



Churchfields Infants' School: Year Two curriculum information

Computing



Outlined below is a summary of the skills children will work on during each half term in Year Two, along with some activities children will complete, key vocabulary that will be taught and ideas of how parents can help to develop this learning at home.

Half Term	Skills	Activities	Key Vocabulary	How can you help at home?
Autumn 1 Are We Nearly There Yet?	We Are Astronauts <ul style="list-style-type: none">- how to stay safe when using technology- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute them by following precise and unambiguous instructions- create and debug simple programs- test simple programs- use logical reasoning to predict the behaviour of simple programs	We Are Astronauts <ul style="list-style-type: none">- planning a sequence of movements- learning the ScratchJr interface and programming sprite (robot) movement- understanding output in ScratchJr- learning how to work with multiple sprites- understanding input in Scratch Jr and how sprites can pass messages to each other- understanding repetition in ScratchJr- creating original drawings for planets	Computing technology tablet log on log off username password volume control lock screen keyboard online safe trusted adults privacy online safety abstraction algorithm bug code debug	<ul style="list-style-type: none">- continue to reiterate messages delivered at school around internet safety and rules to follow so that children can ensure they are safe online. Consider use of filters and parental controls if you don't already to minimise risk when your child uses technology and continue to ensure they are never unsupervised when using devices- you may like to continue using programmable toys e.g. remote control cars or other items you have at home to reinforce the language for coding and to support children in understanding cause and effect- consider downloading the free app ScratchJr. onto one of your devices (see ScratchJr - Home for more information) so children can demonstrate what they have been learning at school and continue to explore writing and rewriting code

	<ul style="list-style-type: none"> - work with input and output - use repetition in their programs <p>Revision:</p> <ul style="list-style-type: none"> - <i>online safety/safety when using technology</i> - <i>understand what algorithms are</i> - <i>use logical reasoning to predict the behaviour of simple programs</i> - <i>create and debug simple programs</i> 	<p>and spacecraft in ScratchJr</p> <p>Revision:</p> <ul style="list-style-type: none"> - <i>planning precise sequences of instructions to achieve an objective</i> - <i>developing and recording sequences of instructions as an algorithm</i> - <i>correcting sequences of instructions</i> 	<ul style="list-style-type: none"> event input output parallel processing program repetition Scratch sprite 	<ul style="list-style-type: none"> - you may like to use other opportunities for coding and using algorithms too! A couple we know and love are: Computer Science Curriculum for Grades K-5 Code.org (we suggest you start with Course B), or the free app Hopscotch
<p>Autumn 2</p> <p>Once Upon a Time...</p>	<p>We Are Games Testers</p> <ul style="list-style-type: none"> - how to stay safe when using technology - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute them by following precise and unambiguous instructions - use logical reasoning to predict the behaviour of simple 	<p>We Are Games Testers</p> <ul style="list-style-type: none"> - working out the rules (algorithms) for a simple arithmetic game - working out the rules (algorithms) for a simple chase game - working out the rules (algorithms) for a two-player sports game - working out the rules (algorithms) for a simple shooting game - practising programming skills using a game 	<ul style="list-style-type: none"> Computing technology tablet log on log off username password volume control lock screen keyboard online safe trusted adults privacy online safety abstraction 	<ul style="list-style-type: none"> - continue to reiterate messages delivered at school around internet safety and rules to follow so that children can ensure they are safe online. Consider use of filters and parental controls if you don't already to minimise risk when your child uses technology and continue to ensure they are never unsupervised when using devices - consider the rules in some simple games you know (NOT online games) e.g. Snakes and Ladders, Frustration etc. and how the games work! - have a go at some very simple online games and discuss the rules that they follow. What would the person who designed the game have to put in place to make it work in the way it does?

	<p>programs and test these predictions</p> <ul style="list-style-type: none"> - recognise common uses of technology beyond school - use technology safely and respectfully, keeping personal information private - observe and describe carefully what happens in computer games - think critically about computer games and their use - work out strategies for playing a game well - be aware of how to use games safely and in balance with other activities <p>Revision:</p> <ul style="list-style-type: none"> - <i>safety when using technology</i> - <i>test simple programs</i> - <i>work with input and output</i> - <i>use repetition in their programs</i> 	<ul style="list-style-type: none"> - working out winning strategies for the game of Nim <p>Revision:</p> <ul style="list-style-type: none"> - <i>understanding input and output in the context of algorithms</i> - <i>planning sequence of movements</i> - <i>rehearsal of programming skills</i> 	<p>algorithm</p> <p>computational thinking</p> <p>input</p> <p>output</p> <p>parallel processing</p> <p>pattern recognition</p> <p>remix</p> <p>repetition</p> <p>Scratch</p> <p>source code</p> <p>sprite</p>	<ul style="list-style-type: none"> - have a go at The Game of Nim here and see if you can work out some strategies to make sure you win! Nim (transum.org)
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<p>Spring 1</p> <p><i>It's Cold Outside...</i></p>	<ul style="list-style-type: none"> - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - use a Chromebook camera - understand the qualities of an effective photograph - understand how to take a photograph; save, retrieve and manipulate it <p>Revision:</p> <ul style="list-style-type: none"> - <i>how to keep safe when working online</i> - <i>creating and manipulating digital content</i> - <i>saving finished work to be retrieved at a later date</i> - <i>recognise common uses of information technology beyond school</i> - <i>use technology safely and</i> 	<p>We Are Photographers</p> <ul style="list-style-type: none"> - understanding what makes a good photo - understanding how digital cameras work - developing skills in taking effective photos - critically evaluating photos they have taken - editing and enhancing photos - making selective adjustments to photos using Snapseed <p>Revision:</p> <ul style="list-style-type: none"> - <i>logging on an off quickly and accurately</i> - <i>accessing apps quickly</i> 	<p>Computing technology</p> <ul style="list-style-type: none"> tablet log on log off username password volume control lock screen keyboard <p>online safe</p> <p>trusted adults</p> <p>privacy</p> <p>online safety</p> <p>adjustment</p> <p>camera roll</p> <p>colour value</p> <p>crop</p> <p>filter</p> <p>JPEG</p> <p>pixel</p> <p>rule of thirds</p> <p>sensor</p>	<ul style="list-style-type: none"> - continue to reiterate messages delivered at school around internet safety and rules to follow so that children can ensure they are safe online. Consider use of filters and parental controls if you don't already to minimise risk when your child uses technology and continue to ensure they are never unsupervised when using devices - encourage your child to take some photos of what you get up to at home or when you are out and about. They may like to use a camera (intended for children or adults), phone or other device but please make sure they are supervised! - encourage your child to think about their photos and ensure that their subject is well framed, the light is not too bright or too dark and that they hold their arms steady to try and make sure they don't have blurry pictures! - have a look through the pictures and delete any you're not happy with - maybe your child could print some of their chosen pictures to keep in an album or display at home? - if you are able to edit your pictures (e.g. using Paint), encourage your child to have a go under your supervision! Allow them to experiment with different effects that are possible within the program
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	<p><i>respectfully, revisit and reinforce the importance of online safety and how to get help if concerned about content or contact</i></p> <p><i>- recap learning on algorithms</i></p>			
<p>Spring 2</p> <p>What the Eyes Don't See...</p>	<p>We Are Safe Researchers</p> <ul style="list-style-type: none"> - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of 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 and other online technologies - develop research skills through searching for 	<p>We Are Safe Researchers</p> <ul style="list-style-type: none"> - understanding what research is - learning how to structure questions for research in a mind map tool - searching for information using a custom search engine - adding information from independent research to a mind map - searching the web safely and effectively using Google SafeSearch, other search engines and Simple Wikipedia to search for information - creating a short multimedia presentation of their 	<p>Computing technology tablet</p> <p>log on</p> <p>log off</p> <p>username</p> <p>password</p> <p>volume control</p> <p>lock screen</p> <p>keyboard</p> <p>online safe</p> <p>trusted adults</p> <p>privacy</p> <p>online safety</p> <p>Bing</p> <p>creative commons</p> <p>DuckDuckGo</p> <p>filter</p> <p>Google</p> <p>Google custom search</p> <p>mind map</p> <p>presentation</p>	<ul style="list-style-type: none"> - continue to reiterate messages delivered at school around internet safety and rules to follow so that children can ensure they are safe online. Consider use of filters and parental controls if you don't already to minimise risk when your child uses technology and continue to ensure they are never unsupervised when using devices - consider using Google SafeSearch when looking for information on the internet Google for Kids Safe Search (safesearchkids.com) - see if your child can find out any information about India (or another country of their choice) by searching a simple web browser. Please ensure this is always under your supervision, and remind children of the other ways we could find out this information (e.g. using books) – technology is much faster but the 'old' ways are still there! - reinforce online safety rules at home and ensure your child knows how to report any concerns to you or another trusted adult

	<p>information on the internet</p> <ul style="list-style-type: none"> - think through privacy implications of their use of search engines - be more discerning in evaluating online information - improve note-taking skills - develop presentation skills - develop collaboration skills through working as part of a group <p>Revision:</p> <ul style="list-style-type: none"> - how to keep safe when working online - use logical reasoning to predict the behaviour of simple programs - recognise common uses of information technology beyond school - use technology safely and respectfully, revisit and reinforce the importance of online safety and how to get help if concerned 	<p>finding and adding appropriate images</p> <ul style="list-style-type: none"> - developing presentation skills through delivering a short multimedia presentation <p>Revision:</p> <ul style="list-style-type: none"> - logging on an off quickly and accurately - accessing apps quickly - using the internet safely, including online safety rules to be followed at school and at home - how to report any concerns when using technology - controlling basic commands such as forwards, backwards and refresh - how to use bookmarks and bookmark useful websites under the supervision of a teacher 	<p>safe search search engine Wikipedia</p>	<ul style="list-style-type: none"> - use the internet when you can with your child to complete tasks they are interested in e.g. check the weather for your trip out at the weekend or check the football scores!
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	<p><i>about content or contact</i></p> <p><i>- revisit how to take an effective photograph</i></p>			
<p>Summer 1</p> <p>From Out of the Ashes</p>	<p>We Are Animators</p> <ul style="list-style-type: none"> - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of 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 and other online technologies - understand how animation works - film, review and edit a stop-motion animation - record audio to accompany their animation 	<p>We Are Animators</p> <ul style="list-style-type: none"> - learning what makes a good animation - planning an animation using a storyboard - understanding how stop-motion animations are made - creating original characters, props and backgrounds (media assets) needed for their animation - using Stop Motion Studio to film a stop-motion animation - exploring more features of Stop Motion Studio - planning and recording audio to accompany their animation - reviewing other children's animations and providing constructively critical feedback <p>Revision:</p>	<ul style="list-style-type: none"> Computing technology tablet log on log off username password volume control lock screen keyboard online safe trusted adults privacy online safety animation background character flipbook animation frame media assets onion-skinning prop soundtrack stage stop-motion storyboard 	<ul style="list-style-type: none"> - continue to reiterate messages delivered at school around internet safety and rules to follow so that children can ensure they are safe online. Consider use of filters and parental controls if you don't already to minimise risk when your child uses technology and continue to ensure they are never unsupervised when using devices - perhaps you could watch some animated films together to fully appreciate what goes into making these and the technology that is required? Cartoons are of course animated, and there's always Wallace and Gromit! - have a look at the following video about how Wallace and Gromit are brought to life from just clay puppets! https://www.youtube.com/watch?v=i3CEE9xKKZc - try this one too – more about Aardman and how they created their latest film! https://www.youtube.com/watch?v=jZvQzkFckEM - have a think about a story you might like to create using stop-motion animation, and if you feel like it, put it into a real animation! You'll need items to animate (Lego is always useful for this!) and a camera or simple animation app! Here is a

	<ul style="list-style-type: none"> - provide constructively critical feedback to their peers <p>Revision:</p> <ul style="list-style-type: none"> - understanding what algorithms are - what makes a good photograph - controlling programs using simple instructions and algorithms - safety online and when using technology - open, edit and store digital content 	<ul style="list-style-type: none"> - <i>adding sound to a piece of work using what was learned in previous units</i> - <i>applying knowledge of how to predict the behaviour of simple programs and use a range of commands to control it</i> - <i>edit own work</i> - <i>skills in evaluating a finished piece using knowledge of Computing developed during the Key Stage</i> 		<p>video to get you started in case you're not sure, but your child should be able to explain how they did this at school! (This will more be done after half term so there's no rush to complete this bit!)</p> <p>https://www.youtube.com/watch?v=uYwMw2JE1Lg</p>
<p>Summer 2</p> <p>Lost at Sea</p>	<p>We Are Zoologists</p> <ul style="list-style-type: none"> - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and 	<p>We Are Zoologists</p> <ul style="list-style-type: none"> - learning how a classification key and branching database can be used to classify invertebrates - collecting data using tick or tally charts - taking photos of the invertebrates they find - editing and enhancing photographs - using Google Sheets or Microsoft Excel to produce basic charts 	<p>Computing technology tablet</p> <ul style="list-style-type: none"> log on log off username password volume control lock screen keyboard <p>online safe</p> <p>trusted adults</p> <p>privacy</p> <p>online safety</p>	<ul style="list-style-type: none"> - continue to reiterate messages delivered at school around internet safety and rules to follow so that children can ensure they are safe online. Consider use of filters and parental controls if you don't already to minimise risk when your child uses technology and continue to ensure they are never unsupervised when using devices - you could have a go at creating your own databases at home. Can you categorise all of your toys so you know what you have? Your child could start to show you how it's done! This website J2Data (j2e.com) can help you (you may

	<p>support when they have concerns about content or contact on the internet and other online technologies</p> <ul style="list-style-type: none"> - sort and classify a group of items by answering questions - collect data using tick or tally charts - take, edit and enhance photographs - record information on a digital map - summarise what they have learned in a presentation <p>Revision:</p> <ul style="list-style-type: none"> - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and 	<ul style="list-style-type: none"> - recording information on a digital map - creating a presentation summarising what they have found out <p>Revision:</p> <ul style="list-style-type: none"> - exploring a dataset to understand the structure of data - exploring a dataset as virtual cards in Popplet - creating a tree for identification of data - inputting data into an online form in order to create a table - creating filters to identify subsets of their data - searching a database to solve clues! 	<ul style="list-style-type: none"> binary binary tree branching database classification key data database geolocation data Global Position System (GPS) pixels tally charts 	<p>need to sign in using your child's USO – see the back of their Reading Record)</p> <ul style="list-style-type: none"> - allow your child to safely experiment with technology whenever you can, in as many ways as you can, so they can continue to build their skills and apply what they have been learning
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<p><i>support when they have concerns about content or contact on the internet and other online technologies</i></p> <ul style="list-style-type: none"><i>- working collaboratively</i><i>- research skills</i><i>- presentation skills</i><i>- learn how data can be structured as records with fields for information</i><i>- how data can be organised into groups and subgroups</i><i>- how data can be structured as a tree</i><i>- how data can be organised into a table</i><i>- how data in a table can be filtered and searched</i>			
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