

## **SANDFIELD ICT/ COMPUTING CURRICULUM INTENT**

### **INTENT:**

#### **What is the curriculum aim / vision for this subject?**

- Basic/ functional ICT skills
- Use skills in a variety of different environments.
- Enjoy the subject.
- Keeping safe online
- Basic ICT skills to enable students to access technology in real life situations including hardware/alternative equipment i.e. switches, stylus pen, enlarged keyboard, rollerball/ joystick mouse.
- Access the curriculum by using software/digital tools to support increased independent learning.
- Link to employability skills
- Provide essential knowledge that pupils need to be good citizens (Cultural Capital)
- Provide pupils with knowledge, skills, behaviours and attitudes about 'Education for a Connected World' (Project Evolve) covering 8 different strands: Self-image and identity, online relationships, online reputation, online bullying, managing online information, health well-being and lifestyle, privacy and security and copyright and ownerships.
- Explore and develop vocabulary that links to Computing
- To have a broad curriculum encompassing computer science, information technology and digital literacy across KS3 and KS4.

#### **What do we expect students to get from this subject?**

- Enjoyment and challenge of the subject.
- Achieve or exceed their expected progress, accreditation or qualification.
- Use their ICT skills and knowledge to make a positive contribution to the workplace and society.

#### **How is our curriculum planned?**

Using the National Curriculum as a foundation, we want to equip pupils to use computational thinking and creativity to understand and change the world. We want to ensure that our pupils become digitally literate and use, express themselves and develop their ideas through information and communication technology. It will be taught in a way that is accessible for our pupils to be challenged and reach their full potential and in collaboration with their EHC Plans. This will also allow our pupils to be active participants in gaining employment in a forever developing digital world.

Pupils are taught the principles of information and computation, how digital systems work, and how to implement this knowledge through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Staff are encouraged to embed Computing across the whole curriculum to make learning creative and accessible as computing can be implemented as a cross- curricular subject with links to Maths, PSHE and Design Technology. We support our pupils to be fluent with a range of tools to enhance their understanding and develop their independence, knowledge and giving confidence to choose the best tool to fulfil the any tasks and challenges set by teachers.

## IMPLEMENTAION

### How does learning develop through the school?

- Students follow an adapted curriculum for Computing that links to statutory guidance of Computing National Curriculum
- Students will be able to use computing skills and knowledge in other cross- curricular learning
- Students develop conceptual fluency in order to problem solve and reason amathematically (programming)
- For students to be able to understand and implement /apply it in the 'real' world and work place we will provide a stimulating and motivating environment

### What principles have guided our decision making in developing this curriculum? What is distinctive about our curriculum?

- We follow an adapted National Curriculum for Computing from KS1- KS3 and KS3-KS4
- At KS4 and KS5, the curriculum is accreditation based on the student's individual skills and knowledge
- In order to achieve personal targets, students are put into small groups of 8-10 people

### How is the timetabled curriculum supplemented or enriched by other approaches to learning?

- ICT/Computing is a cross-curricular subject and can be taught in most, if not all lessons.
- KS4-KS5 ASDAN Towards Independence modules
- KS4-KS5 ICT Functional Skills Entry Level 1, 2 and 3 and Level 1
- AQA Unit Awards
- Use of BKSB and IDL Cloud

	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Computing Area</b>	<i>IT/Digital Literacy</i>	<i>Digital Literacy</i>	<i>IT</i>	<i>Computer Science</i>	<i>IT</i>	<i>IT/Digital Literacy</i>
<b>Unit/Topic</b>	Basic Skills Email Copyright and ownership Privacy and security Managing online information	E-Safety Online Relationships Online Bullying Social Media Health, wellbeing and lifestyle.	Office Suite Word processing Data Handling Presentations Desktop publishing	Programming Computation thinking Programming Computer networks	Media Audio/sound Photography Animation Augmented and Virtual Reality Video creation	Careers Self-Image and Identity Online Reputation

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
<b>Year 1</b>	<b>Technology around us</b> Recognising technology in school and using it responsibly.	<b>Digital painting</b> Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	<b>Moving a robot</b> Writing short algorithms and programs for floor robots, and predicting program outcomes	<b>Grouping data</b> Exploring object labels, then using them to sort and group objects by properties.	<b>Digital writing</b> Using a computer to create and format text, before comparing to writing non-digitally.	<b>Programming animations</b> Designing and programming the movement of a character on screen to tell stories.
<b>Year 2</b>	<b>Information technology around us</b> Identifying IT and how its responsible use improves our world in school and beyond.	<b>Digital photography</b> Capturing and changing digital photographs for different purposes.	<b>Robot algorithms</b> Creating and debugging programs, and using logical reasoning to make predictions	<b>Pictograms</b> Collecting data in tally charts and using attributes to organise and present data on a computer.	<b>Making music</b> Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	<b>Programming quizzes</b> Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
<b>Year 3</b>	<b>Connecting computers</b> Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	<b>Stop-frame animation</b> Capturing and editing digital still images to produce a stop-frame animation that tells a story.	<b>Sequencing sounds</b> Creating sequences in a block-based programming language to make music	<b>Branching databases</b> Building and using branching databases to group objects using yes/no questions.	<b>Desktop publishing</b> Creating documents by modifying text, images, and page layouts for a specified purpose	<b>Events and actions in programs</b> Writing algorithms and programs that use a range of events to trigger sequences of actions.
<b>Year 4</b>	<b>The internet</b> Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	<b>Audio production</b> Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	<b>Repetition in shapes</b> Using a text-based programming language to explore count-controlled loops when drawing shapes.	<b>Data logging</b> Recognising how and why data is collected over time, before using data loggers to carry out an investigation.	<b>Photo editing</b> Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	<b>Repetition in games</b> Using a block-based programming language to explore count-controlled and infinite loops when creating a game
<b>Year 5</b>	<b>Sharing information</b> Recognising IT systems around us and how they allow us to search the internet.	<b>Video production</b> Planning, capturing, and editing video to produce a short film.	<b>Selection in physical computing</b> Exploring conditions and selection using a programmable microcontroller.	<b>Flat-file databases</b> Using a database to order data and create charts to answer questions.	<b>Vector drawing</b> Creating images in a drawing program by using layers and groups of objects.	<b>Selection in quizzes</b> Exploring selection in programming to design and code an interactive quiz.
<b>Year 6</b>	<b>Internet communication</b> Identifying and exploring how data is transferred and information is shared online.	<b>Webpage creation</b> Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	<b>Variables in games</b> Exploring variables when designing and coding a game.	<b>Introduction to spreadsheets</b> Answering questions by using spreadsheets to organise and calculate data.	<b>3D modelling</b> Planning, developing, and evaluating 3D computer models of physical objects	<b>Sensing</b> Designing and coding a project that captures inputs from a physical device.

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Year 7	<b>Impact of technology – Collaborating online respectfully</b> Identifying how to use online collaboration tools respectfully. An introduction to the computing lab	<b>Networks: from semaphores to the internet</b> Recognising networking hardware and explaining how networking components are used for communication.	<b>Using media: gaining support for a cause</b> Creating a digital product for a real-world cause.	<b>Programming essentials in Scratch: part I</b> Applying the programming constructs of sequence, selection, and iteration in Scratch.	<b>Programming essentials in Scratch: part II</b> Using subroutines to decompose a problem that incorporates lists in Scratch.	<b>Modelling data: spreadsheets</b> Sorting and filtering data and using formulas and functions in spreadsheet software.
Year 8	<b>Developing for the web</b> Using HTML and CSS to create webpages.	<b>Representations: from clay to silicon</b> Representing numbers and text using binary digits.	<b>Mobile app development</b> Using event-driven programming to create an online gaming app.	<b>Media: vector graphics</b> Creating vector graphics through objects, layering, and path manipulation.	<b>Computing systems</b> Exploring the fundamental elements that make up a computer system.	<b>Introduction to Python programming</b> Applying the programming constructs of sequence, selection, and iteration in Python.
Year 9	<b>Python programming with sequences of data</b> Manipulating strings and lists. Creating a programming project.	<b>Media: animations</b> Creating 3D animations through object manipulation, and tweaking and adjusting lighting and camera angles.	<b>Data science</b> Using data to investigate problems and make real-world changes.	<b>Representations: going audiovisual</b> Representing images and sound using binary digits.	<b>Cybersecurity</b> Identifying how users and organisations can protect themselves from cyberattacks.	<b>Physical computing</b> Sensing and controlling with the micro:bit.

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Year 10/11	<b>Online safety (10 lessons)</b>  Recognise ways to build a positive online reputation. Discuss the ethics surrounding big data. Identify fake news and explain why it exists. Describe the laws governing online content. Recognise illegal content and describe how to report it.	<b>IT and the world of work (6 lessons)</b>  Examine modern technology tools that assist with inclusivity and accessibility. Evaluate effective online communication and collaboration. Create a positive work environment for remote working.	<b>Media (7 lessons)</b>  Create pre-production planning materials. Create raster and vector graphics. Utilise the software required for digital video creation. Create a multi-page website using open source tools.	<b>Spreadsheets (6 lessons)</b>  Use functions, formulas, and formatting in a spreadsheet. Develop a spreadsheet for a given scenario.	<b>IT project management (10 lessons)</b>  Identify why project management is important and recognise the common tools used. Manage a project for a given scenario.

## **IMPACT:**

### **Assessment of pupils work, skills and knowledge to be completed by:**

- Teacher questioning using the school's teaching and learning policy School's guide for ICT / computing knowledge and skills.
- BKSb Functional Skills- Entry Level initial and diagnostic assessments to gauge prior knowledge and skills
- Online quizzes such as Kahoot and Quizizz (High challenge / low threat)
- Provide opportunities for communication between teacher and student to reflect and discuss any misunderstandings- a reflection opportunity for teacher and learner to deal with misunderstandings.
- Qualifications and accreditations- internally and externally assessed.

### **How do we know if we have a successful curriculum?**

- Pupil voice, staff voice, parental voice.
- Planning with clear learning objectives, outcomes, progression and sequencing
- Learning walks and lesson observations.
- ICT/ Computing skills and knowledge to improve standards across all other areas of the adapted curriculum.
- Scrutiny of student work.
- Evidence on Evidence for Learning (EFL) with evidence being tagged as #computing.
- Success on leaving school- Record of Achievement

ICT and Computing encompasses every part of modern life and it is important that our pupils are taught how to use these tools and more importantly, how to use them safely. We believe that it is important for pupils, staff and the wider school community to have the confidence and ability to use these tools to prepare them for an ever-changing and rapidly developing world. We encourage our pupils to enjoy and value the curriculum we deliver. We want our learners to discuss, reflect and appreciate the impact ICT/Computing has on their learning, development and well-being.