Belswains Primary School
Computing Guidelines

INTRODUCTION AND RATIONALE

Computing is divided into three main areas that we teach within our computing curriculum.

- Computer Science (how computers work) -programming, data storage and computer systems
- Information Technology (the purposeful use of computers)- digital artefacts e.g. use of presentations, spreadsheets, videos, 3D models etc. and computing context
- Digital Literacy (the use of computers in a safe and effective manner)- online safety, use of search engines etc.

Computing is one area that is constantly changing and being updated and is increasingly becoming an essential part of our everyday lives.

Teaching of the subject incorporates many of the aspects of our school values: PRIDE (Physical wellbeing, Respect, Inspire, Determination and Excellence). Online safety is taught throughout the computing curriculum. Pupils are taught to assess risks, recognise and reduce potential harms to themselves and others in the online world. During computing lessons pupils are taught to respect each other, when sharing work, resources and when discussing online safety. The subject inspires pupils by being relevant, challenging, fun and provides pupils with new experiences and opportunities to learn in different ways. When a subject is challenging it requires determination to see tasks through and it gives all pupils a chance to excel and reach their potential. Pupils are enabled to work independently as we are continually evaluating and expanding our computing resources. Staff across the school recognise and find ways to celebrate pupils who excel in computing.

INTENT

We believe that Computing is an essential part of the curriculum that should be accessible to all; a subject that not only stands alone but can be used across the curriculum to support learning. Computing, in general, is a significant part of everyone's daily life and pupils should be encouraged to embrace new technology in a safe and supported way. The teaching of Computing within our school provides a wealth of learning opportunities and transferable skills explicitly within the Computing lesson and across other curriculum subjects.

We use the Rising Stars scheme of work to ensure that pupils will develop a wide range of fundamental skills, knowledge and understanding that will equip them for the rest of their life. The use of the scheme throughout the school ensures that there is balanced coverage across the curriculum and progression within the subject. Computers and technology are such a part of everyday life that our pupils would be at a disadvantage if they were not exposed to a thorough and robust Computing curriculum. Pupils must be taught in the art form of 'Computational Thinking' in order to provide them essential knowledge that will enable them to participate effectively and safely in the digital world beyond our gates. Lessons include work on Chromebooks, iPads and the use of other technologies as necessary. The teaching of online safety is essential and is taught throughout the curriculum and through Safer Internet Day annually.

AIMS AND OBJECTIVES

Our principle aim at Belswains is to provide all pupils with the opportunity to develop their Computing capability to their full potential, through a stimulating and challenging curriculum. They will develop their ability to work collaboratively and independently and will be able to articulate and discuss their thinking in Computing.

Objectives

At Belswains Primary School we will:

- Teach the specific knowledge, understanding and skills of Computing in all strands of the programme of study.
- Use Computing to enrich and extend learning throughout the whole curriculum.
- Help pupils acquire confidence and pleasure in using Computing and become familiar with everyday applications: for communication, information finding, and controlling events.
- Encourage pupils to experiment, communicate and evaluate ideas and information using Computing applications through a number of different contexts and situations.
- Provide regular and frequent access to equipment and planned teaching of Computing for all pupils.

IMPLEMENTATION

All classes will have a weekly whole class teaching session (about 45-60 minutes), using Chromebooks, iPads or other technologies. Occasionally, Computing lessons maybe 'unplugged' (taught without the use of technology) to introduce or reinforce a concept.

In Early Years Foundation Stage, the planning and teaching of Computing is underlined by the Early Years Framework and using the Rising Stars scheme teachers ensure that they cover all prime and specific areas of learning. This allows pupils to become confident users of different technology.

In Key Stage 1, pupils will usually use a Chromebook individually or share an iPad with a partner. Teaching throughout Key Stage 1 gives pupils an introduction to many of the

programmes they will use throughout the school and provides them with opportunities to develop basic skills that they can build on in the future. In Key Stage 1 the pupils will learn to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. They will be taught to create and debug simple programs and use logical reasoning to predict the behaviour of simple programs. They will be shown how to use a range of technology purposefully to create, organise, store, manipulate and retrieve digital content as well as recognise common uses of information technology beyond school. They will be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. They will be introduced to use word processing and presentation programmes. Each of these skills will be taught through exciting half termly units.

In Key Stage 2, there is provision for each pupil to work individually on a Chromebook. There are enough iPads for pupils to share one between two. Teaching throughout Key Stage 2 builds on the firm foundations delivered in Key Stage 1. Many of the programmes used are revisited in order to further develop understanding and broaden skills. New programmes and concepts are also introduced. In Key Stage 2 the pupils will design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. They will use sequence, selection, and repetition in programs, use logical reasoning to explain how some simple algorithms work and correct errors in algorithms and programs. Pupils will be taught to understand computer networks, including the internet, and the opportunities they offer for communication and collaboration. They will use search technologies effectively, learn to appreciate how results are selected and ranked, and be discerning in evaluating digital content. Pupils will be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to create a range of programs, systems and content that accomplish given goals. They will use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Online safety is an important and integral part of our curriculum. As a school we take part in Safer Internet Day annually and online safety is taught throughout the curriculum in a meaningful and relevant way. See the school's Online Safety Policy for further details.

All pupils have their own Google Classroom account and sign in details. This enables them to log on to the Chromebooks in school or use a personal device to work from home. They can use this to access and complete work set by their teachers and to use a range of Google Apps.

Access is time-tabled to provide one afternoon to teach explicit Computing with extra times available in the mornings (and afternoons for KS2) for cross curricular teaching.

Resources are kept in the following places:

EYFS Chromebook Trolley	EYFS extra classroom
KS1 Chromebook Trolley	Corridor between the year 1 classrooms
KS1 iPad Trolley	Corridor between the year 1 classrooms
LKS2 Chromebook Trolley	Room A
UKS2 Chromebook Trolley	Room C
KS2 iPad Trolley	Room C
Other resources e.g. BeeBots	Nest Staffroom Resources Cupboard

Pupils should be provided with opportunities to use Computing for drafting work not just final versions.

There are also 6 iPads and 9 Chromebooks to support the learning of pupils with SEND, based on suggestions from SENDCo, outside agencies or in any other ways a teacher feels necessary.

IMPACT

After the implementation of this robust Computing curriculum, pupils at Belswains will be digitally literate and able to join the rest of the world on its digital platform. They will be equipped, not only with the skills and knowledge to use technology effectively and for their own benefit, but more importantly – safely. The biggest impact we want for our pupils is that they understand the consequences of using the internet and that they are also aware of how to keep themselves safe online.

As pupils become more confident in their abilities in Computing, they will become more independent and key life skills such as problem-solving, logical thinking and self-evaluation become second nature.

Pupils will be assessed annually to allow the teachers and subject leaders to monitor the subject. Assessment and recording will be in line with the Assessment Policy for the school. Opportunities for assessment are identified in the Rising Stars schemes of work and the class teachers have the responsibility to implement these or similar tasks.

RESOURCES

· **Human**
The outside agency ConEd is currently responsible for maintaining and repairing equipment and systems. They visit once a week but can be called out in emergencies. All staff can register with them to log issues or requests.
· **Technical**
All members of staff have responsibility to ensure the correct use of computer hardware and software and Internet access (as stated in the e-safety policy).
All staff members should inform ConEd of any technical problems with any equipment or systems via their web based portal.

· **Hardware**
The school intends to enhance the provision of computing equipment whenever possible. The following resources are available in the school: EYFS Chromebooks (11), Key stage 1 Chromebooks (30), Key Stage 1 iPads (13), Key Stage 2 Chromebooks (60), Key Stage 2 iPads (15), interactive white boards, tablets, tuff cams, visualisers, computer mice, headphones, microphones, BeeBots, ProBots, Roamer, Data loggers, and staff laptops. All computers have access to the Internet.
· **Software**
We use a variety of programmes on the Chromebooks and iPads. Software is accessed by pupils via Google Classroom. If you wish to add any apps or programs to Google Classroom please speak to the Computing Subject Lead or Head Teacher. Software is added by ConEd.
· **Web based Resources**
The School also uses numerous web-based resources to teach computing. ConEd set up Google accounts for every pupil. They use their Google accounts when completing units on email, creating websites, wikis, etc. and also they may use their Google accounts to login to other online resources.

STAFF TRAINING

In order to keep abreast of new developments, considerable amounts of time need to be invested by all staff. The Rising Stars scheme gives details of online videos and guides for all programmes/website used. Staff are encouraged to use these. Staff attend appropriate courses or receive training to improve skills and knowledge via staff meetings led by the Computing subject leader.

EQUAL OPPORTUNITIES AND SPECIAL NEEDS IN COMPUTING

The school recognises the advantages of the use of Computing by all pupils.
Pupils are supported through the use of specific programs e.g. Word shark and Rebus Widget.

In addition to this our school uses Computing to:
· Address pupils's individual needs;
· Increase access to the curriculum
· Improve language skills

Reviewed January 2023
Review Date: February 2024

Progression Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y1	We are treasure hunters Understand what algorithms are • Create and debug simple programs. • Use logical reasoning to predict the behaviour of simple programs. • Recognise common uses of information technology beyond school.	We are TV chefs Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. • Use logical reasoning to predict the behaviour of simple programs.	We are painters Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	We are collectors Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Use technology safel.	We are storytellers use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school. • Use technology safely and respectfully ..	We are celebrating Creating a card digitally Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.
Vocab	algorithm debug instructions	algorithm clip edit	character eBook illustration	copyright e-safety mammal	audio book microphone recording	celebrate greeting keyboard

	predict programming robot treasure	film recipe video camera	traditional tale	permission personal private	sound effect talking book	save type
Y2	We are astronauts Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.	We are game testers Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Use logical reasoning to predict the behaviour of simple programs. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private.	We are photographers Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	We are researchers Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	We are detectives Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	We are Zoologists Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.
Vocab	algorithm instructions predict problem program	rules test algorithm instructions	camera image Picaso pixel portfolio	Google mind map presentation research search	address attachment database evidence email	chart classification key Data Database

	robot scratch sprite		theme	search engine	fact file header safety	photograph tally chart tick chart
Y3	We are programmers Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts. Use sequence ... in programs; work with variables and various forms of input and output. Use logical reasoning to detect and correct errors in algorithms and programs. Select, use and combine a variety of software ... to design and create ... content that accomplish(es) given goals, including ... presenting ... information.	We are bug fixers Debug programs that accomplish specific goals. 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 correct errors in algorithms and programs.	We are presenters Select, 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. Work with various forms of input and output. Use technology safely, respectfully and responsibly.	We are Vloggers Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web. 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 content that accomplish given goals, including collecting, analysing, evaluating and presenting information. Use technology safely, respectfully	We are communicators Understand computer networks, including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communicati on and collaboration. • 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	We are opinion pollsters 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. Understand computer networks, including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communicati on and collaboration.

				and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	
Vocab	algorithm animation input output program script storyboard	bugs debug instructions program script algorithm	audio close up editing footage panning shooting video camera zooming	vlogging search engine presentation narration Creative Commons Copyright Images Audio screencast	attachment email e-safety spam spoofed link video conference virus	chart data graph opinion question rating scale research survey
Y4	We are software developers Design write and debug programs that accomplish specific goals. • 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 correct errors in algorithms and programs.	We are toy designers Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. • Use sequence, selection, and repetition in programs; work with various forms of input and output. Use logical reasoning to explain how some simple algorithms	We are musicians Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Understand computer networks including the internet; ... and the opportunities they offer for communication and collaboration. • Be discerning in evaluating digital content. Select, use and combine a variety of software	We are html editors 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 technology safely, respectfully and responsibly; know a range of ways to report concerns and	We Are co-authors Solve problems by decomposing them into smaller parts. 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. Use ... a variety of software	We are meteorologists Work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work. • 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

		work and to detect and correct errors in algorithms and programs.	(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/unacceptable behaviour.	unacceptable behaviour. Use and combine a variety of software (including internet services) to accomplish given goals, including presenting information.	(including internet services) ... to ... create ... content ... including ... presenting information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	(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.
Vocab	debug input interface output program prototype repetition variable	algorithm debug input interactive output pitch prototype simulation	audio composition copyright digital instruments pitch sample sequencing software	code HTML HTTP(hyper text transfer protocol) hyperlink tag URL webpage	edit information mind map reliable style wiki Wikipedias five pillars	chart data-logging forecast graph measurement prediction spreadsheet temperature
Y5	We are game developers Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing	We are cryptographers Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	We are artists 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	We are web developers Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities	We are bloggers Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities	We are architects Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

	them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and outputUse log ical reasoning to explain how some simple algorithms work and to detect and correct 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…	Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunitie s they offer for communicati on and collaboratio n. Use technology safely, respectfully and responsibly; recognise acceptable/u nacceptable behaviour; identify a range of ways to report concerns about content and contact.	work and to detect and correct 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.	they offer for communicatio n 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/un acceptable behaviour; identify a range of ways to report concerns about content and contact.	they offer for communicati on and collaboration. 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/u nacceptable behaviour; identify a range of ways to report concerns about content and contact. … 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.

Vocab	algorithm debugging code programming sprites storyboard	binary code cipher decrypt encrypt Morse code password security semaphore	geometric landscape op art sprite symmetry tessellations	bias online safety Page Rank revision history search engine wiki	audience blog blogroll copyright hyperlink podcast	£D animation gallery navigation screencast sculpture virtual
Y6	We are adventure gamers 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 correct errors in algorithms and programs.	We are computational thinkers Design, write and debug programs that accomplish specific goals. 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 correct errors in algorithms and programs	We are advertisers 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/un acceptable	We are network technicians Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communicatio n and collaboration. Use technology safely, respectfully and responsibly; recognise acceptable/un acceptable behaviour; identify a range of ways to report concerns about content and contact.	We are travel writers Understand computer networks, including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communicati on 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	We are publishers Understand computer networks including the internet and the opportunities they offer for communicati on 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,

			behaviour; identify a range of ways to report concerns about content and contact.		accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly.
Vocab	Python repetition variable selection print procedure syntax	algorithm flowchart linear search random search binary search selection sort quickstart	footage rough cut storyboard advert Creative Commons video camera rushes of footage final cut	command prompt internet IP address packet of data the web webserver network Domain Name Server (DNS)	geotagging GPS route location tracklog smartphone map metadata	Desktop publishing magazine collaboration design images typefaces layout