustained** way, ideas with **shade, shape, pattern, screen effects, marks and lines** into some finished works of art. Show the **influence of screen drafts/ jottings** to *tangible* works of art. Pupils can **explain what works well digitally**, what doesn't and how technology can support artistic development.
	Where practical, it would be good practice to mirror screen based experimentations with *tangible* attempts using comparable techniques and media.		

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Film Making	With adult support, **pupils create films from still photos**, choosing **preferred transition** and similar **basic visual effects**. They **contribute to discussions** about the **choice of audio** to accompany a film and can talk about **how different pieces of music make them feel**. They **use basic film making techniques** to retell familiar stories or those developed as part of a class / group. This includes both **live action filming** and **stop-motion animation**.	Pupils begin to understand the **grammar of film** such as how different **camera distances** and **angles** can **have different impacts on the audience.** They apply what they have learned about the **impact on the audience of different types of music or sound effects** and can digitally **create, record and manipulate** audio accordingly. Pupils can **edit sections of film (live or animated) together**, trimming and adding visual effects or transitions to create a desired effect.	Pupils **combine a range of known film making techniques** confidently and creatively to achieve a specific goal. They think carefully about the **intended effect** of their choices on their **audience** and reflect on whether the desired effect has been achieved, **refining their work** where appropriate. They **use editing techniques creatively** and can confidently use a combination of **visual and audio effects** in their films

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