Biscovey Academy

Computing Curriculum

INTENT: ***'We are preparing children for jobs that have not yet been invented, in order to solve problems we don't even know are problems yet.'***
– Richard Riley (former US Secretary of Education)

Computing National Curriculum Requirements

KS1	KS2
Pupils should – ➢ understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation. ➢ analyse problems in computational terms and have repeated practical experience of writing computer programs to solve such problems. ➢ evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. ➢ be responsible, competent, confident, and creative users of information and communication technology. **They should –** • understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • create and debug simple programs. • use logical reasoning to predict the behaviour of simple programs. • use technology purposefully to create, organise, store, manipulate and retrieve digital content. • recognise common uses of information technology beyond school. • use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	**Pupils should –** ➢ understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation. ➢ analyse problems in computational terms and have repeated practical experience of writing computer programs to solve such problems. ➢ evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. ➢ be responsible, competent, confident, and creative users of information and communication technology. **They should –** • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • use sequence, selection, and repetition in programs, work with variables and various forms of input and output. • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. • use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Computing National Curriculum Strands

Computer Science

Computer science is the study of the numerous processes that interact with different sources of data and information and that can be represented, as a result, in the form of apps, games, software or programs.

Information Technology

Information technology is the understanding and safe and effective use of digital artefacts. Pupils select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information.

Digital Literacy

Digital literacy means having the skills you need to live, learn, and work safely in a society where communication and access to information is increasingly through digital technologies like internet platforms, social media, and mobile devices.

Biscovey Academy Computing Sequence of Learning

LKS2

Building on knowledge gained in the infants: Year 1, Summer- Grouping and searching data.	***Building on knowledge gained in the infants:*** Year 2, Autumn, Creating digital music.	***Building on knowledge gained in the infants:*** Year 2, Summer- Robot algorithms.
Cycle A- Autumn	***Cycle A- Spring***	***Cycle A- Summer***
Networks- What is the internet?	***Digital Creativity- What is so good about a podcast?***	***Algorithms- How is repetition used in a computer game?***
The Internet 1. What is a network? 2. What is the internet made of? 3. How does data travel on the internet? 4. What is a website? 5. Who owns the web? 6. Can I believe what I read?	1. How can you record a sound? 2. Can I edit sounds? 3. What makes a good podcast? 4. Can I create a podcast? 5. How do you combine audio elements? 6. How could I make my podcast better?	1. Can I create a shape using repetition? 2. What is a loop? 3. Can I animate my name? 4. How do you modify game code? 5. Can I design my own game? 6. Would you like to play my game?
Building on knowledge gained in the infants: Year 1, Spring- Introduction to animation.	***Building on knowledge gained in the infants:*** Year 2, Summer- Presenting online data.	***Building on knowledge gained in the infants:*** Year 2, Spring- Creating basic programmes.
Cycle B- Autumn	***Cycle B- Spring***	***Cycle B- Summer***
Animation- Can a picture move?	***Networks- How can we make a connection?***	***Programming- Can small actions become big programs?***
1. Can photographs become movies? 2. How does music change the scene? 3. Words – useful or useless? 4. Picture perfect 5. Evaluate and make it great! 6. Lights, camera, action!	1. Inputs, outputs – what is it all about? 2. What is in a touch? 3. What are the benefits of digital pictures over non-digital? 4. How am I connected? 5. How are computers connected? 6. What is in a network?	1. Move or stay still? 2. I'm lost, can you help? 3. Pen up or pen down? 4. What's in a line? 5. Debugging, is it some kind of illness? 6. Is my program a - MAZE - ing?

UKS2

Year 5 Autumn	Year 5 Spring	Year 5 Summer
Systems and searching- Is IT all around us?	**Systems- How are databases used in real life?**	**Coding- Can I transfer code to a device?**
1. What is a system? 2. How do computer systems help humans? 3. Is it hard to find information on the web? 4. How do search engines find things on the World Wide Web? 5. How are searches ranked? 6. How are searches influenced by others?	1. What is a database? 2. Databases – paper or digital? 3. How does a database work? 4. How can you narrow a search? 5. Numbers or charts – what are the benefits? 6. How are databases used in real life?	1. How do I save and run a code? 2. Why is following instructions critical to computers? 3. How can I send code between devices? 4. How do using conditions make a program more complex? 5. How can I programme a device to transfer information? 6. Can I code multiple micro:bits to communicate together?

Year 6 Autumn	Year 6 Spring	Year 6 Summer
Modelling- How can we modify and adjust objects in a 3D space?	**Design- Is a webpage just click and read?**	**Coding- How can a variable change the outcome of a game?**
1. How are models used to represent real life objects? 2. How can I manipulate a 3D model? 3. Can I print my own name badge? 4. Can I design a complex object that could be used in an office? 5. Why is 3D modelling useful in architecture? 6. Can I be a digital 3D designer?	**Web Page Creation** 1. What makes a good website? 2. How would you layout your webpage? 3. Copyright or copyWRONG? 4. How does it look? 5. Can you follow the breadcrumbs? 6. Should you think before you link?	1. What is a variable? 2. What can a variable hold? 3. Can I improve a game to make it better? 4. What makes a good game? 5. Design to code – Can I code a game? 6. How do I improve and share my game?