Half Acres Primary Academy

Computing Objectives and Long Term Planning 2018-2020

DL = Digital Literacy **CS= Computer Science** **IT – Information Technology**

Key Stage 1

Pupils should be taught to:

- 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
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- use technology safely and respectfully, keeping personal information private; know where to go for help and support when they have concerns about material on the internet
- recognise common uses of information technology beyond school.

Key Stage 2

Pupils should be taught to:

- 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
- 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, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- use technology safely, respectfully and responsibly; know a range of ways to report concerns and inappropriate behaviour
- select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

The areas of the curriculum

The new Computing curriculum is divided into 3 areas: Digital Literacy, Information technology and Computer Science.

Digital Literacy: Online and digital safety will be taught explicitly at the beginning of each academic year using appropriate year group resources. It is important that children understand the key messages and how this impacts on them when using ICT. This involves encouraging children to be critically aware of information they find online and how to think about whether to accept it.

Note: All children throughout school will continually develop their understanding of 'online and digital safety' through all areas of the computing curriculum and when using technology whilst being taught to respectfully use, and responsibly manage, a range of devices.

Computer Science: The core of computing is computer science, in which pupils are taught the principles of information and computation and how digital systems work including coding systems where children must consider inputs and outputs.

Information Technology: The following areas are covered explicitly through computing lessons at Half Acres:

- General skills: **Using a laptop, keyboard skills and accessing tablet technology**
- Finding Things Out: **Digital Research**
- Finding Things Out: **Data Handling**
- Developing Ideas and Making Things Happen: **Using speciality programmes to accomplish set goals**
- Developing Ideas and Making Things Happen: **Data Logging**
- Exchanging and sharing information: **Text-based outputs**
- Exchanging and sharing information: **Multimedia (audio/video) / digital imaging**

Computing Curriculum Years 1/2

Autumn 2018/19 *Topic – All Creatures Great and Small (Sc)*	Spring 2018/19 *Topic – Let's Explore (Geography/history)*	Summer 2018/19 *Topic – Oh I do like to be beside the seaside (Geography)*
Half Term 1 – Introduction to Computers Children to develop basic computer skills such as logging on using their usernames and basic typing skills and keyboard understanding. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent **Half Term 2 – Microsoft Word** Children to design a Christmas card, developing their understanding of inserting, and typing into, text boxes and cutting and pasting images from the internet. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent	**Full Term Coverage – Algorithms – Daisy the Dinosaur (app)** Children to be introduced to the basic fundamentals of algorithms as step-by-step instructions needed to perform an action. This will result in the children independently inputting a series of simple instructions to programme a character whilst predicting what would happen if a step were to be changed/erased. **National Curriculum objectives:** • 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	**Half Term 1 – Chatterpix/Morpho/Tellagami** Children to bring life to an inanimate seaside object using one of the applications above by recording their voice within the application. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent **Half Term 2 – Microsoft Publisher** Children to develop their understanding of the wider uses of word processing programmes by using a postcard template to insert text and an image to send to a family or friend about their fictional trip to the seaside. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent • recognise common uses of information technology beyond school.

Autumn 2019/20 *Topic – Just Imagine (History – castles)*	Spring 2019/20 *Topic – Where in the World? (Geography)*	Summer 2019/20 *Topic – Let's work and play (History)*
Half Term 1 – Introduction to Computers Children to develop basic computer skills such as logging on using their usernames and basic typing skills and keyboard understanding. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent **Half Term 2 – Microsoft Word** Children to create a poster about Pontefract castle whilst developing their understanding of inserting, and typing into, text boxes and cutting and pasting images from the internet. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent	**Term – Microsoft PowerPoint** Children to widen their understanding of word processing services by using Microsoft PowerPoint to retell the story of Handa from the book, 'Handa's Surprise'. They will continue to attach images into slides and will begin to experiment with other skills such as inserting shapes and clipart. **National Curriculum objectives:** • use technology purposefully to create, organise, store, manipulate and retrieve digitalcontent	**Half Term 1 – Scratch Jnr (app)** Children to be introduced to the basic fundamentals of algorithms and coding as step-by-step instructions or sequences of inputs needed to perform an action. This will result in the children independently inputting a series of simple instructions to programme a character whilst predicting what would happen if a step were to be changed/erased. **National Curriculum objectives:** • 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 **Half Term 2 – Puppet Pals (app)** Children to experiment with other uses of technology to create an output. They will retell an area of their topic work by creating a conversation between two characters within the application. **National Curriculum objectives:** • 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 digitalcontent • recognise common uses of information technology beyond school.

Computing Curriculum Years 3/4

Autumn 2018/19
Topic – Passport to the World (Geography)

Half Term 1 – Microsoft Word

Children to continue to practise a range of basic word processing skills, such as font colours and sizes, whilst considering the fundamental rules of online and digital safety to create a set of instructions to follow when using online services.

National Curriculum objectives:

- 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

Half Term 2 – Microsoft Publisher

Children to design and create a leaflet using a range of simple Microsoft Publisher features about a city discussed within their topic work.

National Curriculum objectives:

- 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

Spring 2018/19
Topic – Food Glorious Food (Geography and History)

Half Term 1 - Databases

Children to develop an initial understanding about databases, and their uses, building up to booking a package holiday drawing upon their knowledge from their learning within their previous topic.

National Curriculum objectives:

- use sequence, selection, and repetition in programs; work with variables and various forms of input andoutput
- 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 digitalcontent

Half Term 2 – Algorithms (Gridclub.com)

Children to design, and create, their own chocolate bar wrapper by considering the step-by-step instructions they input on specific applications.

National Curriculum objectives:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- 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

Summer 2018/19
Topic – Tudors (History)

Half Term 1 – Coding - Scratch

Children to be introduced to a more complex coding programme which requires them to build upon their previous skills of input and output to achieve simple instructions with some building up to designing their own algorithms.

National Curriculum objectives:

- 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

Half Term 2 – Tellagami/ChatterPix/Morpho

Children to document a key area of their learning from their topic work by using applications which allow them to record and apply their own voice through avatars and inanimate objects.

National Curriculum objectives:

- 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

Autumn 2019/20 *Topic – Family of Man (History - Stone Age)*	Spring 2019/20 *Topic – Castleford: Our Heritage (History)*	Summer 2019/20 *Topic – Our Angry Earth (Geography - Volcanoes, Earthquakes, Tornadoes)*
Half Term 1 – Microsoft Publisher Children to continue to practise a range of basic word processing skills, such as changing fonts and colours, whilst considering the fundamental rules of online and digital safety to create a poster. **National Curriculum objectives:** • 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 **Half Term 2 – Photography Skills** Children to use iPad technology to take a range of considered pictures of sculptures they create within their topic work from a range of focus points which can be edited using the iPad app, 'Photo Editor'. Pics of sculptures and take outside. **National Curriculum objectives:** • 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	**Half Term 1 – Book Creator** Children to use the iPad app, 'Book Creator' to create their own digital eBook documenting their key learning about the community they live in. They will develop iPad typing skills whilst understanding how other applications can help achieve similar outcomes. **National Curriculum objectives:** • 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 **Half Term 2 – Green Screen/Research** Children to experiment with other technology to create their own videos using the 'DoInk Green Screen' app which will be in the context of an informative video about Roman bathhouses following their internet research. **National Curriculum objectives:** • 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digitalcontent	**Half Term 1 – Databases/Research** Children to develop an understanding of branching within database interfaces. They will use their developing understanding of flowcharts within the context of their extreme weather learning. **National Curriculum objectives:** • 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digitalcontent **Half Term 2 – Coding – BeeBot App** Children to continue to develop their knowledge of algorithms to achieve a variety of more challenging outcomes building upon their key learning from KS1. **National Curriculum objectives:** • 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

Computing Curriculum Years 5/6

Autumn 2018/19 *Topic – Vicious Vikings (History/Geography – Vikings and Europe)*	Spring 2018/19 *Topic – May the Force be with You (Science – Earth and Space and Forces)*	Summer 2018/19 *Topic – Night at the Museum (History – Ancient Greeks and Egyptians)*
Half Term 1 - Coding – Scratch Children to develop their knowledge of algorithms to achieve a variety of more complex outcomes within the app including inputting, and then programming, a Viking warrior avatar to complete a sequence of actions. **National Curriculum objectives:** • 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 **Half Term 2 – Digital Media** Children to use a range of technology (including 'Microsoft Word' and 'iPad Photo Editor') to edit, enhance and publish a range of images understanding key terminology such as 'saturation', 'vignette' and 'effects'. **National Curriculum objectives:** • 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	**Half Term 1 – Microsoft PowerPoint/Research** Children to create an interactive 'Microsoft PowerPoint' presentation using a range of features (including hyperlinks, embedding videos and slide transitions) to present key knowledge from their Earth and Space topic. **National Curriculum objectives:** • 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digitalcontent **Half Term 2 – Green Screen** Children to create and present an informative video clip using the 'DoInk Green Screen' app about their own chosen area from their science learning whilst selecting appropriate backgrounds for their clips. **National Curriculum objectives:** • 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	**Half Term 1 – 'Sketch-Up'** Children to use a 3D modelling programme to create, and add detail to, their own living space using a range of specific features which they will then compare to the living spaces of the Ancient Greeks and Egyptians within their topic work. **National Curriculum objectives:** • 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 • 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 **Half Term 2 – Microsoft Publisher/Research** Children to continue to develop and practise a range of word processing and design skills using 'Microsoft Publisher' to create a brochure/leaflet/poster documenting their knowledge of the Greeks and Egyptians whilst improving their overall typing speed/accuracy. **National Curriculum objectives:** • 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digitalcontent
Autumn 2019/20 *Topic – Take one Picture (History - WWII)*	Spring 2019/20 *Topic – In the Extreme (Geography - Climates)*	Summer 2019/20 *Topic – The Road to Rio (Geography/History - South America/Mayans)*
Half Term 1 – Understanding how search engines work Children to develop their understanding of the sequence a search engine completes as we search a topic or question. They will also improve their research skills by creating specific questions and inputs to narrow down searches before considering how a 'pre-internet' world accessed information throughout the world. **National Curriculum objectives:** • 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, appreciate how results are selected and ranked, and be discerning in evaluating digitalcontent **Half Term 2 – Radio/Podcast/Audio** Children to create and record audio files using a range of software to reinforce their learning about World War II. These will range from podcasts, where children will document key knowledge from their topic work, to radio broadcasts which children will create in a similar form to those used within the war. **National Curriculum objectives:** • 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	**Half Term 1 – iMovie** Children to create and edit their own informative video documenting their learning surrounding extreme weather using a range of skills including adding text, special effects and transitions to clips. **National Curriculum objectives:** • 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 **Half Term 2 – Tellagami/ChatterPix/Morpho** Children to continue to document their key learning from their topic work by using applications which allow them to record and apply their own voice through avatars and inanimate objects. **National Curriculum objectives:** • 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	**Half Term 1 – Coding – A.L.E.X App** Children to develop their knowledge of algorithms to achieve a variety of more complex outcomes within a range of apps whilst developing their understanding of input, output and debugging. **National Curriculum objectives:** • 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 **Half Term 2 – Blogging/Vlogging** Children to use specific technology to create their own blog documenting their fictional trip to an area of South America. Children will develop an understanding of the key components of recording/keeping a blog/vlog whilst developing their word processing skills and typing speed/accuracy. **National Curriculum objectives:** • 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

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