SUBJECT LEADER OVERVIEW

COMPUTING

SUBJECT LEADER	SUBJECT LINK GOVERNOR
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WHAT THE NATIONAL CURRICULUM SAYS ABOUT COMPUTING

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

COMPUTING AT ALL SAINTS

INTENT

At All Saints we understand that a high quality Computing education is vital for our pupils' ability to interact with an increasingly technological world, and as a foundation for many future careers. First and foremost, we believe that all pupils should be engaged in dialogue about the safe use of technology and the internet from an early age. In addition, learning the processes and terminology related to programming right from Reception is also vital in supporting our pupils in the use, and own design, of technology in the future. By nurturing hearts and inspiring minds, we encourage our pupils to explore and create with technology in different ways. The staff at All Saints ensure that all children are exposed to high quality teaching and learning experiences, including regular fluency to help embed the knowledge and processes they will rely on as adults.

IMPLEMENTATION

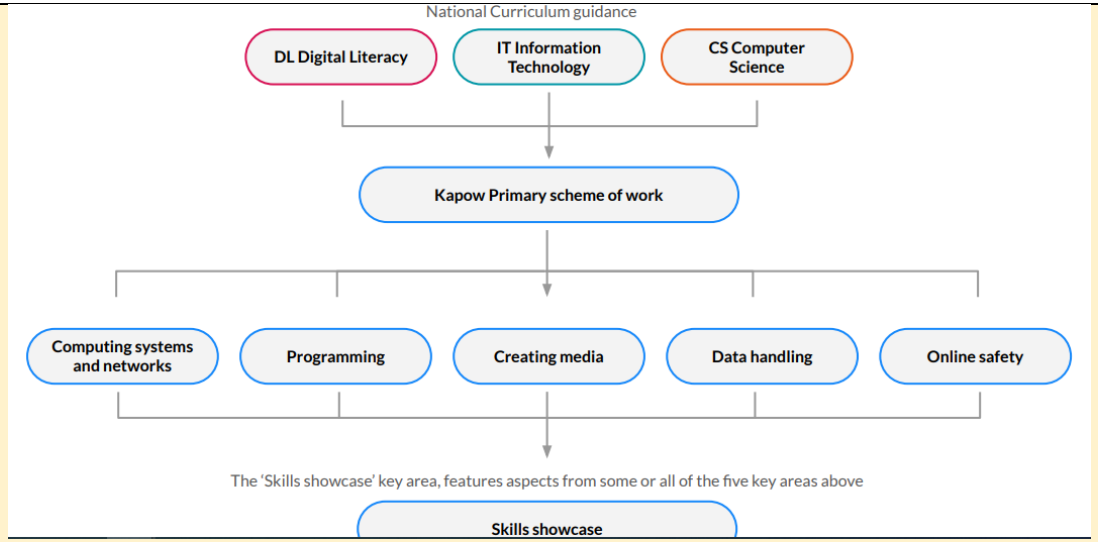
All Saints' computing scheme is organised into 5 key areas, creating a cyclical route through which pupils can develop their computing knowledge and skills by revisiting and building on previous learning:

- Computer systems and networks
- Programming
- Creating media
- Data handling
- Online safety

The implementation ensures a broad and balanced coverage of the National curriculum requirements where pupils are given the opportunity to learn and apply transferable skills.

All Saints' Computing scheme has a clear progression of skills and knowledge within these five strands across each year group. Our Progression of skills and knowledge shows the skills taught within each year class and how these develop to ensure that attainment targets are securely met by the end of each key stage.

The scheme is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. Programming and e-safety knowledge, in particular, is reviewed in each unit to coincide with our belief that this will consolidate children's understanding of key concepts in Computing. Cross-curricular links are made wherever possible, allowing children to make connections and apply their Computing skills to other areas of learning.



IMPACT

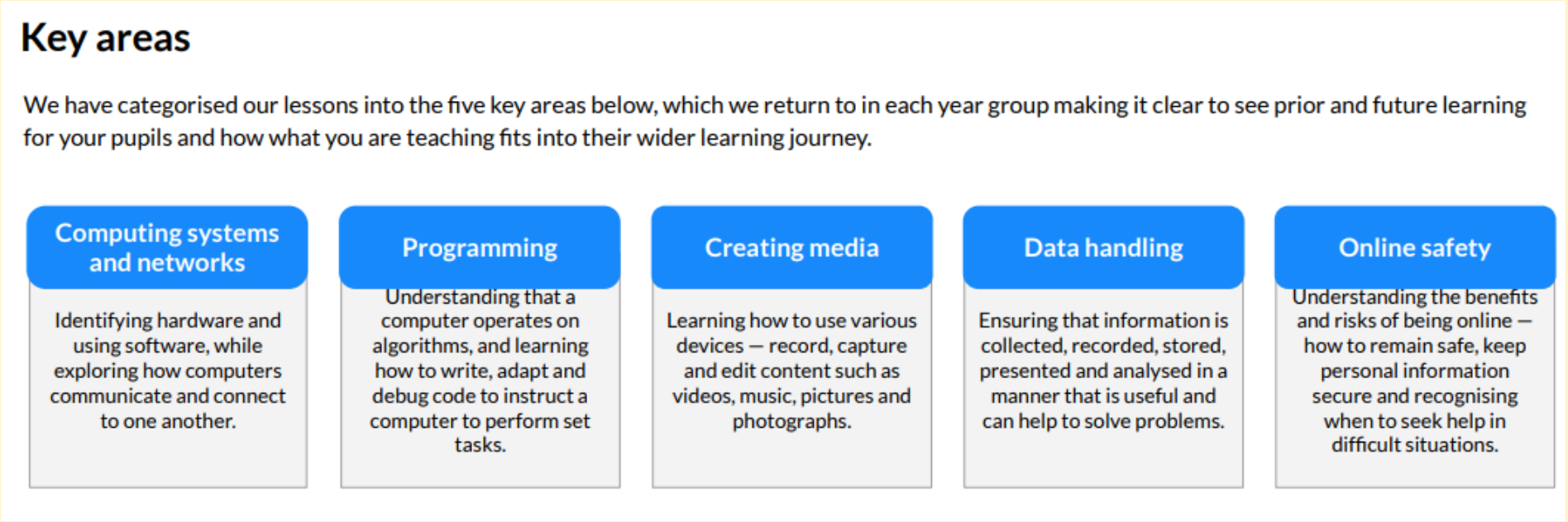
The impact of All Saints' scheme can be monitored by formative and summative assessment opportunities. Pupils should leave school equipped with a range of skills to enable them to succeed in their secondary education. The expected impact is that children will:

- Be critical thinkers and able to understand how to make informed digital choices
- Understand the importance of computing in education and their future lives
- Understand how to balance time spent on technology
- Understand that technology helps to showcase ideas and creativity
- Show a clear progression of skills across all areas of the National curriculum
- Be able to use technology individually and in a team
- Be aware of online safety issues and protocols and to deal with problems in a responsible manner

- Have awareness of developments in technology
- Meet the end of hey stage expectations outlined in the National curriculum

Pupils are assessed against national curriculum objectives every half term. This is monitored by the subject leader, the senior leadership and the School Development Group.

STRANDS



CULTURAL CAPITAL

Cultural Capital is the essential knowledge that pupils need to be educated citizens, introducing them to the best that has been thought and said and helping to engender an appreciation of human creativity and achievement.

We want our pupils' 'lights to shine' both today in their future by not only giving them the knowledge and skills they need but by also installing a set of values and beliefs which enable them to be happy and successful citizens whilst having a positive impact on the lives of others.

SPIRITUAL, MORAL, SOCIAL AND CULTURAL (SMSC – DEVELOPED IN ALL LESSONS)

Spiritual: Explore beliefs and experience; respect faiths, feelings and values; enjoy learning about oneself, others and the surrounding world; use imagination and creativity; reflect. **Emphasise our school's close links to our local churches and our wider community.**

Moral: Recognise right and wrong; respect the law; understand consequences; investigate moral and ethical issues; offer reasoned views.

Social: Use a range of social skills; participate in the local community; appreciate diverse viewpoints; participate, volunteer and cooperate; resolve conflict; engage with the **'British values'** of democracy, the rule of law, liberty, respect and tolerance.

Cultural: Appreciate cultural influences; appreciate the role of Britain's parliamentary system; participate in culture opportunities; understand, accept, respect and celebrate diversity.

BRITISH VALUES (TO BE DEVELOPED IN ALL LESSONS)

The core British Values are:

- Democracy
- Rule of Law
- Mutual Respect
- Individual Liberty
- Tolerance

Our computing curriculum casts a light on global citizenship and the rule of law, including the role of democratic advocacy for change. Pupils also look at how different cultures live and work throughout the world.

COMPUTING CURRICULUM

DESIGN OF CURRICULUM

Our foundation subjects use Kapow planning. This carefully tracks the progression of skills and knowledge throughout the school.

Due to our dual year groups, we look at coverage over 2 years rather than one.

Subject leaders have not taken for granted that Kapow covers all aspects / objectives required of the subject and have cross referenced the schemes with or tracking of skills and knowledge and then with the National Curriculum objectives.

The curriculum enables pupils to be supported, when necessary, but at the same time challenges pupils with deep questioning.

Our ambitious curriculum is designed taking into account the following:

- The curriculum is for all pupils regardless of their starting points
- The curriculum values **Computing**
- Big ideas / big questions are used to provoke deeper learning
- The curriculum teaches knowledge and skills
- The curriculum is well sequenced
- Expectations are high
- Where teachers are not confident about their knowledge for a specific lesson / scheme, they consult with colleagues, the subject leader or use the Kapow teacher videos before each lesson.
- Resources are available and of a high quality
- Subject leaders know their subject
- Vocabulary is rich and diverse

DELIVERY OF CURRICULUM

Computing lessons are held every half term in 3-4 lesson blocks. It is down to teacher discretion if they would prefer to teach all of their assigned computing units for a full term over the course of one half term, or if they would prefer to spread them out weekly or bi-weekly across two half terms. If additional time is required to fit in the whole scheme of work, this will always happen. In KS2, pupils also use Chromebooks daily as part of their English and/or Maths learning, which contributes to their Knowledge Fluency in Computing.

WHY BASE OUR CURRICULUM ON KAPOW SCHEMES OF WORK

We involved all our teaching staff in choosing schemes of work which would be suited to our school.

Subject Leaders spent half a term looking at different options for their subject and all were extremely positive about KAPOW, the progression and the resources available.

There is no requirement on staff to use the KAPOW resources. They are to follow the 'Big Question' and the objectives for each lesson, however, how they get there is up to them. This means we have flexibility but, at the same time, ready made quality resources and activities to use if they require.

TRACKING PROGRESSION OF SKILLS AND KNOWLEDGE

The overview of skills and knowledge covered in each phase and strand and how these skills are developed in order to enable pupils to reach the end of key stage outcomes - outlined in the National curriculum - are listed in our **Computing** Progression Document.

Within each key stage, knowledge is often introduced at the start of the key stage so that there is time for that knowledge to be revisited and applied in later years which is why knowledge accumulation may look heavier in some year groups than others. As we have joint classes, progression statements in Key stage 2 are shown for lower key stage 2 and upper key stage 2 only and not for individual year groups. Key concepts and knowledge are revisited in different contexts to ensure that pupils have a secure understanding by the end of each phase.

END OF KEY STAGE EXPECTED KNOWLEDGE AND SKILLS

AREA	EYFS	KS1	KS2
Skills **Computer Science:** **Hardware**	Learning how to operate a camera to take photographs of meaningful creations or moments. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary. Recognising	**KS1** Learning how to operate a camera or tablet to take photos and videos. Learning how to explore and tinker with hardware to find out how it works. Learning where keys are located on the keyboard.	**LKS2** Understanding what the different components of a computer do and how they work together. Drawing comparisons across different types of computers. Learning about the purpose of routers. Using tablets or digital cameras to film a weather forecast. Understanding that weather stations use sensors to gather and record data which predicts the weather.

	and identifying familiar letters and numbers on a keyboard. Developing basic mouse skills such as moving and clicking.	Understanding what a computer is and that it's made up of different components. Recognising that buttons cause effects and that technology follows instructions. Learning how we know that technology is doing what we want it to do via its output. Developing confidence with the keyboard and the basics of touch typing.	**UKS2** Learning that external devices can be programmed by a separate computer. Learning about the history of computers and how they have evolved over time. Using the understanding of historic computers to design a computer of the future. Understanding and identifying barcodes, QR codes and RFID. Identifying devices and applications that can scan or read barcodes, QR codes and RFID.
Skills **Computer Science: Networks and Data Representation**	N/A	N/A	**LKS2** Understanding the role of the key components of a network. Identifying the key components within a network, including whether they are wired or wireless. Understanding that websites and videos are files that are shared from one computer to another. Learning about the role of packets. Understanding how networks work and their purpose. Recognising links between networks and the internet. Learning how data is transferred. Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. **UKS2** Learning the vocabulary associated with data: data and transmit. Recognising that computers transfer data in binary and understanding simple binary addition. Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.

Skills **Computer Science:** **Computational Thinking**	Using logical reasoning to understand simple instructions and predict the outcome.	Learning that decomposition means breaking a problem down into smaller parts. Using decomposition to solve unplugged challenges. Using logical reasoning to predict the behaviour of simple programs. Developing the skills associated with sequencing in unplugged activities. Following a basic set of instructions. Assembling instructions into a simple algorithm. Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it. Learning that there are different levels of abstraction. Explaining what an algorithm is. Following an algorithm. Creating a clear and precise algorithm.	**LKS2** Using decomposition to explain the parts of a laptop computer. Using decomposition to explore the code behind an animation. Using repetition in programs. Using logical reasoning to explain how simple algorithms work. Explaining the purpose of an algorithm. Forming algorithms independently. Using decomposition to solve a problem by finding out what code was used. Using decomposition to understand the purpose of a script of code. Identifying patterns through unplugged activities. Using abstraction to identify the important parts when completing both plugged and unplugged activities. **UKS2** Decomposing animations into a series of images. Decomposing a story to be able to plan a program to tell a story. Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose. Decomposing a program into an algorithm. Using past experiences to help solve new problems. Writing increasingly complex algorithms for a purpose.
Skills **Computer Science:** **Programming**	Following instructions as part of practical activities and games. Learning to give simple instructions. Learning to debug instructions, with the help of an adult, when things go wrong.	**KS1** Programming a Floor robot to follow a planned route. Learning to debug instructions when things go wrong. Learning to debug an algorithm in an unplugged scenario. Using logical thinking to explore software, predicting, testing and explaining what it	**LKS2** Using logical thinking to explore more complex software; predicting, testing and explaining what it does. Incorporating loops to make code more efficient. Continuing existing code. Creating algorithms for a specific purpose. Coding a simple game. Using abstraction and pattern recognition to modify code. Incorporating variables to make code more efficient. **UKS2** Iterating and developing their programming as they work.

		does. Using an algorithm to write a basic computer program.	Confidently using loops in their programming. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Writing code to create a desired effect. Using a range of programming commands. Using repetition within a program. Debugging quickly and effectively to make a program more efficient. Remixing existing code to explore a problem. Using and adapting nested loops. Programming using the language Python. Changing a program to personalise it. Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose.
Skills **Information Technology: Using Software**	Using a simple online paint tool to create digital art.	**KS1** Using a basic range of tools within graphic editing software. Taking and editing photographs. Developing control of the mouse through dragging, clicking and resizing of images to create different effects. Developing understanding of different software tools Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations. Creating and labelling images.	**LKS2** Taking photographs and recording video to tell a story. Using software to edit and enhance their video adding music, sounds and text on screen with transitions. Use online software for documents, presentations, forms and spreadsheets. Using software to work collaboratively with others. **UKS2** Using logical thinking to explore software more independently, making predictions based on their previous experience. Using software programme Sonic Pi/Scratch to create music. Using the video editing software to animate. Identify ways to improve and edit programs, videos, images etc. Independently learning how to use 3D design software package TinkerCAD. Using logical thinking to explore software independently, iterating ideas and testing continuously. Using search and word processing skills to create a presentation.

Skills **Information Technology:** **Using Email and Internet Searches**	N/A	**KS1** Recognising devices that are connected to the internet. Understanding that we are connected to others when using the internet. Searching for appropriate images to use in a document.	**LKS2** Understanding why some results come before others when searching. Understanding that information found by searching the internet is not all grounded in fact. Searching the internet for data. **UKS2** Developing searching skills to help find relevant information on the internet. Understanding how search engines work.
Skills **Information Technology:** **Using Data**	Representing data through sorting and categorising objects in unplugged scenarios. Exploring branch databases through physical games.	**KS1** Collecting and inputting data into a spreadsheet. Interpreting data from a spreadsheet.	**LKS2** Understanding that data is used to forecast weather. Recording data in a spreadsheet independently. Sorting data in a spreadsheet to compare using the 'sort by…' option. Designing a device which gathers and records sensor data. **UKS2** Understanding how data is collected in remote or dangerous places. Understanding how data might be used to tell us about a location. Understanding how barcodes, QR codes and RFID work. Gathering and analysing data in real time. Creating formulas and sorting data within spreadsheets
Skills **Information Technology:** **Wider Use of Technology**	Explore and identify familiar hardware that is used at home or at school.	**KS1** Recognising common uses of information technology, including beyond school. Understanding some of the ways we can use the internet. Learning how computers are used in the wider world.	**LKS2** Recognising how social media platforms are used to interact. Understanding that software can be used collaboratively online to work as a team. **UKS2** Learn about different forms of communication that have developed with the use of technology.

			Learning how 'big data' can be used to solve a problem or improve efficiency.
Skills **Digital Literacy**	Recognising that a range of technology is used for different purposes. Learning to log in and log out.	**KS1** Logging in and out and saving work on their own account. When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable. Understanding how to interact safely with others online. Recognising how actions on the internet can affect others. Recognising what a digital footprint is and how to be careful about what we post. Learning how to create a strong password. Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable Identifying whether information is safe or unsafe to be shared online. Learning to be respectful of others when sharing online and ask for their permission before sharing content. Learning strategies for checking if something they read online is true.	**LKS2** Recognising that different information is shared online including facts, beliefs and opinions. Learning how to identify reliable information when searching online. Learning how to stay safe on social media. Considering the impact technology can have on mood. Learning about cyberbullying. Learning that not all emails are genuine, recognising when an email might be fake and what to do about it. Recognising that information on the internet might not be true or correct and that some sources are more trustworthy than others. Learning to make judgements about the accuracy of online searches. Identifying forms of advertising online. Recognising what appropriate behaviour is when collaborating with others online. Reflecting on the positives and negatives of time spent online. Identifying respectful and disrespectful online behaviour. **UKS2** Identifying possible dangers online and learning how to stay safe. Evaluating the pros and cons of online communication. Recognising that information on the internet might not be true or correct and learning ways of checking validity. Learning what to do if they experience bullying online. Learning to use an online community safely Learning about the positive and negative impacts of sharing online. Learning strategies to create a positive online reputation. Understanding the importance of secure passwords and how to create them. Learning strategies to

			capture evidence of online bullying in order to seek help. Using search engines safely and effectively. Recognising that updated software can help to prevent data corruption and hacking.
Knowledge **Computing Systems and Networks**	To be able to understand what a computer keyboard is and recognising some letters and numbers. To know that a mouse can be used to click, drag and create simple drawings. To know that to use a computer you need to log in to it and then log out at the end of your session. To know that different types of technology can be found at home and in school. To know that you can take simple photographs with a camera or iPad. To know that you must hold the camera still and ensure the subject is in the shot to take a photo.	**KS1** To know that "log in and log out" means to begin and end a connection with a computer. To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art. To know that passwords are important for security. To know that when we create something on a computer it can be more easily saved and shared than a paper version. To know some of the simple graphic design features of a piece of online software. To know the difference between a desktop and laptop computer. To know that people control technology. To know that buttons are a form of input that give a computer an instruction about what to do (output). To know that computers often work together.	**LKS2** To know what a tablet is and how it is different from a laptop/desktop computer. To understand what a network is and how a school network might be organised. To know how the internet uses networks to share files. To know what a packet is and why it is important for website data transfer. To know the roles that inputs and outputs play on computers. To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together. To understand that software can be used collaboratively online to work as a team. To know that you can use images, text, transitions and animation in presentation slides. **UKS2** To know how search engines work. To understand that anyone can create a website and therefore we should take steps to check the validity of websites. To understand what copyright is. To know the difference between ROM and RAM. To understand the importance of having a secure password and what "brute force hacking" is. To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.
Knowledge **Programming**	To know that being able to follow and give simple instructions is important in computing. To understand that it is important for	**KS1** To understand that an algorithm is when instructions are put in an exact order. To understand that decomposition means breaking a problem into manageable	**LKS2** To know that Scratch is a programming language and some of its basic functions. To understand how to use loops to improve programming. To understand how decomposition is used in

	instructions to be in the right order. To understand why a set of instructions may have gone wrong	chunks and that it is important in computing. To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'. To understand the basic functions of a Bee-Bot. To know that you can use a camera/tablet to make simple videos. To know that algorithms move a bee-bot accurately to a chosen destination. To understand what machine learning is and how that enables computers to make predictions. To know that abstraction is the removing of unnecessary detail to help solve a problem. To know that coding is writing in a special language so that the computer understands what to do. To understand that the character in ScratchJr is controlled by the programming blocks. To know that you can write a program to create a musical instrument or tell a joke.	programming. To understand that you can remix and adapt existing code. To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch. To know what a conditional statement is in programming. To understand that pattern recognition means identifying patterns to help them work out how the code works. To understand that algorithms can be used for a number of purposes e.g. animation, games design etc. **UKS2** To know that a soundtrack is music for a film/video and that one way of composing these is on programming software. To understand that using loops can make the process of writing music simpler and more effective. To know that there are text-based programming languages such as Logo and Python. To know that nested loops are loops inside of loops.
Knowledge **Creating Media**	N/A	**KS1** To understand that holding the camera still and considering angles and light are important to take good pictures. To know that you can edit, crop and filter photographs. To know how to search safely for images online.	**LKS2** To know that different types of camera shots can make my photos or videos look more effective. To know that I can edit photos and videos using film editing software. To understand that I can add transitions and text to my video. **UKS2** To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. To know that decomposition of an idea is important when creating stop-motion animations. To

			know that editing is an important feature of making and improving a stop motion animation.
Knowledge **Data Handling**	To know that sorting objects into various categories can help you locate information. To know that using yes/no questions to find an answer is a branching database.	**KS1** To understand that you can enter simple data into a spreadsheet. To understand what steps you need to take to create an algorithm. To know what data to use to answer certain questions. To know that computers can be used to monitor supplies.	**LKS2** To know that computers can use different forms of input to sense the world around them so that they can record and respond to data. This is called 'sensor data'. To know that a weather machine is an automated machine that responds to sensor data. To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films. **UKS2** To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. To know what numbers using binary code look like and be able to identify how messages can be sent in this format. To know what simple operations can be used to calculate bit patterns. To know that data contained within barcodes and QR codes can be used by computers. To know that Radio Frequency Identification (RFID) is a more private way of transmitting data. To know that data is often encrypted so that even if it is stolen it is not useful to the thief.
Knowledge **Online Safety**	N/A	**KS1** To know that the internet is many devices connected to one another. To know that you should tell a trusted adult if you feel unsafe or worried online. To know that people you do not know on the internet (online) are strangers and are not always who they say they are. To know that to stay safe online it is important to keep personal information safe. To know that	**LKS2** To know that not everything on the internet is true: people share facts, beliefs and opinions online. To understand that the internet can affect your moods and feelings. To know that privacy settings limit who can access your important personal information. Information, such as your name, age, gender etc. To know what social media is and that age restrictions apply. To understand some of the methods used to encourage people to buy things online. To understand that technology can be

		'sharing online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet. To understand the difference between online and offline. To understand what information I should not post online. To know what the techniques are for creating a strong password. To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.' To understand that not everything I see or read online is true	designed to act like or impersonate living things. To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology. To understand what behaviours are appropriate in order to stay safe and be respectful online. **UKS2** To know different ways we can communicate online. To understand how online information can be used to form judgements. To understand some ways to deal with online bullying. To know that apps require permission to access private information and that you can alter the permissions. To know where I can go for support if I am being bullied online or feel that my health is being affected by time online. To know that a 'digital footprint' means the information that exists on the internet as a result of a person's online activity. To know what steps are required to capture bullying content as evidence. To understand that it is important to manage personal passwords effectively. To understand what it means to have a positive online reputation. To know some common online scams.

ENRICHMENT

When possible, and after taking into consideration expense, time constraints and impact on learning, enrichment activities such as trips, outdoor work and visitors are encouraged in Computing.

LOCAL AWARENESS

In all aspects of the curriculum we take every opportunity to help pupils to connect with their immediate surroundings and develop a global perspective by making connections between their everyday lives and the world around them.

CROSS CURRICULAR LINKS

Links to other learning will be made wherever possible, providing they help the pupils with their understanding and are in no way tenuous. Guided reading texts are regularly selected to further underpin learning.

HOW WE ASSESS

Class teachers assess each pupil against each objective in every subject 5 times each year (at the end of Autumn Term 2, Spring Term 1, Spring Term 2, Summer Term 1 and Summer Term 2).

Assessment is putting a pupil at ARE, WT or Below (and in some cases GD) against each objective.

This has been agreed by all teachers and is not seen as too onerous of time consuming). This has been fully supported by the Staff Welfare Representative and the Welfare Governor who have both liaised with teachers.

HOW WE MODERATE

Subject leaders are given at least half a day per term to monitor and moderate their subject.

Moderation takes the form of:

- Drop in
- Book Scrutiny
- Pupil Voice
- Data analysis
- Link Governor visits
- Observation
- Teacher Chat

Every Staff Meeting also has an agenda item where Subject Leaders can pass on any issues / points / questions / requests / advice to teachers.

Subject leaders can also request moderation time in staff meetings.

Class Teachers assess every pupil against each objective in every subject at the end of every term.

Headteacher / Deputy Head and Subject Governor monitors subjects each year

SUBJECT LEADER CPD

Subject Leaders have taken part in curriculum sharing with other local schools.

In additions, Subject Leaders are to complete at least one subject specific CPD course with National College every year.

RESOURCES

With Kapow being new to the school, Class Teacher are asked to speak to Subject Leaders about any additional resources which may be required (any that may have been missed when Subject Leaders were balancing the curriculum).

Each weekly Staff Meeting has an agenda item where Class Teacher and Subject Leaders have an additional opportunity to request and additional resources,

RECORDING OF LEARNING

KS1 pupils use a floor book/folder as a record of class learning in computing.

KS2 pupils have saved computing work that can be accessed via Google Classroom links, and a whole class file for any paper based learning.

RECENT FEEDBACK GIVEN TO STAFF

SUBJECT ACTION PLAN 2024/25

-To ensure all Year 1 pupils have access to a Chromebook and introduce their use through foundation subject learning, in preparation for Year 2.
-To establish what software/hardware-specific training staff might need to deliver the updated computing curriculum units, and direct them to National College training or other suitable training courses.

All Saints Progression 2024-2025 Onwards

Term	EYFS
Autumn 1	**Computer systems and networks** exploring hardware, remote control cars, IPADS, cameras Lessons 1-4 minimum https://www.kapowprimary.com/subjects/computing/eyfs/eyfs-years/exploring-hardware/
Autumn 2	**Programming 1** – all about instructions (All Lessons) UNPLUGGED All 5 lessons https://www.kapowprimary.com/subjects/computing/eyfs/eyfs-years/all-about-instructions/
Spring 1	**Computing Systems and Networks 1** - using a computer (All Lessons) CHROMEBOOKS All 5 lessons https://www.kapowprimary.com/subjects/computing/eyfs/eyfs-years/using-a-computer/
Spring 2	**Data handling** – introduction to data Lessons 1-4 only UNPLUGGED https://www.kapowprimary.com/subjects/computing/eyfs/eyfs-years/an-introduction-to-data/
Summer 1 & 2	**Programming 2** – programming Beebots BEEBOTS All 5 Lessons https://www.kapowprimary.com/subjects/computing/eyfs/eyfs-years/programming-bee-bots/

All Saints Progression 2024-2025 Onwards

Term	Y1&2 Cycle Year A Diamonds and Topaz	Y1 &2 Cycle Year B Diamonds and Topaz
Autumn	**3 Lessons Computer systems and networks (Y1)** – improving mouse skills - Kapow (Lessons 1-3 only) CHROMEBOOKS **4 Lessons Programming 1 (Y1)** – algorithms – Kapow (Lessons 1, 2, 4, 5 only) UNPLUGGED	**Programming 2 (Y1)** – Beebots - Kapow (Lessons 1, 3, 4, 5 – continue into next term if needed) BEEBOTS **Creating Media (Y1) -** Digital Imagery - Kapow IPADS (Lessons 1-3 only)
Spring	**3 Lessons Data Handling (Y1)** – introduction to data Kapow Lessons 1, 3, 4 IPADS (Use JIT5) **3 Lessons Computer Systems and Networks 1 (Y2)** What is a Computer? Kapow (Lessons 1, 2, 5) CHROMEBOOKS	**Programming (Y2)** Scratch Jr Kapow (Lessons 1, 2, 4, 5) IPADS **Creating Media (Y2)** - Stop Motion - Kapow (At least lessons 1-4) IPADS
Summer	**4 Lessons Programming 1 (Y2)** – algorithms and debugging (Lessons 1, 2, 4, 5) UNPLUGGED **3 Lessons Computer Systems and Networks 2 (Y2)** Word Processing (Lessons 1, 2, 3) CHROMEBOOKS	**Data Handling (Y2)** – International Space Station Kapow (Lessons 1, 3, 5) CHROMEBOOKS **Skills Showcase (Y1)** Rocket to the Moon Kapow (Lessons 1, 2, 3) (Lessons 4-5 if time)
Online Safety	**Year 1** Online Safety Kapow 4 lessons across the year	**Year 2** Online Safety Kapow 4 lessons across the year

All Saints Progression 2024-2025 Onwards

Term	RUBY Cycle Year A	RUBY Cycle Year B
Autumn	**3 lessons - Computing and Networks (Y3)** Emailing Kapow Lessons 1-3 (can be taught/discussed as a whole class with staff demonstrating) **(4 lessons) Programming (Y3)** Scratch Coding Kapow (Lessons 1, 2, 3, 5)	**3 lessons - Computing and Networks (Y3)** Networks and the Internet (Lessons 1, 3, 5) **4 lessons - Data Handling (Y3)** Comparison Cards (Lessons 1-4)
Spring	**4 lessons - Creating Media (Y3)** Video Trailers Kapow (IPADS) (Lessons 1-4) **3 lessons - Creating Media (Y4)** Website design – Kapow, Using Google (Lessons 1-3)	**3 lessons - Computing and Networks (Y3)** Journey Inside a Computer Kapow (Lessons 1, 2, 5) **4 lessons - Computing and Networks (Y4)** Collaborative Learning Kapow Lessons 1, 3, 4, 5)
Summer	**3 lessons - Programming (Y4)** Further Coding with Scratch Kapow (Lessons 2, 3, 4) **4 lessons – Programming (Y4)** Computational Thinking Kapow (Lessons 1-4)	**4 lessons - Data Handling (Y4)** Investigating Weather Kapow (Lessons 1, 3, 4, 5) **3 lessons - Skills Showcase (Y4)** HTML Kapow (Lessons 1-3)
Online Safety	**Y3 Online Safety Kapow** 4 lessons across the year *(Lessons 4&5 can be combined as one.)*	**Y4 Online Safety Kapow** 4 lessons across the year

All Saints Progression 2024-2025 Onwards

Term	SAPPHIRE Cycle Year A	SAPPHIRE Cycle Year B
Autumn	**3 lessons – Programming (Y5)** Micro:bit Kapow (Lessons 1-3) **3 lessons - Data Handling (Y5)** Mars Rover 1 Kapow (Lessons 1, 2, 4)	**4 lessons - Programming (Y5)** Music (using Scratch) Kapow (Lessons 1-4) **3 lessons - Computers and Networks (Y6)** Bletchley Park Kapow (links to History) (Lessons 1-3)
Spring	**4 lessons - Skills Showcase (Y5)** Mars Rover 2 Kapow (1, 2, 4, 5) **4 lessons - Computers and Networks (Y5)** Search Engines Kapow (lessons 1-4)	**3 lessons - Creating Media (Y6)** The History of Computers Kapow (Lessons 3-5) **4 lessons - Data Handling (Y6)** Big Data Unit 1 Kapow (Lessons 1,3,4,5)
Summer	**4 lessons - Creating Media (Y5)** Stop motion animation Kapow (IPADS) (Lessons 1-4) **3 lessons - Skills Showcase (Y6)** Inventing a Product Kapow (At least lessons 1-3)	**3 lessons - Data Handling (Y6)** Big Data Unit 2 (lessons 1-3) **4 lessons – Programming (Y6)** Introduction to Python Kapow (Lessons 1-4)
Summer 2	**Y5 Online Safety Kapow** 4 lessons across the year	**Y6 Online Safety Kapow** 4 lessons across the year

RECEPTION

Autumn 1
Computing Systems and Networks: Exploring Hardware

Development Matters

Communication and language

Learn new vocabulary
Use new vocabulary through the day
Ask questions to find out more and to check they understand what has been said to them
Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen

Physical development

Develop their small motor skills so that they can use a range of tools competently, safely and confidently
Confidently and safely use a range of small apparatus, alone and in a group

Early Learning Goals

ELG Personal, Social and Emotional Development
Explain the reasons for rules, know right from wrong and try to behave accordingly.
ELG Physical Development:
Use a range of small tools, including scissors, paintbrushes and cutlery.
ELG Literacy
Spell words by identifying the sounds and then writing the sound with letter/s.
ELG Mathematics
Link the number symbol (numeral) with its cardinal number value.
ELG Understanding the World
Explore the Natural World around them, making observations.

Key Vocabulary

- Mouse
- Buttons
- Keyboard
- Keys
- Motherboard
- USB stick
- System fan
- Hard drive
- Computer
- Dial
- Memory
- Technology

- Monitor
- Computer tower
- Speaker
- Click
- Push
- Pull
- Twist
- Under
- Click
- Push
- Pull
- Twist

- On top of
- Behind
- Open
- Shut
- Larger
- Smaller
- Larger
- Smaller
- Camera
- iPad
- Tablet
- Lens

	• Power • Electricity • Batteries • Gallery • Record • Photograph • Photographer	• On • Off • Blurred • Blurry • Crisp • Clear • Still	• Point • Shoot • Capture • Picture • Image •
Key Skills	To learn how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary To recognise that a range of technology is used in places such as homes and schools. To learn how to operate a camera and/or iPad and use it to take photographs.		
Key Knowledge	To be able to name different uses of technology at home and at school. To be able to name parts of a computer, ipad and camera To be able to describe what different types of technology are used for.		
Curriculum Opportunities	**English** – phonics, alphabet **Maths** – position and direction, cardinal numbers, number recognition **Physical** Development – fine motor **PSED** – understanding rules **Science** – exploring and observing the natural world		

RECEPTION

Autumn 2
Programming 1: All About Instructions

Development Matters	Communication and language • Understand how to listen carefully and why listening is important • Articulate their ideas and thoughts in well-formed sentences. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Describe events in some detail. Personal, social and emotional development • Build constructive and respectful relationships. • Know and talk about the different factors that support their overall health and wellbeing • Further develop the skills they need to manage the school day successfully
Early Learning Goals	Personal, social and emotional development ELG: Self-regulation: Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions. ELG: Managing self: Be confident to try new activities and show independence, resilience and perseverance in the face of challenge ELG: Building relationships: Work and play cooperatively and take turns with others

Key Vocabulary			
	Instructions Timer Describe Adjective Two-part instructions Algorithm Order Sequence Predict	Blindfold Step over Walk around Turn Left Right To the side Straight on Stand still	Duck Under Bend down Walk Hop Tiptoe Shuffle Skip

	Prediction Next Second	Stop Last Third	Run First
Key Skills	To follow instructions as part of practical activities and games To be able to respond to instructions. To be able to respond to more than one instruction at a time. To follow instructions as part of practical activities and games To learn to give simple instructions To recognise when there is a problem with the original instructions To understand why the original sequence went wrong To be able to correctly sequence instructions To predict the outcomes of sequences		
Key Knowledge	To know that instructions need to be clear To know that instructions need to be in the right order To know some simple positional language to help them give clearer instructions. To learn that an algorithm is a set of instructions to carry out a task, in a specific order To know ordinal langrage and use in the correct sequence		
Curriculum Opportunities	English – phonics, alphabet Maths – position and direction, cardinal numbers, number recognition Physical Development – fine motor PSED – understanding rules Science – exploring and observing the natural world		

RECEPTION

Spring 1
Computing Systems and Networks: Using A Computer

Development Matters	Literacy Spell words by identifying the sounds and then writing the sound with letter/s. Re-read what they have written to check that it makes sense. Mathematics Link the number symbol (numeral) with its cardinal number value. Physical development Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
Early Learning Goals	ELG Physical Development: Fine Motor Skills Use a range of small tools, including scissors, paintbrushes and cutlery. ELG Literacy: Writing Spell words by identifying sounds in them and representing the sounds with a letter or letters. ELG Communication and Language: Speaking Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.

	Computer Computer Tower Monitor Log in Log out Lock Personal Left click Right click Drop	Letters Numbers Uppercase Lowercase Computer safety Protect Password Arrow Cursor Move	Keyboard Mouse Type Private Secure Security Paint Stamp Click Drag

Key Skills	To learn what a keyboard is and how to locate relevant keys. To learn how to log in and log out. To understand why we need to log in and out. To learn what a mouse is and to develop basic mouse skills such as moving and clicking.

	To use a simple online paint tool to create digital art. Navigate around the screen with some accuracy To move and use the mouse with increased accuracy, including clicking, releasing and dragging.
Key Knowledge	Identify and name the keyboard. Explain what a keyboard is used for. Find the letters needed for their own name. Identify and name the touchpad/mouse, Identify and name the screen. Use the phrases 'log in' and 'log out' correctly. Find and use the tab key and space bar.
Curriculum Opportunities	Link to Phonics Learning Link to Fine Motor Learning Link to Maths, number recognition Link to Communication and PSED (discussing uses of technology, learning new vocab, routines for school)

RECEPTION	
Spring 2 **Data Handling – Introduction to Data**	
Development Matters	Communication and language Articulate their ideas and thoughts in well-formed sentences Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen Mathematics Count objects, actions and sounds Subitise Count beyond ten Compare numbers Understand the 'one more than/one less than' relationship between consecutive numbers Continue, copy and create repeating patterns Compare length, weight and capacity

Early Learning Goals	Communication and language ELG: Listening, attention and understanding: Make comments about what they have heard and ask questions to clarify their understanding. Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.		
Key Vocabulary	Sort Categorise Category Group Table Describe Texture Colour Pattern	Branching Database More Less Count In total Altogether Share Divide Equal	Bigger than Smaller than Thicker than Thinner than Size Weight Height Length
Key Skills	• To understand how to sort and categorise objects. • To explain how items have been sorted and categorised. • To ask relevant questions to help sort objects • To ask questions to help clarify ways to sort objects		
Key Knowledge	To recognise the concept of a simple table to sort data. To recognise the concept of a simple branching database to sort data.		
Curriculum Opportunities	Maths – patterns and sorting, ordering and sequencing Speaking and Listening Links to science – sorting animals or plants		

RECEPTION

Summer 1 & 2
Programming 2 – Programming Beebots

Development Matters	Mathematics Count objects, actions and sounds. Link the number symbol (numeral) with its cardinal number value Count beyond ten		
Early Learning Goals	Personal, social and emotional development ELG: Managing self Be confident to try new activities and show independence, resilience and perseverance in the face of challenge		
Key Vocabulary	forward back backwards right left arrow	direction turn straight on directions route program	circle straight on instructions sequence algorithm debug
Key Skills	To follow a simple sequence of instructions To use their knowledge of the meaning of arrows to move in the correct direction To experiment with programming a Bee-bot/Blue-bot and to learn how to give simple commands To explore and tinker with hardware to develop familiarity and introduce relevant vocabulary To learn to debug instructions, with the help of an adult, when things go wrong To follow an algorithm as part of an unplugged game Identify problems. Think of how to solve a simple problem when given some adult guidance.		
Key Knowledge	To recall the meaning of directional arrows To know the function of the buttons on the Beebot To understand that if a program does not work, it can be corrected (debugged) To begin to recognise that an algorithm is a set of instructions to carry out a task, in a specific order		
Curriculum Opportunities	Maths – position and direction Geography – maps and directions		

KS1 Diamonds and Topaz

CYCLE A

AUTUMN TERM 1

Computer systems and networks: Improving Mouse Skills (Y1 Unit)

(Lessons 1-3 only) CHROMEBOOKS

Key Vocabulary	• account • click • clipart • computer • drag • drag and drop • layers • log off • log on • mouse • password • predict • resize • screen (monitor) • software • tool • username
Outcome: most pupils will be able to	Use computers more purposefully Log in and navigate around a computer Drag, drop, click and control a cursor using a mouse Use software tools to create art on the computer
Key Skills	Learning how to explore and tinker with hardware to find out how it works. Learning where keys are located on the keyboard. Using a basic range of tools within graphic editing software. Developing control of the mouse through dragging, clicking and resizing images to create different effects. Developing an understanding of different software tools. Recognising devices that are connected to the internet. Logging in and out and saving work on their own account.
Key Knowledge	Log in and log out means to begin and end a connection with a computer A computer and mouse can be used to click, drag, fill, select, add backgrounds, text, layers, shapes and clipart. Passwords are important for security and to keep us safe.
Cross Curricular Links	RSE: Online safety Maths: Geometry – properties of shapes English: Reading – comprehension

KS1 Diamonds and Topaz

CYCLE A

AUTUMN TERM 2

Programming 1: Algorithms (Y1 Unit)

(Lessons 1, 2, 4, 5 only) UNPLUGGED

Key Vocabulary	• algorithm • artificial intelligence • bug • chunks • code • computer • debug • decompose • device • directions • input • instructions • manageable • order • organise • output • program • problem • solution • specific • tasks • virtual assistant
Outcome: most pupils will be able to	• Explain what an algorithm is. • Write clear algorithms. • Follow an algorithm. • Explain what inputs and outputs are. • Create an achievable program. • Decompose a design into steps. • Identify bugs in an algorithm and how to fix them.
Key Skills	• Recognising that some devices are input devices and others are output devices. • Learning that decomposition means breaking a problem down into smaller parts. • Using decomposition to solve unplugged challenges. • Developing the skills associated with sequencing in unplugged activities. • Following a basic set of instructions. • Assembling instructions into a simple algorithm. • Learning to debug instructions when things go wrong. • Learning to debug an algorithm in an unplugged scenario.
Key Knowledge	• An algorithm is when instructions are put in an exact order. • Decomposition means breaking a problem into manageable chunks and that is important in computing.

	• We call errors in an algorithm are called bugs and fixing these is called debugging.
Cross Curricular Links	English: Writing – composition, Spoken language Maths: Geometry – properties of shapes, position and direction Geography: Geographical skills and fieldwork

KS1 Diamonds and Topaz **CYCLE A**	
SPRING TERM 1 **Data Handling: Introduction to Data (Y1 Unit)** Lessons 1, 3, 4 IPADS or Chromebooks (Use JIT5)	
Key Vocabulary	• bar chart • block graph • branching database • categorise • chart • click and drag • compare • count • data • data collection • data record • data representation • edit • input • keyboard • line graph • mouse • information • label • pictogram • pie chart • process • record • resize • sort • table • tally • values
Outcome: most pupils will be able to	Represent animal-themed data in different ways, using objects and technology. Log in and use mouse and keyboard skills to navigate the computer. Represent the same data as a pictogram and a table or chart. Collect data about minibeasts using a tally chart and represent data digitally. Click and drag objects to sort data using a branching database. Consider the types of input used to gather different forms of data when designing an invention.
Key Skills	Learning how to explore and tinker with hardware to determine how it works. Recognising that some devices are input devices and others are output devices. Learning where keys are located on the keyboard. Developing control of the mouse through dragging, clicking and resizing images to create different effects.

	Developing an understanding of different software tools. Recognising devices that are connected to the internet. Understanding that technology can be used to represent data in different ways, such as pictograms, tables, pie charts, bar charts and block graphs. Using data representations to answer questions about data. Using software to explore and create pictograms and branching databases.
Key Knowledge	Charts and pictograms can be created using a computer. A branching database is a way of classifying a group of objects. Computers understand different types of input.
Cross Curricular Links	Maths: Number – number and place value, Statistics

KS1 Diamonds and Topaz **CYCLE A**	
SPRING TERM 2 **Computer Systems and Networks 1: What is a Computer (Y2 Unit)** (Lessons 1, 2, 5) CHROMEBOOKS	
Key Vocabulary	• battery • buttons • computer • desktop • electricity • input • nvention • keyboard • laptop • mouse • output • robot • screen (monitor) • tablet • technology • wire •
Outcome: most pupils will be able to	Name some computer peripherals and their functions. Recognise that buttons cause effects. Explain that technology follows instructions. Recognise different forms of technology. Design an invention which includes inputs and outputs.

	Explain the role of computers in the world around them
Key Skills	Understanding what a computer is and that it is made up of different components. Recognising that buttons cause effects and that technology follows instructions. Learning how we know that technology is doing what we want it to do via its output. Using greater control when taking photos with cameras, tablets or computers. Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Creating and labelling images. Learning how computers are used in the wider world
Key Knowledge	• The difference between a desktop and a laptop computer. • People control technology. • Some input devices that give a computer an instruction about what to do (output). • Computers often work together.
Cross Curricular Links	English: Spoken Language Science: Working scientifically Design and technology: Design

KS1 Diamonds and Topaz CYCLE A	
SUMMER TERM 1 **Programming 1: Algorithms and Debugging (Y2 Unit)** (Lessons 1, 2, 4, 5) UNPLUGGED	
Key Vocabulary	• • •
Outcome: most pupils will be able to	
Key Skills	
Key Knowledge	•
Cross Curricular Links	