

The Academy at St James

Computing Curriculum Overview

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	<p>In EYFS we:</p> <ul style="list-style-type: none"> Learn how to follow everyday algorithms such as snack routine, mixing paint, making a picture Begin to understand that sequencing is important when following everyday algorithms e.g mixing powder paint Explore how to use BeeBots and other programmable devices 	<p>In Year 1 we learn:</p> <ul style="list-style-type: none"> What an algorithm is and develop an understanding of the importance of sequence for most algorithms How to create our own programs using open ended programs How to experiment with programming software to provide familiarity. 	<p>In Year 2 we learn:</p> <ul style="list-style-type: none"> How to predict the outcome of algorithms and code using logical thinking How to look at and understand code which they can explain what it will do before running the program Debugging skills when creating our own algorithms and programs in order to develop resilience and perseverance 	<p>In Year 3 we learn:</p> <ul style="list-style-type: none"> To build on our knowledge and understanding of sequencing and debugging programs and algorithms in KS1 What input and output devices are How to create simple programs using inputs and outputs The 3 types of repetition: repeat forever, repeat until.. And repeat a certain number of times. About real life examples of repetition to deepen understanding of concepts. That repeating events can be referred to as loops. Create own programs that use repetition 	<p>In Year 4 we learn:</p> <ul style="list-style-type: none"> How to decompose existing programs into smaller parts and compare the features of different programs (comparing games) How to turn code into algorithms to develop understanding of code How to further develop our debugging skills by debugging programs with deliberately placed bugs. About the concept of selection and find real world examples How to create programs using selection using prior knowledge of repetition 	<p>In Year 5 we learn:</p> <ul style="list-style-type: none"> How to consolidate and develop our knowledge of selection. What a variable is and why they are important in programs How to apply our knowledge of selection when creating variables in our programs How to modify existing games to add scores/ take lives/ timers How to use physical computing devices such as Micro:Bits We continue to practise turning algorithms into code and vice versa 	<p>In Year 6 we learn:</p> <ul style="list-style-type: none"> How to use our knowledge of understanding sequence, repetition, input, output, selection and variable by applying these skills when creating our own programs through different contexts To create programs for a purpose and audience using abstraction (a representation with all extraneous detail removed) in the form of a sketch with notes. How to the create games and learning guides for others How to create programs for physical devices

The Academy at St James

Computing Curriculum Overview

Media	In EYFS we: <ul style="list-style-type: none"> • Explore how to take pictures using iPads and cameras • Learn how to select, change colour and textures using Paint Programs • Understand that typing on a keyboard creates words on screen • Learn how to record ourselves using talking post cards 	In Year 1 we learn: <ul style="list-style-type: none"> • How to create simple documents • To develop our typing skills • To create simple pieces of music • To record and playback sounds • To take and review photos for a purpose 	In Year 2 we learn: <ul style="list-style-type: none"> • How to format documents such as font, size and colour • How to add a title to a document • To use paragraphing • To further develop typing skills • How to add audio to a piece of work • How to edit and crop images that they have taken • How to take images and videos • About screen animations 	In Year 3 we learn: <ul style="list-style-type: none"> • How to use cut, copy, paste and spell checker when creating documents • Further formatting tools such as adding columns and text boxes • How to add sounds to projects such as powerpoints or videos • How to create short Stop Motion Animations 	In Year 4 we learn: <ul style="list-style-type: none"> • About different camera shots and how to combine camera shots to create simple films • To create longer animations which contain a title and credits • How to create audio using layers • About 2D designs and create birds eye view style plans 	In Year 5 we learn: <ul style="list-style-type: none"> • How to add audio and transitions to animations, films and slideshows • How to use a wider variety of film shots including approaching and retreating • What makes a good presentation and evaluate our own presentations • To create multi track audio productions • How to source sound files • About 3D Graphics and basic 3D objects in design software 	In Year 6 we learn: <ul style="list-style-type: none"> • How to develop our 3D graphic tools knowledge to create more complex pictures which include combining shapes • How to combine and use a variety of media when working on a project by considering the audience • To consider and evaluate the effectiveness of media within our presentations
Data Handling	In EYFS we learn: <ul style="list-style-type: none"> • How to sort physical objects using a given specific criteria • Understand that the same group of objects could be sorted by different criteria e.g 4 legged animals/ not 4 legged or stripey/ not stripey 	In Year 1 we learn: <ul style="list-style-type: none"> • How to sort a simple set of data • How to represent data in a pictogram 	In Year 2 we learn: <ul style="list-style-type: none"> • How to sort data using Yes/ No questions • To represent data in graphs and pictograms • How to create simple branching databases using Purple Mash 	In Year 3 we learn: <ul style="list-style-type: none"> • To collect and interpret data • To represent data using a range of charts and graphs • How to create simple databases using Purple Mash 	In Year 4 we learn: <ul style="list-style-type: none"> • How to create simple databases using Purple Mash • To search existing databases to find information • How to use spreadsheets to input data and perform simple calculations 	In Year 5 we learn: <ul style="list-style-type: none"> • How to create and use formulae in spreadsheets • How to sort through large databases to answer questions 	In Year 6 we learn: <ul style="list-style-type: none"> • How to use spreadsheets to sort and filter information • To collect large amounts of data that is presented to others • How to create and test hypothesis using databases and spreadsheets

The Academy at St James

Computing Curriculum Overview

<p>Information Literacy</p>	<p>In EYFS we learn:</p> <ul style="list-style-type: none"> To identify devices we could use to access information on the internet. To recognise some ways that the internet can be used to communicate That the work that I create belongs to me- Copyright 	<p>In Year 1 we learn:</p> <ul style="list-style-type: none"> How to find information using digital technology- search engine/ voice activated search That we can encounter a range of things online that may be real or make believe/ things we like and dislike To recognise how digital work belongs to the individual that created it To save our work under a suitable name 	<p>In Year 2 we learn:</p> <ul style="list-style-type: none"> How to search for information on child friendly search engines and encyclopedias About the importance of web address How to navigate a simple webpage to search for information(e.g. home, forward, back buttons; links, tabs and sections). To identify what a voice activated search is, when it should be used and understand that we are not asking a real person To identify and recognise the difference between things that are imaginary/ make believe and things that are true/false and know that not everything that we find online is real/true Why it is important to ask permission before sharing information about others That information that is shared online can be seen for a long time To Identify digital content that belongs to me That information found online belongs to someone else 	<p>In Year 3 we learn:</p> <ul style="list-style-type: none"> How to search for information on child friendly search engines and encyclopedias How to use “ “ to narrow my search To use key words and phrases in search engine to gather accurate information What autocomplete is and how to choose the best suggestion How the internet can be used to buy and sell things The difference between a ‘belief’, an ‘opinion’ and a ‘fact’. And identify how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. How to analyse information and differentiate between ‘opinions’, ‘beliefs’ and ‘facts’. How to evaluate evidence to determine its credibility by establishing criteria that have to be met before something is a ‘fact’. About the importance of giving and gaining permission before sharing things online and how the principles of sharing online is the same as sharing offline To identify what problems may be caused by copying someone else's work 	<p>In Year 4 we learn:</p> <ul style="list-style-type: none"> The importance of using keywords effectively when searching a wide range of technologies How to check search results for relevance and accuracy and understand that information created could have been created, copied or shared by others. How to evaluate evidence to determine its credibility by analysing information to support making an informed judgement about it's accuracy To recognise some of the methods used to encourage people to buy things online and what we should do when they appear Why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. What is meant by a ‘Bot’ and the benefits and risks of using them are What is meant by Fake News What the term ‘reuse’ means How to recognise who might own online content 	<p>In Year 5 we learn:</p> <ul style="list-style-type: none"> Why it is important to cross reference information from a variety of sources to check for bias and implausibility How to use search engines and filter tools to search with more accuracy About technology-specific forms of communication (e.g. emoji). What is meant by the term ‘being sceptical’;and why it is important when sourcing information online How some technology can limit the information being presented and identify the positive and negative impact of this What is meant by ‘trustworthy’ and how to evaluate digital content from a variety of sources. To identify ways in which the internet can draw us to information for different agendas, e.g. , pop-ups, targeted ads and assess the validity of this source To identify when online content has been commercially sponsored or boosted What is meant by a ‘hoax’ Recognise the impact fake news 	<p>In Year 6 we learn:</p> <ul style="list-style-type: none"> How to analyse and evaluate the validity of ‘facts’ and information including how to check for bias and implausibility and develop their own criteria for checking How to use search engine ranking and what influences ranking results What is meant by the terms ‘influence’, ‘manipulation’ and ‘persuasion’ and can identify how might encounter these online (e.g. advertising and ‘ad targeting’). That accurate information can be used in a false context deliberately to disinform. About the concept of persuasive design and how it can be used to influence the choices and opinions of others To identify, flag and report inappropriate content. To identify how companies and news providers target specific audiences to increase engageability The difference between online mis-information and dis-information How to search for content that can be reused by others
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The Academy at St James

Computing Curriculum Overview

				online without their permission		<p>can have on someone's emotions and behaviour, and identify why this may be harmful</p> <ul style="list-style-type: none"> To assess and justify when it is acceptable to use the work of others 	and understand how to reference online sources in our own work
ESafeguarding	<p>In EYFS we learn:</p> <ul style="list-style-type: none"> What to say when something makes us feel sad, embarrassed or upset both on or offline (To say 'no' / 'please stop' / 'I'll tell' / 'I'll ask') To recognise and describe ways that some people can be unkind online. To identify rules that help keep us safe and healthy in and beyond the home when using technology How to identify and name examples of own personal information such as name, address and birthday To identify who we can trust to keep us safe and discuss why 	<p>In Year 1 we learn:</p> <ul style="list-style-type: none"> That not everyone is kind when working online How to identify and recognise when someone is making us feel sad, embarrassed or frightened How to tell our trusted adults that we need help The importance of asking permission before going online Why it is important to be considerate and kind to people online and to respect their choices. To recognise that information can stay online and could be copied by others. To identify what personal information is and the 3 main types of personal information that can be shared (pictures, text, videos) To identify information that is personal to you To ask a trusted adult before sharing information online 	<p>In Year 2 we learn:</p> <ul style="list-style-type: none"> How people may look and act differently online and offline To identify issues that may make people feel sad/ frightened/ uncomfortable or worried online and recognise what we should do if we find ourselves in this situation To identify when we may speak to someone that we do not know offline - penpal, age appropriate games To identify the risks of speaking to someone online that we have never met in person How to ask for, give, or deny our permission online and identify who can help if we are not sure. The importance of telling a trusted adult if something has been put online without consent or if it is incorrect. To recognise when we feel under pressure to do 	<p>Year 3 we learn:</p> <ul style="list-style-type: none"> What is meant by the term 'identity', how people represent themselves online and how people may change their identity online- avatars, gaming, social media To identify how people with the same interests might get together online. What is meant by to 'know someone online' and how this is different to knowing someone offline The difference between liking someone online and trusting someone online What trust means and why it is so important, including online. To identify information that we may or may not want sharing online and Investigate the consequences of sharing personal information. To recognise and identify how we should behave online and discuss 	<p>Year 4 we learn:</p> <ul style="list-style-type: none"> Our online identity can be different to out offline identity To identify positive ways for someone to interact online How we behave online impacts on the way that people perceive us How people can pretend to be someone else, including my friends and identify reasons why they might do this Strategies for safe and fun experiences in a range of online social environments (e.g. live streaming, gaming platforms) What means to be respectful whilst interacting online Identify respectful and disrespectful/ healthy and unhealthy behaviour online That shared content affects people differently depending on individual's thoughts, feelings and beliefs How to recognise when someone if 	<p>Year 5 we learn:</p> <ul style="list-style-type: none"> How identify online can be copied, modified or altered How to make responsible choices about having an online identity, depending on context. What is meant by the term 'harm' That some people online may want to cause us harm and that it is not our fault Identify a variety of online communities that collaborate constructively to make a positive contribution- gaming, social media How to report problems online, identifying a number of strategies that could be used Identify how someone can get help if they are having problems online and identify when to tell a trusted adult How to support others online about blocking, reporting and unsubscribing 	<p>Year 6 we learn:</p> <ul style="list-style-type: none"> How to identify and critically evaluate online content in relation to gender, ethnicity, disability, culture etc. Why it is important to challenge and reject inappropriate or inaccurate representations online How to get help both on and offline and why it is important to keep asking until we get the help that we need To identify and respect boundaries set for sharing information online How to support others to be safe online How information that we have shared privately could become public- screen grabs About the impact of sharing inappropriate images and what we can do if we are worried about this What a positive online reputation is and how to develop

The Academy at St James

Computing Curriculum Overview

		<ul style="list-style-type: none"> • To identify and follow rules to help to keep us safe online • Why passwords are used and the importance of keeping passwords private 	<p>something that we are unsure about or do not want to do when working online and to identify our trusted adults who we can help us</p> <ul style="list-style-type: none"> • Why it is important to ask a trusted adult before clicking 'yes', 'agree' or 'accept' online • How to identify bullying, how it makes individuals feel and how to get help • Identify a range of simple health/ well-being issues on which technology can impact • Recognise the importance of passwords and can identify what makes a good password 	<p>consequences</p> <ul style="list-style-type: none"> • Recognise and identify where online bullying could take place and what it might look like • To identify what a person should do when they come across online bullying • How we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened • To identify the positive and negative impacts of someone using technology and the internet • To identify situations where technology can be used excessively and the impact this has on an individuals health and well being • Why some online activities have age restrictions and why these are important • To recognise that passwords protect our reputation and the information that we consider important. We also learn different strategies for keeping our passwords safe • How connected devices can collect and share anyone's information with others. 	<p>feeling angry or upset online</p> <ul style="list-style-type: none"> • Identify ways in which individuals can be bullied through a range of media • The importance of thinking about how content that is posted is going to make another individual feel and how this may affect how they see you - your reputation • To identify the positives and negatives of technologies that can hold our attention for long periods of time • How some online services may seek consent to store information about us and learn how to respond by checking with our trusted adult when the situation arises • What the digital age of consent is and the impact this has on online services asking for consent. 	<p>mechanisms</p> <ul style="list-style-type: none"> • To recognise the differences between bullying online and bullying in the physical world • How jokes and 'banter' can be interpreted differently by individuals. • To identify a range of ways to report concerns and access support about online line bullying but at home and at school including helplines that are available • What is meant by the term 'stereotype' and identify/ recognise how 'stereotypes' can be amplified online in order to influence the opinions of others. 	<p>one</p> <ul style="list-style-type: none"> • To develop further strategies to protect our 'digital personality' and online reputation, including degrees of anonymity. • How to report bullying in different contexts and how to capture bullying content as evidence • To identify, flag and report inappropriate content. • To recognise how 'liking', 'sharing' or 'forwarding' online content can change people's opinions of someone • What 'online marketplaces' are and the impact this has on small businesses • More about age related content and identify common systems that regulate age-related content. • To recognise the pressures that technology can place on somebody and what they can do to manage this • Identify persuasive design features within games/apps that encourage users to keep us engaged • Identify actions that can be taken to prevent the negative impact technology can have on our health and well being • Effective ways of
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The Academy at St James
Computing Curriculum Overview

							<p>storing and managing passwords including how to store securely or save within browsers. We also learn what we should do if our passwords are shared, lost or stolen</p> <ul style="list-style-type: none">• To identify the features of scam communications. We also learn how to distinguish between fake and real content and develop strategies that we can use whenever we are online• About terms and conditions
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The Academy at St James
Computing Curriculum Overview