

# Key Stage 1 – Let’s Create

**Note that this theme should be taught in Year 1.**

Children begin to explore digital texts, using varied devices and software to create digital content. They investigate differences between input and output and hardware and software. They explore the idea of a network related to computers at home and school, logging on to their area with support. They use unplugged computing approaches to explore the devices they use. They consider eSafe practice.

**Learning objectives for the term**

- To understand that digital texts can include words, numbers, graphics, film and sound.
- To know how we input into a computer.
- To understand the difference between computer hardware and software.
- To understand that computer systems enable us to store digital content. *Start to organise their work into pre-prepared folders.*
- To know that computer software can help us with our reading and writing.
- To understand that we use computer software to create digital content, for different purposes and for different audiences.
- To understand that we can choose from different software to create digital drawing or painting. *Suggest a program to use based on its tools/features*
- To know that we can use logical reasoning to predict the behaviour of simple programs.
- To identify and use a range of range of technology to capture still and moving images. Begin to talk about how such devices operate. *S*
- To recognise the need to ask permission before taking anyone’s photograph. *Seek to keep a record of their work.* *S*
- To understand that images can be accessed from many sources. Recognise that not all images found might be appropriate. *S*
- To understand that audio devices can capture and/or playback sound and that they help us communicate with others.
- To know that sounds add meaning to digital texts.

**On-Going Learning objectives**

- To talk about the choices they have made, revisiting and refining their work in the light of the comments and suggestions from peers.*
- To be able to save, locate and edit work with support.*
- To use technology safely and increasingly respectfully.* *S*
- To know to tell a trusted adult if words, images or sounds make them feel uncomfortable or worried.* *S*

**Vocabulary – see Glossary for definitions (for terms in blue)**

<ul style="list-style-type: none"> <li>• Digital,</li> <li>• hardware and software,</li> <li>• input,</li> <li>• word processor,</li> </ul>	<ul style="list-style-type: none"> <li>• Names of hardware: computer, visualiser, webcam, microscope, smartphone etc.</li> <li>• graphics,</li> <li>• logical reasoning, algorithm,</li> </ul>
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Possible resources for this theme (further resources are suggested with the explanatory notes below. Note that these are examples and not formal recommendations.)	
<b>Digital writing tools</b> <ul style="list-style-type: none"> <li>• Microsoft® Word</li> <li>• Clicker 7</li> <li>• 2Write (as part of 2Simple Purple Mash)</li> <li>• JIT5 Write (as part of J2E)</li> <li>• 2Create a Story (as part of 2Simple Purple Mash)</li> <li>• 2Publish (as part of 2Simple Purple Mash)</li> <li>• Book Creator (app for iPad®, Android®, Windows®)</li> <li>• Little Star Learning Story Creator (iPad app)</li> </ul>	<b>Digital drawing / painting tools</b> <ul style="list-style-type: none"> <li>• Microsoft® Paint</li> <li>• JIT5 Paint (as part of J2E)</li> <li>• 2Paint (as part of 2Simple Purple Mash)</li> <li>• 2Paint-a-Picture as part of 2Simple Purple Mash)</li> <li>• Drawing Box (iPad app)</li> <li>• Doodle Buddy (iPad app)</li> <li>• Finger Paint with Sounds (from Inclusive Technology, app for iPad, Android.)</li> </ul>

Please note that with any online platform it is essential that you review the privacy policy and terms and conditions of the service. The school is responsible for the protection of data it holds and compliance with current data protection legislation. Always assess both the data protection and safety of the service you are considering using, and ensure any necessary permissions are in place before using with pupils.

Free Barefoot Computing activities to support this theme.	
<ul style="list-style-type: none"> <li>• <b>Crazy Character Algorithms Activity.</b> <a href="#">Link</a> An unplugged activity where children create instructions for drawing a crazy character, and learn about algorithms.</li> <li>• <b>Spelling Rules Activity.</b> <a href="#">Link</a> An unplugged activity where children create instructions for sounding phonemes, and learn about algorithms. Link to English.</li> <li>• <b>Sharing Sweets Algorithms Activity.</b> <a href="#">Link</a> An unplugged activity where children create instructions for sharing sweets, and learn about algorithms. Link to English.</li> </ul>	<p><i>Barefoot Computing</i> provides freely available resources to support teachers in delivering the computer science aspects of the 2014 Primary National Curriculum for Computing.</p> <p>Free registration with the <i>Barefoot Computing</i> website is required to view and download these resources. To register, visit: <a href="http://barefootcas.org.uk">http://barefootcas.org.uk</a></p> <p>References to these resources and the accompanying links are provided with permission from <i>Barefoot Computing</i>.</p>

Primary Computing Scheme online materials that are referenced in this guide can be accessed from: <http://www.hertsforlearning.co.uk/user/login>

You will need to be logged into your school account and have a current subscription to the Primary Computing Scheme to gain access. The materials can be accessed from the *My Resources* link at the top/right of the screen, once you are logged in.

**Key learning objectives**

(some objectives might be used for more than one lesson)

To understand that digital texts can include words, numbers, graphics, film and sound.

- Talk about how technology is used in such texts, for example an image which changes, or a sound which plays when it is clicked.
- Encourage the children to explore stories and information texts, investigating the differences between digital and traditional examples.
- Examples of digital texts you could use include:
  - CBeebies Story Time (online)
  - Collins Big Cat (iPad® apps)
  - Stories from 'Nosy Crow' (iPad® apps)
  - BBC Bytesize – Traditional and fairy stories (online)
  - Clicker books (within *Clicker* software from Cricksoft™)
  - Serial Mash (add-on to 2Simple Purple Mash)
- Compare to non-digital books and stories. What are the similarities and differences?

To know how we input to a computer (onscreen/physical keyboards, keypads, touch screens, fingerprint or voice etc.).

- Find letters and numbers on the keyboard. Use keyboards in phonics sessions so children can locate the letters and graphemes they learn.
- Try to give children access to as many different forms of input as possible. Mouse skills are important as increasingly children are using touch screen more at home, and not encountering computer mice as frequently.
- See the accompanying Smart® Notebook® file [*Input and output devices sorting activity.*]
- Practise finding, identifying and inputting text and numbers on physical and on-screen keyboards.
- Use individual logins to the school network/online area. Keep names and passwords private. Talk to the children about the importance of keeping their log-in details private and only tell a trusted adult, not their friends. 

To understand the difference between computer hardware and software.

- See glossary for definitions of software and hardware.
- Discuss in relation to classroom resources (computers, interactive boards etc.) and software on them (IWB software, word processors, graphics programs).
- Particularly look at the hardware around the school and use the correct words to identify the different items.
- Start linking the programs/software you use to their types, e.g. you write using a word processor. An example of a word processor is Microsoft® Word.

To understand that computer systems enable us to store digital content. *Start to organise their work into pre-prepared folders.*

- With the assistance / permission of the school technician / network support, take the children to see the server and comms cabinet, where all the devices around your network are joined together via switches. (Assuming they have not already done this activity in another theme.) The server is generally where the work is stored, not on the individual computers around the school.
- Talk about saving work. Why do we do this? What does a 'save button' usually look like within a program? (As they usually still resemble a 3 ½ inch floppy disk, show one of these to the children if you can locate one.)
- Share experiences of computers at home and ask if they save on them.
- (Note that some systems automatically save and it's no longer necessary to manually save our work. For example, many iPad apps automatically save the work, and Google's G-Suite apps also automatically save.)
- Teach the pupils how and where to save on your school system, and if you have access to a safe online space or learning platform, include this.
- Talk about what we should call our saved files so we can find them again easily in the future.
- Save work using simple but appropriate file names in their own document area

To know that computer software can help us with our reading and writing.

- Explore some examples including resources which read onscreen books, read back what we have written and which include word lists to help us create and read texts.
- Examples of software you could use include:
  - Clicker (PC software)
  - Clicker apps (iPad®)
  - Textease (PC software)
  - iPad apps for writing (enable speech so that text written in iPad apps can be read back to the user.)
- Use provided word lists to support and enhance writing and speech support to review and improve their work.

To understand that we use computer software to create digital content, for different purposes and for different audiences.

- This is a general objective that should develop as children gain experience of different tools for creating digital text, image and sound across this theme. They should consider the purpose of the digital content and who the audience will be.

To understand that we can choose from different software to create digital drawing or painting. *Suggest a program to use based on its tools/features*

- There is a wide variety of painting and graphics software available, for both desktop / laptop computers and tablets. See suggestions above.
- Explore at least two programs and compare some of the tools in them (shape, colour tools, brush size and type; spray and fill effects etc.).
- What can we do with a digital painting / drawing tool that we cannot do with a non-digital one? Compare with drawing away from the computer. (For example, you cannot 'undo' with a hand-painted creation.)
- How do the tools available in different programs or apps differ? What tools are the same?
- Note that most digital painting / drawing tools will have similar functions as described above, so skills gained in one program could be transferred to another program.

To know that we use logical reasoning to work out how to use a digital resource. Test, debug and refine their plans.

- Here we encourage the children to think about the steps needed to carry out a task on a piece of hardware. They use 'decomposition' to break the task down into individual steps.
- Focus on one software program or device, such as a music player, or a graphics program. Ask children to work in pairs to plan and write down in steps the most efficient way to carry out a task, such as playing a chosen track or drawing a colour-filled shape.
- See if another group of pupils can follow the instructions. Were they successful? Do the instructions need improving? Can we make them shorter and/or easier to understand?
- Use the language: *test* (when they ask other children to try their instructions,) *debug* (to find and fix mistakes,) *refine* (to improve and make their instructions more efficient.)
- As an introduction to algorithms, consider using the following Barefoot Computing activities (links above):
  - Crazy Character Algorithms Activity
  - Spelling Rules Activity
  - Sharing Sweets Activity

To identify and use a range of technology (camera, visualiser, microscope etc.) to capture still and moving images.

- Try to provide different ways of capturing images and video.
- Discuss the different types of image they may capture, e.g. a digital microscope displays/captures magnified images.
- Discuss the differences in the way each device operates to capture/view an image.
- Compare the process of capturing an image with a dedicated camera with capturing images on tablets.
- Write simple operating instructions (algorithm) for capturing an image on a device making sure they are clear about the purpose for the instructions.
- As above, the pupils test, debug and refine their algorithms.

To recognise the need to ask permission before taking a photograph of anyone or their work. *Seek to keep a record of their work.* 

- Discuss why permission is important and how we feel if someone takes a photo of us without asking.
- Why might it not be safe to share images of ourselves or each other?
- Agree that we will always ask permission if we are taking a photo that includes another person, another person's work or something owned by another person.
- Capture images of their work and classroom activities, asking permission where appropriate, and save these to the destination(s) identified above.
- Make a point of capturing image of work etc. that do not include people, and discuss why the person has not been included in the photograph.

To understand that images can be accessed from many sources. Recognise that not all images which can be found are appropriate. (Use of online image banks is not required at this level.) 

- Images can be found in clipart banks, topic banks, folders on the network, and the World Wide Web etc.
- Teach the pupils how to access any image banks that might be available across your school (e.g. through interactive whiteboard software, VLE or Learning Platform.)
- Teachers could download public domain images and clipart to a shared folder on the network, from which the pupils can access them (provided the terms and conditions of the source website permit such use.)
- Use images in their work, considering whether the image is suitable for the purpose.
- Discuss what to do if we ever see an image that worries or upsets us.

To understand that audio devices can capture and/or playback sound and that help us communicate with others

- Ideally give pupils experience of different sound recording devices to record voice, music and sound effects.
- These may include sound recording buttons, cards, talking photo albums, MP3 recorders etc.
- Practice capturing sounds and playing them back to each other. What are the sounds we've recorded? Where were they recorded? How can the recording devices help us?
- Playback to share and review their recordings. Talk about how they use sound at home
- How can we share sounds in other ways? (Begin to talk about the fact that digital sounds can heard from many different sources all around us; game devices, TV and radio, portable music devices, websites etc.)

To know that sounds add meaning to digital texts.

- Explore digital texts (examples above) concentrating on the use of sound. How does the sound add to the story?
- Support pupils in using software that allows them to accompany images with sound, for example their own voice describing a picture, or sound effect accompanying it. Example of programs include:
  - Microsoft® Powerpoint. You can record your voice directly onto a slide.
  - Collins Big Cat (iPad apps.) You can record your voice on each page or using the Story Creator.
  - Book Creator app (iPad/Android.)
  - Little Star Story Creator (iPad)
  - Clicker software
  - Interactive Whiteboard software.

### On-Going Learning objectives

*To talk about the choices they have made in their work; refine work in the light of comments and suggestions from peers.*

*To log on to the school network or system with some support.*

*To save, locate and edit work with some support; consider when it is appropriate to print their work.*

*To use technology safely and increasingly respectfully.* 

*To know to tell a trusted adult if anything they access or use makes them feel uncomfortable or worried.* 

### Suggested independent task – any open-ended activity (2-3 sessions) enabling the children to demonstrate their computing capability around the knowledge and understanding provided in the term

Select digital resources from a limited range, and carry out the following tasks:

- > create a picture linked to a curriculum theme (story, poem, rhyme, song explanation etc.)
- > create a simple sentence related to their picture
- > create a digital sound recording related to their picture

Share their work with others talking about the digital resources they chose to use and reviewing how they might change or improve their work. (Note: there is no requirement to use the same software for all these tasks.)

Other considerations:

Does the task provide for children to work at different levels?

Is there support available for children to select if they wish?

Are there opportunities for the children to review and develop their work?

Is there an opportunity for the children to evaluate the finished task?

There is a wide range of software and apps that are suitable for these tasks. Titles that enable combined media (some examples given above) will allow the pupil to carry out each task within one program, rather than having to use different programs. Alternatively they could use different programs / apps for each task, depending on what you have available in school.

Please note there is an example medium term plan for this theme, donated by a Hertfordshire school, available to download from the online area.

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