"Developing potential without limitations"

Frieth C.E.C. School
COMPUTING Policy

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Member of staff responsible: Nigel Honey

Governing body committee responsible: Curriculum

Headteacher's signature ………………………………………………………………

Chair of Governor's signature …………………………………………………………..

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Frieth C.E.C. School

COMPUTING Policy

Computers are incredibly fast, accurate and stupid. Human beings are incredibly slow, inaccurate and brilliant. Together they are powerful beyond imagination.   *Albert Einstein*

<u>Frieth School Vision statement</u>

'…Your light must shine before people, so that they see the good things you do.'

Matthew 5:16

We shine a light on individual success and open the doors to our future global citizens by developing potential without limitations.

Values:

- These are the Christian Values that both drive and are reflected in the teaching and learning at our school.

- Sharing and caring

- Gentle and Kind

- Honest and Truthful

- Challenging and Responsible

COMPUTING Vision Statement:

Developing the skills, creativity and enthusiasm to live and thrive in a world increasingly dependent on technology and computers.

Intent

We offer a structured sequence of lessons, helping teachers to ensure that they have covered the skills required to meet the aims of the national curriculum. The content allows for a broad, deep understanding of computing and how it links to children's lives. It offers a range of opportunities for consolidation, challenge and variety. This allows children to apply the fundamental principles and concepts of computer science. They develop analytical problem-solving skills and learn to evaluate and apply information technology. It also enables them to become responsible, competent, confident and creative users of information technology. The progression map supports computing subject leaders in readiness for an Ofsted 'deep dive'.

Key Stage 1 National Curriculum Expectations

Pupils should be taught to:

- 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.

Key Stage 2 National Curriculum Expectations

Pupils should be taught to:

- 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.

Implementation

Computing is not an end in itself but the means to many ends that will enrich and deepen many aspects of the children's teaching and learning across the all subjects and as such is woven throughout both our EYFS and Four-Year Creative Curriculum

Each lesson contains revision, analysis and problem-solving. Through the sequence of lessons, we intend to inspire pupils to develop a love of the digital world, see its place in their future and give teachers confidence. Cross-curricular links are also important in supporting other areas of learning. Our lesson plans and resources help children to build on prior knowledge at the same time as introducing new skills and challenges. In KS1, the focus is on developing the use of algorithms, programming and how technology can be used safely and purposefully. In KS2, lessons still focus on algorithms, programming and coding but in a more complex way and for different purposes. Children also develop their knowledge of computer networks, internet services and the safe and purposeful use of the internet and technology. Data Handling is featured more heavily in UKS2. Skills learnt through KS1 and LKS2 are used to support data presentation.

Computing will be taught weekly however there will be many more opportunities for children to develop and deploy their computing skills within the context of every other subject.

SEND - We are an inclusive school. All children receive Quality First Teaching. The use of computers at Frieth school are important to making accessible many aspects of learning for children requiring various measures of SEND support.

<u>Health and Safety</u> -Frieth CEC School takes all necessary measures to ensure both staff and pupils are aware of the importance of health and safety.

Both staff and pupils are trained to handle electrical equipment correctly including how to power off and on. Pupils are reminded about the dangers of electricity and the danger signs to look out for. Adequate displays and warning signs are strategically placed around the school to reinforce health and safety.

Impact

Learning in computing will be enjoyed across the school. Teachers will have high expectations and quality evidence will be presented in a variety of forms. Children will use digital and technological vocabulary accurately, alongside a progression in their technical skills. They will be confident using a range of hardware and software and will produce high-quality purposeful products. Children will see the digital world as part of their world, extending beyond school, and understand that they have choices to make. They will be confident and respectful digital citizens going on to lead happy and healthy digital lives.

Assessment

The Frieth Computing progression document enables staff to understand what pupils have learnt before, what they need to learn now and what they will learn next. (See Appendix 2)

Summative Assessment
At the end of each school year, pupils will be assessed within one of the following bands: Pre-Key Stage (PKS); Working Towards the curriculum (WT); Working at Expected (EXP); Working at Greater depth (GDS).

Reporting
A final summative assessment for Computing will be reported to parents within the annual school report.

Monitoring
The Computing subject leader is responsible for the monitoring of Computing teaching, learning and outcomes across the school. In the event that there is no Computing lead, the responsibility devolves to the Senior Leadership team.
Computing is monitored throughout all year groups using a variety of strategies such as planning scrutinies, lesson observations, performances and pupil interviews.

Linked policies:
Curriculum policy
Learning and Teaching Policy
Assessment policy
Health and Safety Policy
Equal Opportunities policy
SEND policy

Progression Tables

	KS1	LKS2	UKS2
Multimedia Text and Images	Children begin to understand the particular purposes technology can be used for and that by adding text and images you can communicate with technology. Children develop their skills in typing, selecting tools and organising information. **KS1 Computing National Curriculum** Children use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children can: a add text strings, text boxes and show and hide objects and images, manipulating the features; b use various tools, such as brushes, pens, eraser, stamps and shapes, and set the size, colour and shape; c use applications and devices in order to communicate ideas, work, messages and demonstrate control; d save, retrieve and organise work; e use key vocabulary to demonstrate knowledge and understanding in this strand: paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move, screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present.	Children develop their skills of formatting using keyboard commands, organising their work to demonstrate effect. In LKS2, they will have the opportunity to express themselves more through digital technology, art, PowerPoint and posters. Children should continue to demonstrate control when operating tools as in KS1. **KS2 Computing National Curriculum** Children 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. They 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. Children can: a create different effects with different technological tools, demonstrating control; b use appropriate keyboard commands to amend text on a device; c use applications and devices in order to communicate ideas, work, and messages; d save, retrieve and evaluate work, making amendments; e insert a picture/text/graph/hyperlink from the internet or a personal file; f use key vocabulary to demonstrate knowledge and understanding in this strand: draw, object, shape, line, line colour, fill colour, group, ungroup, font, size, text box, format, image, wrap text, plan, link, image, object, link, hyperlink, minimise, restore, size, move, screen, split, create, organise, file, folder, close, exit, search, print, password, screenshot, snipping tool, shift, undo, redo, menu, dictionary, highlight, cursor, toolbar, spellcheck.	Children begin to look at new software, creating 3D models and learning how to orbit, zoom and develop their editing skills further. They become more confident in inserting links, images and formatting text to create effect. **KS2 Computing National Curriculum** Children 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. Children can: a use the skills already developed to create content using unfamiliar technology; b select, use and combine the appropriate technology tools to create effect; c review and improve their own work and support others to improve their work; d save, retrieve and evaluate their work, making amendments; e insert a picture/text/graph/hyperlink from the internet or personal file; f use key vocabulary to demonstrate knowledge and understanding in this strand: window, layout, text, font, colour, format, heading, hyperlink, 2D shape, 3D shape, orbit, pan, zoom, eraser, dimension, measurement, guide.

Multimedia Sound and Motion	Children begin to develop their creativity using technology through recording sound. Children will also begin to develop their editing skills and control of the tools. **KS1 Computing National Curriculum** Children use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children can: a use software to record sounds; b change sounds recorded; c save, retrieve and organise work; d use key vocabulary to demonstrate knowledge and understanding in this strand: commands, add sound.	Children develop their editing skills further by cropping, organising and arranging film clips. They are able to share work and offer feedback and ideas for improvement with animation and film, giving their opinion on which software to use. In LKS2, children also look at the history of animation and reflect upon the changes over time. **KS2 Computing National Curriculum** Children 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. Children can: a use software to record, create and edit sounds and capture still images; b change recorded sounds, volume, duration and pauses; c use software to capture video for a purpose; d crop and arrange clips to create a short film; e plan an animation and move items within each animation for playback; f use key vocabulary to demonstrate knowledge and understanding in this strand: audio, sound, video, movie, embed, link, file format, animate, animation, still image, thaumatrope, zoetrope, zoopraxiscope, stereoscope, flip book, frame, onion skinning, loop, frame rate, record, stop, play, stop motion, stop frame.	Children begin to look more into multimedia broadcasting, learning new skills including recording jingles, podcasts and narration. They become more confident in post-production with editing, trimming and refining their work based on plans they have made. **KS2 Computing National Curriculum** Children 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. Children can: a collect audio from a variety of resources including own recordings and internet clips; b use a digital device to record sounds and present audio; c trim, arrange and edit audio levels to improve quality; d publish their animation and use a movie editing package to edit/refine and add titles; e use key vocabulary to demonstrate knowledge and understanding in this strand: audio, record, edit, play stop, skip, waveform, input, output, record, edit, play podcast, digital content, downloadable, backing track, voiceover, mute, gain, production, post-production, documentary, project, evaluation, screening, ceremony, upload.

		Children begin to explore expressing information in tables, sorting and organising information for others to be able to understand.	Data Handling in UKS2 focuses on selecting the correct method to display data and using software such as spreadsheets. Children also learn how to check the accuracy of data and compare data for a specific purpose.
Handling Data		**KS2 Computing National Curriculum** Children 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. Children can: a talk about the different ways data can be organised; b sort and organise information to use in other ways; c search a ready-made database to answer questions; d use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table.	**KS2 Computing National Curriculum** Children 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. Children can: a construct data on the most appropriate application; b know how to interpret data, including spotting inaccurate data and comparing data; c use keyboard shortcuts and functions to input data on spreadsheets and create formulas for spreadsheets; d add data to an existing database; e use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table, spreadsheet, cell, row, column, formula/formulas, calculate, format, edit, insert, ascending, descending.

Technology in Our Lives	Children begin to make links to how they use technology outside of the classroom. They begin to think about the benefits of using technology in their lives, making links to learning about online safety. **KS1 Computing National Curriculum** Children recognise common uses of technology beyond school. They use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Children can: a recognise ways that technology is used in the home and community, e.g. taking photos, blogs, shopping; b use links to websites to find information; c recognise age-appropriate websites; d use safe search filters; e use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, internet, subject, address, communicate, sender, safe, secure.	Children refer to online safety rules when discussing technology in their lives. They are able to navigate between websites and use safe search terms on trusted search engines. They become more confident in using email for communication, including attaching and saving files from emails. **KS2 Computing National Curriculum** Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content. Children can: a explain ways to communicate with others online; b describe the world wide web as the part of the internet that contains websites; c add websites to a favourites list; d use search tools to find and use an appropriate website and content; e use strategies to improve results when searching online; f use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, subject, address, communicate, sender, safe, secure, internet, world wide web, social media.	Children can use safe search terms on trusted search engines, and evaluate websites based on layout and information. They become more confident in understanding Google rankings, adverts and the reliability of websites. **KS2 Computing National Curriculum** Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content. Children can: a search for information using appropriate websites and advanced search functions within Google; b use strategies to check the reliability of information (cross-check with another source such as books); c talk about the way search results are selected and ranked; d check the reliability of a website, including the photos on site; e tell you about copyright and acknowledge the sources of information; f use key vocabulary to demonstrate knowledge and understanding in this strand: world wide web, search, search engine, advanced search, results, Google, browser, terms of use, bias, authority, citation, plagiarism, source, website, secure, https, site, domain, website, browser, address bar.

Children begin to understand their influence on technology by developing their programming skills to determine output. They begin to understand that an algorithm is a series of steps for solving problems and a code is a series of steps that machines can execute. They begin to explore debugging, predicting when codes may not work and changing them.

KS1 Computing National Curriculum

Children understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. They create, debug and use logical reasoning to predict the behaviour of simple programs.

Children can:

a   give commands one at a time to control direction and movement, including straight, forwards, backwards, turn;

b   control the nature of events: repeat, loops, single events and add and delete features;

c   give a set of instructions to follow and predict what will happen;

d   improve/change their sequence of commands by debugging;

e   use key vocabulary to demonstrate knowledge and understanding in this strand: algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink.

Children build on their programming skills by solving problems and programming commands to achieve a specific outcome. They begin to write programs, explain algorithms and identify errors in their work.

KS2 Computing National Curriculum

Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children can:

a   use logical thinking to solve an open-ended problem by breaking it up into smaller parts;

b   write a program, putting commands into a sequence to achieve a specific outcome;

c   give a set of instructions to follow and predict what will happen;

d   keep testing a program and recognise when it needs to be debugged;

e   use variables to create an effect, e.g. repetition, if, when, loop;

f   use key vocabulary to demonstrate knowledge and understanding in this strand: decompose, decomposing, logical sequence, flowchart, sprite, block, command, algorithm, answer, correct, errors, program, algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable.

Children build on their programming skills by using new systems such as a flowchart. They continue to break down problems and create algorithms to solve them. They are able to explain the outcome of an algorithm with confidence and accuracy.

KS2 Computing National Curriculum

Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children can:

a   use external triggers and infinite loops to demonstrate control;

b   follow a sequence of instructions, e.g. in a flowchart and modify a flowchart using symbols;

c   use conditional statements and edit variables;

d   decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program;

e   keep testing a program and recognise when it needs to be debugged;

f   use key vocabulary to demonstrate knowledge and understanding in this strand: flowchart, algorithm, control, output, symbol, start, stop, delay, process, decision, loop, backdrop, script, block, repeat, commentary, sequence, consequence, debug, program, Kodu, world, object, tool palette, program environment, smooth, flatten, raise.

Online Safety	Children begin to consider their activity on the internet and learn about ways to keep themselves safe and why it is important to do so. They also compare appropriate and inappropriate activity on the internet and decide what to do next. **KS1 Computing National Curriculum** Children can use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Children can: a identify what things count as personal information; b identify what is appropriate and inappropriate behaviour on the internet; c agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords; d seek help from an adult when they see something that is unexpected or worrying; e demonstrate how to safely open and close applications and log on and log off from websites; f use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet.	Children become more aware of their digital footprint by reflecting on their experience on the internet. They are able to understand more about age-appropriate websites and adverts and how adverts are used by companies. Children are also introduced to the concept of plagiarism and citation. **KS2 Computing National Curriculum** Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact. Children can: a reflect on their own digital footprint and behaviour online; b identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying; c agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords; d seek help from an adult when they see something that is unexpected or worrying; e demonstrate understanding of age-appropriate websites and adverts; f use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, internet, world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public.	Children are encouraged to identify online risks and share their knowledge of the risks and consequences for people online. They begin to think more critically about what they see online and look at the concept of fake news and false photographs. **KS2 Computing National Curriculum** Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact. Children can: a protect their password and other personal information; b be a good online citizen and friend; c judge what sort of privacy settings might be relevant to reducing different risks; d seek help from an adult when they see something that is unexpected or worrying; e discuss scenarios involving online risk; f use key vocabulary to demonstrate knowledge and understanding in this strand: spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal.