

Key Stage 1 – Messages and Virtual Worlds – Theme Guide

Children explore ways of sending messages using digital and non-digital systems. They investigate the history of messages. As a class, they send and receive emails and read and comment on blogs. They explore simple virtual worlds. They create algorithms linked to their simulations. They program onscreen characters. They develop eSafe practice understanding the need to keep personal information private.

Learning objectives for the term

To investigate how methods for sending messages have developed over time. ⚡
To understand some of the ways we send messages today. ⚡
To consider the wording and the language we use to send formal and informal messages. ⚡
To understand email is a digital tool to send messages. ⚡
To understand that messages can be left in online spaces for others to pick up when they are ready. ⚡
To understand the importance of staying safe online and keeping personal information private. ⚡
To discuss how they use technology in school and at home to communicate safely. ⚡
To know that virtual worlds include activities or games designed by computer programmers to help us play and learn. ⚡
To understand that we can control outcomes in a game or simulation. <i>Suggest commands which the program might be following.</i>
To understand that algorithms are used to plan and test computer simulations and games before they are programmed.
To understand that onscreen characters can be programmed to move or respond in a specific way.

On-going Learning Objectives

<i>To log on to the school system and save, locate and edit work using their own space; understand how and when to print.</i>
<i>To begin to understand the importance of keeping personal information private and not sharing personal details online. ⚡</i>
<i>To talk about the choices they made. Revisit and refine their work.</i>
<i>To ask permission before taking or using images of others. ⚡</i>

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

Main parts of a computer, <i>input and output,</i> <i>peripheral,</i> <i>blog,</i> <i>forum,</i>	<i>avatar,</i> <i>algorithm,</i> <i>simulation,</i> <i>logical reasoning,</i> <i>pattern,</i> <i>predict</i>
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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.)

<p>Online spaces</p> <ul style="list-style-type: none"> • See accompanying sheet [List of blogs to explore] • Google Sites (as part of G-Suite for Education) to set up a private class blog or wiki. • J2Bloggy (as part of J2E) <p>Whole Class Email Account (controlled by teacher)</p> <ul style="list-style-type: none"> • Office365 • Gmail (as part of G-Suite for Education) <p>Programming Tools</p> <ul style="list-style-type: none"> • Daisy the Dinosaur (iPad app) • ScratchJR (iPad / Android / Chrome app) • JIT5 Turtle (as part of J2E) 	<p>Online Simulations:</p> <ul style="list-style-type: none"> • See accompanying sheet [Links to simulations] <p>Method of making avatars:</p> <ul style="list-style-type: none"> • 2Paint (from 2Simple) • See accompanying sheet [Links to online avatar creators] <p>Other:</p> <ul style="list-style-type: none"> • 2Email (as part of 2Simple Purple Mash)
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<ul style="list-style-type: none"> • 2Go (as part of 2Simple Purple Mash) 	
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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"> • Crazy Character Algorithms Activity. Link An unplugged activity where children create instructions for drawing a crazy character, and learn about algorithms. • Spelling Rules Activity. Link An unplugged activity where children create instructions for sounding phonemes, and learn about algorithms. Link to English. • Sharing Sweets Algorithms Activity. Link An unplugged activity where children create instructions for sharing sweets, and learn about algorithms. Link to English. • ScratchJR (app) Tinkering Activity. Link Children explore the free ScratchJR app and learn how to use it to create simple programs. • Decomposition Unplugged Activity. Link Children use hand-clapping sequences, breaking them down into individual steps (decomposition.) • ScratchJR (app) Knock-knock Joke Activity. Link Children program an animated knock-knock joke using the ScratchJR app. 	<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: http://barefootcas.org.uk</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 investigate how methods for sending messages have developed over time. 
<ul style="list-style-type: none"> • Using both paper-based and selected websites, research early methods for sending messages. Cave drawings – smoke signals – Egyptian hieroglyphs – carrier pigeons – printing press - telegraph – radio – etc. Make your own cave drawings or invent your own hieroglyphs / pictograms etc. How effective are they at communicating the intended message? Share the advantages and disadvantages of some of these. • Try making tin-can walkie-talkies, play Chinese whispers, write telegrams etc. Compare the efficiency of the different methods. • Discuss one-to-one messaging compared with one-to-many etc. How are they different and/or the same? • Link to history topic where possible.
To understand some of the ways we send messages today. 
<ul style="list-style-type: none"> • Discuss modern communication (in relation to early methods of communication.) • Children tell each other how they communicate, how often they use each method, their favourite etc. These could include face-to-face (talking, using expressions, shouting), phone call, letter, text message, video chat (e.g. Skype®, Facetime®), email, school website, message board, etc. • Talk about who the audience might be for different methods. Who can see the message? Is it always private? • What is the best, fastest, cheapest etc.? Why use one over another (think about different methods of communication)

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<p>for different purposes. For example, you might, with adult supervision, video conference with a relative who lives far way, but it might not be safe/appropriate to video conference with someone you do not know.)</p> <ul style="list-style-type: none"> • Be mindful of children admitting to having accounts for Instagram™, Whatsapp™, Snapchat™ etc. (Discuss with SLT the action to take if this arises, in line with school policies.)
<p>To consider the wording and the language we use to send formal and informal messages. </p> <ul style="list-style-type: none"> • Link to English. • Think about the difference in style when writing to friend using electronic method, or writing to someone we don't know. What sort of language is appropriate for what sort of communication? • Write messages (offline) to each other and to your Headteacher. How does the language differ? • Be thinking about what is and is not appropriate. How do our words make people feel? How might messages be misunderstood when they are in text form (i.e. it is harder to convey emotion and intention when there is no tone of voice, facial expression etc. to accompany the words.)
<p>To understand that email is a digital communication tool to send messages. </p> <ul style="list-style-type: none"> • Show the children an email system and talk about how it works. Create emails as a whole class. You should use a class email account, not your own, for which you and/or colleagues hold the log-in details. E.g. willow-class@school.herts.sch.uk. Always use a school-approved email system and do not set up your own class account using a standard freely available email service. Log-in details should not be shared with pupils. • Look at the email system on the class screen, discuss the different tools and terms: inbox / junk / +new / attach / send etc. • Send emails as class. Include appropriate attachments and discuss why we use them. Talk about what is and what is not safe or appropriate to send. Start by sending between classes, and end up by sending farther away. If you have a trusted contact or partner school in another country you could send a suitable email and receive a reply, showing the pupils on a globe or map, where the email is going to / coming from. (Do not share any 3rd party email addresses with pupils, or personal information of pupils or adults via these emails.) • Discuss permission etc. Remind children that we need to seek permission from the owner before sharing and of the importance of thinking about what we are sending, and to whom. Always keep reinforcing the eSafety messages.
<p>To understand that messages can be left in online spaces for others to pick up when they are ready. </p> <ul style="list-style-type: none"> • Online Space refers to such services as blogs, forums, message boards, social networks, wikis etc. • What is a blog? (Short for 'weblog'.) Talk about leaving messages online, how they might be public, how they can stay online forever etc. Look at your own class/school blogs if available and talk about who can see them (especially if they are public blogs.) • Explore some blogs: See accompanying sheet: [<i>Links to blogs to explore.</i>] Please check the blogs before using with pupils and new content may be published to blogs all the time. • Think about how they might be improved or made safer. Are they interesting, informative etc.? Have they shared things which you think they should not have shared (e.g. pictures of themselves?) Have people left comments? (Check them first before using with class in case any inappropriate comments have appeared.) • Discuss how we can use such spaces safely. As a class, put an electronic comment on a safe online space, for example the class or school blog.
<p>To understand the importance of staying safe online and keeping personal information private. </p> <ul style="list-style-type: none"> • What is personal information? Discuss what this constitutes. Who can see it when it is online etc.? • Discuss the reasons for protecting their identity. • What is an avatar? Why would we use an avatar? • Create an avatar using graphics software (eg: 2Simple 2paint™ etc.) or using a safe online tool. See accompanying sheet: [<i>Links to online avatar creators.</i>] • Share their avatars in class / at home. You could make a display of all their avatars in class. Can you guess who is who? • If not shown before, consider showing CEOP <i>Lee and Kim Animal Magic</i> video available from www.thinkuknow.co.uk (watch it yourself first to check you are happy with the content.) This video highlights the importance of not sharing personal information with people online, in this case through an online game environment.
<p>To discuss how they use technology in school and at home to communicate safely. </p> <ul style="list-style-type: none"> • Continue to talk about how you stay safe when communicating electronically. Make sure to discuss the services that the children use at home, as well as at school. • What should we not share? What should we do if we are worried or frightened when using online / communication

tools.

- Talk about what you might use at home for digital communication and how you are supervised.
- Again, be mindful of children admitting to having accounts for Instagram™, Whatsapp™, Snapchat™ etc. (Discuss with SLT the action to take if this arises.)

To know that virtual worlds include activities or games designed by computer programmers to help us play and learn. 

- Talk about how computer worlds can be made to represent a real or imaginary world. Discuss the games they play online etc. Do these games simulate the real world in any way?
- Play with a simulation on an iPad®/tablet (eg Epic Citadel, from Epic Games™) if available and talk about how it's the same/different to real life.
- Play with some simple online simulations that represent everyday events or situations. How are the same/different to real life? How are they simplified? What detail has been included and what has been left out? (These question begin to make us learn about 'abstraction'.)
- For more on abstraction, see the accompanying sheet [*Abstraction Activity*].
- See accompanying sheet: [*Links to simulations*].
- Discuss how much time they spend online etc. and the advantages of playing with their friends, in person, over playing on computers etc.

To understand that we can control outcomes in a game or simulation. *Suggest commands which the program might be following.*

- Explore a range of simple onscreen simulations and interactive resources (including fiction and non-fiction texts), pinpointing how they can control what happens and looking for patterns and rules.
- Explain how their choices affected the outcomes of the simulation. Begin to talk about other controls which could be included.
- In addition to using games/simulations, other programs, apps and/or online activities could be used, where the user is presented with options and has an element of control.
- What other controls could we add to the simulation / game / activity? What similarities / differences are there between the ones you have explored? Are there any common patterns or rules?
- In plain English, can the pupils suggest what commands the simulation / game / activity might be following? E.g. 'When clicked, go to a new page.' Or, 'if tapped, go faster, if not tapped, go slower.'

To understand that algorithms are used to plan and test computer simulations and games before they are programmed.

- Write simple algorithm / instructions for how to control the simulation or another simple game. (E.g. Cbeebies™ games, BBC Science Clips, parking simulator etc.) Make sure you choose as simple a game/simulation as possible or the algorithm may be quite complex and difficult to create.
- Having created a starting point as a class, children can work on improving (debugging and refining) the algorithm, in pairs.
- If an introduction to algorithms is needed, see the following Barefoot Computing activities (links above):
 - Crazy Characters Algorithm Activity
 - Spelling Rules Activity
 - Sharing Sweets Algorithm Activity

To understand that onscreen characters can be programmed to move or respond in a specific way.

- Here we begin using onscreen programming tools. There are many options available (apps, PC software and online,) including onscreen programmable robots where directional instructions are given, and simple block-based programming environments. Try to give children exposure to more than one onscreen programming environment, and where possible, different forms of input. For example, in the app Daisy the Dinosaur (free on iPad®,) the sprite can be programmed to respond to both moving the iPad® or touching the sprite itself.
- To extend, explain to each other how to control the app / onscreen programming tool and write a simple algorithm for the controls.
- See these Barefoot Computing activities (links above) if you have access to the ScratchJR app:
 - ScratchJR tinkering activity
 - ScratchJR knock-knock joke activity

On-Going Learning Objectives

To log on to the school system and save, locate and edit work using their own space; understand how and when to print.

To begin to understand the importance of keeping personal information private and not sharing personal details online.



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

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To ask permission before taking or using images of others. 

To use technology safely and increasingly respectfully, knowing how to respond if anything they access 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

- From a limited collection, choose a simulation or simple game to explore.
- Explain the effects of the choices or decisions they made in the simulation and how these choices affected what happened as the simulation or game progressed.
- Use logical reasoning to predict how the simulation might develop further
- As a group, send or post an electronic recommendation about the simulation to someone in the school community.

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?

- Choose a simulation or game to explore, e.g.: BBC Science Clips, Hot Air Balloon (see list of online simulations available from scheme downloads area) or a tablet based simulations such as Epic Citadel or Epic Zen Garden (both from Epic Games Inc.™)
- Write down how it works (how they can control it,) what choices they can make and how these affect the game.
- Pupils write a group post (offline, ideally using a digital writing tool) to be posted by staff onto school / class blog, if available. They should include what the simulation is about, how it is controlled, why they like/dislike it etc.

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