Curriculum Overview

BE KIND
WORK HARD
AIM HIGH

IT & COMPUTING

At James Calvert Spence College, we provide a broad and balanced, ambitious curriculum for all pupils. Our IT and Computing curriculum builds upon the knowledge and skills Pupils have developed in first school through a well-planned and sequenced curriculum. Our curriculum plans follow the National Curriculum as well as drawing upon best practice within the field of IT and Computing. We draw on evidence-based research to ensure our curriculum is high quality and meets the needs of our Pupils. We provide regular opportunities to revisit learning, so it becomes embedded in our Pupils' long-term memory. The overview of our plan is below

Assessment: This includes one key piece of assessed work per term						
Year	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
7	**E-Safety** Pupils will revisit the concept of e safety by building upon their knowledge of the Play Like Share framework they learnt in Year 6. Pupils focus on online bullying and the emotions and effects this has on people. Pupils learn how to protect themselves from online bullying by	**Scratch** Pupils will design and code a two player racing game. They will create the graphics used in the games themselves using industry standard software and import it into the coding platform. Pupils will use variables, iteration and selection to code various features.	**Python – Introduction to Python** (Trinket/Turtle) Pupils will revisit the concept of coding, building on their Year 6 experience, and be introduced to the fundamentals of the Python programming language. Using an accessible, browser-based learning environment (such as Trinket), pupils will explore core computational concepts including variables, control flow	**Graphics Editing – SketchUp** Pupils are introduced to the basics of 3D graphic editing using SketchUp. They explore how to create and manipulate 3D shapes, apply colours and materials, and build simple models and scenes. This builds on their existing digital skills and introduces them to accessible, industry-relevant design software, helping to develop spatial awareness, problem-	**Binary** Pupils will be introduced to binary and will learn how to convert binary numbers to decimal and vice versa. Pupils will understand the CPU's role within a computer system and how binary is used to calculate and process data	**Computer Hardware** Pupils will build a computer system as well as research what the different computer components do. Pupils will learn about the cost of computer components and how to budget effectively when building a computer system. **Work Experience Opportunities** During Summer 2,

	understanding which personal information they shouldn't share online. Pupils will research online bullying using suitable websites and create an informative poster for a given audience		(loops and conditionals), functions, and basic data types. Lessons will include interactive coding challenges and visual feedback (e.g., Python Turtle graphics), helping pupils transition from block-based programming to text-based scripting. Pupils will complete a short project that demonstrates their understanding of Python syntax and problem-solving skills.	solving, and visual design thinking. Pupils will complete a short project that involves designing and presenting a simple 3D model, suitable for architectural or product design contexts.		pupils will participate in a work experience day with businesses. The specific focus will be based upon promoting a specific type of software or hardware. There will be direct links with business in how the app could be promoted and marketed to different users linking this to real-world settings. The day promotes independence, resilience, and pride, while encouraging integrity, respect, empathy, and compassion as pupils engage with professional environments and customer needs. The Project will be specifically related to "hardware and software" and could include references to controlling equipment / robots.
8	**E-Safety** Pupils will revisit the concept of e-safety building	**Scratch** During this module Pupils will deepen their knowledge of	**Graphics and Publishing** Grease the Musical Pupils will create a	**Lego Robotics** Pupils will revisit the concept of coding and control by building	**Tynker** In this course, Pupils use visual block coding, then move on to solving text-based coding problems in JavaScript and Python. This	

	upon the knowledge they have learnt in years 5, 6, and 7. Pupils focus on how e-safety changes over time enabling them to make predictions for the future to help protect themselves and other family members. Pupils work in groups to create an informative e-safety radio show where they will record their new knowledge on current e-safety topics, such as County Lines and Radicalisation.	programming coding by using their knowledge and experience gained from coding. Pupils create a Zombie themed game where they build on their previous learning of Scratch by using broadcast and receive functions/procedures to create more complex programs. Pupils will be introduced to functions and procedures to help them make more efficient programs as well face challenges to find solutions to coding challenges.	range of documents to promote Grease the Musical. These will consist of a letter, advert, tickets and modelling the money that is likely to be made from the school hosting the musical. Planning is a fundamental part of organising this unit so that each task can be completed.	upon their programming skills they learnt in Year 7. Pupils learn how to build and program lego robots. There is greater emphasis on Pupils completing a range of challenges so that the robots use and react to their sensors to achieve specific goals.	builds upon their prior learning of coding and programming in years 5, 6, 7	
9	**E-Safety** Pupils will be given the opportunity to deepen their understanding of e-safety by revisiting their prior learning in e-safety in previous academic years. Pupils will	**Desktop Publishing** Pupils will develop their Desktop Publishing (DTP) skills to design and create visual communications including brochures and business to promote a specific business. Pupils will understand the benefits and	**Hardware and Software** Pupils will revisit the concept of hardware to emphasise the purpose of different components in addition to understanding their role as inputs and outputs in a computer system. Software will be a key focus of this	**Python** Pupils will write and execute their first programs in Python. They will go through the basics of displaying messages, assigning values to variables, and receiving input from the keyboard. They will familiarise themselves with an	**Project Planning** The skills that Pupils learn can be applied to project planning skills to create awareness of how projects are planned, feedback is sought and adjustments are made to ensure a project is on time and on budget. Pupils will also develop their	**Lego Robotics** Pupils will revisit the concept of Pupils to learn how to build and program lego robots. Using their prior knowledge in Year 8, Pupils will attempt a range of coding and Lego building tasks to overcome a range of challenges that

	discuss and research e-safety issues and produce a website aimed at Year 7 Pupils to highlight e-safety issues and the impact they can have and how help can be sought to address their concerns.	drawbacks of advertising electronically. Work Experience Opportunities:	unit, specifically in terms of how it is built and how users interact with it.	entirely different programming environment than the block-based one that they may be accustomed to. It is an environment where they will need to know by heart all of the constructs that they can use, instead of having the options laid out in front of them. It is also an environment in which errors arise if they get a single letter or symbol wrong.	web authoring skills to design and create a website to advertise a specific business/organisation based on a scenario.	use their knowledge of coding and sensors.
	At Key Stage 3 (KS3), pupils build foundational skills in Computing and Information Technology (IT), developing their understanding of digital literacy, computational thinking, and practical applications such as using spreadsheets, databases, presentation software, and programming. This early exposure helps pupils become confident users of technology and provides the foundational knowledge to enhance this learning further. As pupils move into Key Stage 4, they can choose to study IT or Business, where they deepen their knowledge of topics such as data management, cybersecurity, digital communication, and enterprise principles. These subjects also introduce real-world applications and project-based learning. At Key Stage 5, both IT and Business become more advanced, with students exploring areas such as system development, project management, business strategy, and emerging technologies. The progression from KS3 to KS5 ensures pupils develop both the technical and analytical skills needed for further study or entry into digital and business-related careers.					
10 Creative iMedia	**R093:** *Creative iMedia in the Media Industry* **R094:** *Visual Identity and Digital Graphics* In the Autumn term of Year 10; Students engage in theory-based lessons and independent learning to build knowledge of the media industry, including sectors, job roles, audience and demographics, media codes and planning techniques Students also start their R094 coursework by exploring key elements of branding and visual identity, graphic design	**R094:** *Visual Identity and Digital Graphics* In the Spring term students continue to work on their R094 coursework by learning about Techniques to plan visual identity and digital graphics, Tools and techniques to create visual identity and digital graphics, Technical skills to source, create and prepare assets for use within digital graphics**.** Students then explore techniques to save and export visual identity and digital graphics and then spend time working on their coursework ready for submission at the beginning of Summer 1.	**R099:** *Digital Games* In the Summer term pupils start on their second major coursework submission. In this first term working on this project they cover; an introduction to digital games and Game sectors, client requirements and target audience. They then move onto researching existing games and begin to plan and design a game and its game interface.			

	concepts and conventions and properties of digital graphics and use of assets.		
Year 11 Computer Science	**Unit 2.1 Algorithms** **Unit 2.2 Programming Fundamentals** In year 11 Pupils shift their focus to computer programming. Pupils learn about Algorithms, pseudocode and then cover programming fundamentals and good practice.	**Unit 2.3 Producing Robust Programs** **Unit 2.4 Boolean Logic** Pupils will develop their programming by looking at how to design and create robust computer programs and delve into the world of boolean logic.	**Unit 2.5 Programming Languages and IDEs** Pupils explore a few programming languages such as Python and learn how to apply their understanding of the programming concepts they have developed. Pupils also are introduced to a range of different integrated development environments (IDEs)
10 BTEC Digital IT	**Component 1: Exploring User Interface Design Principles and Project Planning Techniques** Pupils will be introduced to the concept of project planning in preparation for controlled assessment coursework . Pupils experience a range of project planning tools to plan, design and create a user interface in addition to evaluating it in addition to obtaining feedback.	**Component 2: Collecting, Presenting, and Interpreting Data** In this term Pupils will revisit the concept of spreadsheet systems that was introduced in Year 8 and their knowledge will be deepened by building a spreadsheet system to perform a range of calculations in addition to analysing the results and drawing conclusions. **Work Experience Opportunities** In the summer term we plan a visit to Alnwick Gardens and Alnwick Castle which is part of a joint planning event across vocational subjects including IT, Business and Health and Social Care. This is where pupils are introduced to the concepts of business marketing, IT use to manage the establishments and the historic injustices that took place. Thai visit provides pupils with the opportunity to listen to industry specialists regarding these subjects and experience the venus. This visit links to our core virtues of empathy - focusing upon the past and the social divide, pride employees have to work at Alnwick Castle and Alnwick Garden and resilience to continue to enhance and sustain success as tourist attractions.	**Unit 3: Effective Digital Working Practices** Pupils will revisit the content they have learnt not only in Year 10 but throughout their study of IT and Computing in other year groups. Pupils will use a variety of exam material to support and prepare them for the examination. Some of these will include video editing, revisiting past papers and answering specific exam based questions to enhance their knowledge to prepare Pupils for their exam.

11	**Unit 3: Effective Digital Working Practices** Pupils will revisit the content they have learnt not only in Year 10 but throughout their study of IT and Computing in other year groups. Pupils will use a variety of exam material to support and prepare them for the examination. Some of these will include video editing, revisiting past papers and answering specific exam based questions to enhance their knowledge to prepare Pupils for their exam. It is important to note that where necessary, some of the academic year may be used by some pupils to resit component 1 and or component 2.

Examples of on-going assessment and feedback in lessons
● Verbal feedback by the teacher to the whole class which pupils act on in the lesson; this is often evidenced using green pen. ● Pupils self-assess or peer-assess work with a clear framework guiding them through this. ● Teachers circulate to give 'LIVE' and immediate feedback as pupils are working independently. ● Pupils may complete mini quizzes or retrieval activities that revisit prior learning and receive verbal feedback. ● Use of tailored questioning by the teacher.