



Wrenthorpe Academy Computing Policy

“A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world.”
(Quote from the Computing Programme of Study 2014)

Introduction

Computing and ICT (Information and Communications Technology) play a vital role in our lives, particularly in current times where technologies are constantly changing and evolving. A sound knowledge and understanding of ICT and Computing enables and prepares pupils to be active participants in a world where work, and other activities, are increasingly transformed by access to varied and developing technology. It is our duty as educators to ensure all children have access to an education in which such technologies are available and skills taught and practiced to a high standard in a variety of ways.

In September 2013 the Department for Education published the new National Curriculum for Computing, to become effective by September 2014. The new curriculum reflects the developments that have taken place over recent years; shifting focus from children learning how to **use** computers, to becoming competent and confident analytical thinkers, computer programmers and understanding **how** technology works. The new curriculum encompasses three main strands of Computing (C), Information and Communication Technology (ICT), and Digital Literacy (DL) which will be outlined in this policy.

This policy should be read in conjunction with the E-safety, Acceptable Usage and Information Security policies.

Purpose

This policy aims to reflect the school values and philosophy in relation to the teaching and learning of C, ICT and DL. It is intended as an outline to establish what we will do, and as a guide for teachers, non-teaching staff, parents and governors.

The purpose of the C and ICT policy at Wrenthorpe is:

- To establish a framework for teaching and learning which meets the requirements of the new Computing Curriculum 2014;
- To promote a good understanding of what C, ICT and DL are and how they will look at Wrenthorpe;
- To establish clear expectations for staff and pupils;
- To promote continuity and coherence throughout school;
- To establish clear procedures and guidelines for staff to operate within.

Implementation of the Computing Curriculum 2014 – Computer Science, ICT and Digital Literacy

The Computing Curriculum focuses on three main areas:

- Computer Science / Computing (C) – *The ability to understand how technologies work and **how to be an effective author** of them. The ability to apply logical reasoning and computational thinking to solve problems.*
- Information and Communication Technologies (ICT) – *The ability **to be an effective and thoughtful user** of technologies to store, present and communicate information.*
- Digital Literacy (DL) - *The ability to locate, organise, understand, evaluate, and analyse information using digital technology. It involves a working knowledge of current ‘high-technology’, and an understanding of how it can be used.*

As described above, C and ICT are different, but complimentary subjects. It is also important to note that much of our C curriculum will be non-computer based. The focus in this area is computational thinking and logical reasoning to equip our children with the thinking skills they will need to solve computer based problems. As described by Edsger Dijkstra - “We need to do away with the myth that computer science is about computers. Computer science is no more about computers than astronomy is about telescopes, biology is about microscopes or chemistry is about beakers and test tubes. Science is not about tools, it is about how we use them and what we find out when we do.”

At Wrenthorpe, the curriculum will be planned and taught based on these three key areas, each of which will be featured on medium and short term planning. During the first two years of the new curriculum, the whole school will cover the same area during the same term to allow for training and development opportunities, as well as ensuring the appropriate resources are available.

Wrenthorpe Academy Long Term Plan

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Digital Literacy	Coding	Digital Literacy SID	Digital Literacy	Digital Literacy	Coding
1 & 2	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	<p>To use:</p> <ul style="list-style-type: none"> - Without computers – following and giving instructions. - Bee-bots - iPads – Daisy the Dinosaur AND / OR Bee-Bot app / Kodable app 	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	Stop Motion Animation	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	<p>To use:</p> <ul style="list-style-type: none"> - Recap of what an algorithm is. - iPads – Y1 = Daisy the Dinosaur, Bee-Bot app. **Extension of Autumn term** - Laptops Y1 & 2 = J2E - iPads = Y2 = Tynker / Lightbot / Cargobot apps
3 & 4	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	<p>To use:</p> <ul style="list-style-type: none"> - Without computers – following and giving instructions. - Ipads – Lightbot Cargobot. Tynker - Laptops = Scratch. 	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	iMovie (photography and video)	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	<p>Simulations</p> <p>To use:</p> <ul style="list-style-type: none"> - Recap of what an algorithm is. - Laptops = Scratch AND - Simulations (See Simon Houghton Site) An extra:
5 & 6	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	<p>To use:</p> <ul style="list-style-type: none"> - Without computers – following and giving instructions. - Laptops = Scratch. - iPads – Lightbot / Cargobot / A.L.E.X. / Scratch Jnr 	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	Blog	<i>Objectives to link with topic – taken from Digital Literacy objectives.</i>	<p>To use:</p> <ul style="list-style-type: none"> - Recap of what an algorithm is. - Lego WeDo - Laptops = Kodu (creating games) OR Sploder - Create games, including retro arcade games.

Wrenthorpe Academy ICT/DL Long Term Plan

Early Years Foundation Stage:

Computing is introduced within the Foundation Stage, and relates directly to the Early Learning Goal:

ELG 15 Technology:

- Children recognise that a range of technology is used in places such as homes and schools
- They select and use technology for particular purposes

At Wrenthorpe, children within the Early Years setting have the opportunities to learn and apply skills in computing through direct teaching and enhancements in continuous provision. Technology and its use is an integral part of the EYFS curriculum. Teachers within this stage know the next steps for children progressing into Year 1, and work to ensure that children leaving the Foundation Stage have a wide range of experiences with different technology.

It is important in the foundation stage to give pupils a broad, play-based experience of computing in a range of contexts, including outdoor play. Computing is not just about computers. Early years learning environments should feature computing scenarios based on experience in the real world, such as in role play. Pupils gain confidence, control and language skills through opportunities to ‘paint’ on the whiteboard or program a toy. Recording devices can support pupils to develop their communication skills. This is particularly useful with pupils who have English as an additional language.

Wrenthorpe Academy ICT/DL Long Term Plan

Year 1 & 2 Curriculum Objectives

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- 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.

Digital Literacy Outcomes - Year One

- I can turn on a computer and screen / iPad / other electronic devices.
- I can log on and off independently.
- I can follow a series of instructions to open a computer program (with adult support).
- I can type (copy) a sentence using the correct keys. Including backspace to delete, single space, capital letters and full stops.
- I can add a picture using clipart.
- I can use a drawing program to create an image.
- I am familiar with how to use an iPad / other electronic devices.
- I can navigate web pages to find information, with support.
- I can send and reply to emails, being aware of the type of information it is appropriate to share.
- I can print using the print icon.

Digital Literacy Outcomes - Year Two

- I can turn on a computer and screen / iPad / other electronic devices.
- I can log on and off independently, remembering log-on details.
- I can follow a series of instructions to open a computer program and begin to remember where to find them.
- I can type a sentence using the correct keys. Including backspace to delete, single space, capital letters, full stops, question marks.
- I can edit my work to improve it, including changing font and size of images / layout on the page.
- I can add a picture using clipart and copy/paste.
- I can use a range of ways to present my work. Including Word and Powerpoint.
- I am familiar with how to use an iPad / other electronic devices.
- I can use a safe search engine to search for information.
- I can navigate web pages to find information.
- I can save and retrieve my work following a set of instructions.
- I can send and reply to emails, being aware of the type of information it is appropriate to share.

Wrenthorpe Academy ICT/DL Long Term Plan

Y3 & 4 Objectives

- 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 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.

Digital Literacy Outcomes – Y3 & 4

<ul style="list-style-type: none"> • I can log on and off independently, remembering log-on details. 	<ul style="list-style-type: none"> • I can type accurately, at a good speed, using both hands.
<ul style="list-style-type: none"> • I can open a computer program independently. 	<ul style="list-style-type: none"> • I can navigate web pages to find information and use this in my work.
<ul style="list-style-type: none"> • I can create a slideshow to use as part of a presentation. 	<ul style="list-style-type: none"> • I know that not all information on the internet is reliable / appropriate.
<ul style="list-style-type: none"> • I can present my work in a range of ways (Word, Powerpoint, graphs, spreadsheets / databases). 	<ul style="list-style-type: none"> • I can use a safe-search engine to search for information, including using effective terms in my search / advanced search options.
<ul style="list-style-type: none"> • I can type text using the correct keys, including those with the 'shift' function. 	<ul style="list-style-type: none"> • I can save and print my work, including using folders and different locations.
<ul style="list-style-type: none"> • I can edit my work to improve it, including font and size of images / layout. 	<ul style="list-style-type: none"> • I can send and reply to emails, being aware of the type of information it is appropriate to share.
<ul style="list-style-type: none"> • I can add a picture using clipart and copy/paste. 	

Wrenthorpe Academy ICT/DL Long Term Plan

Y5 & 6 Objectives

- 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 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.
- 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.

Digital Literacy Outcomes – Y5 & 6

• I can log on and off independently, remembering log-on details.	• I know how a search engine works.
• I can open a computer program independently.	• I can navigate web pages to find information and use this in my work.
• I can create a slideshow to use as part of a presentation.	• I know that not all information on the internet is reliable / appropriate.
• I can present my work in a range of ways (Word, Powerpoint, graphs, spreadsheets and databases) using a range of options such as text, graphics, animation and sound.	• I can use a safe-search engine to search for information, including using effective terms in my search / advanced search options.
• I can type text using the correct keys, including those with the 'shift' function.	• I can save, retrieve and print my work, including using folders and different locations.
• I can edit my work to improve it, including font and size of images / layout.	• I can send and reply to emails, being aware of the type of information it is appropriate to share.
• I can add a picture using clipart and copy/paste.	• I have a basic understanding of how computer networks and the internet work.
• I can type accurately, at a good speed, using both hands.	• I know what is inside a computer (basic).

Teaching and Learning

The time allocated to the teaching of the C aspects is flexible and arranged by the class teacher to best suit the needs of the children. The guidelines below are followed by each teacher:

- The teaching of new skills should be discrete (E.g. basic skills in using new software and/or equipment, new skills relating to programming);
- Children should be given as many opportunities as possible to apply their C, ICT and DL skills across the curriculum and in creative ways (E.g. as an option to present work);
- There are no minimum or maximum requirements in relation to time spent on the teaching and learning of C, ICT and DL per week. However, the class teacher must ensure through careful planning and reviewing, that each learning objective from the C and ICT / DL curriculum is covered thoroughly and that C and ICT / DL are an integral part of the whole curriculum.
- Teachers must show coverage of learning objectives and how these are being met, on a short term planning grid as set out by the ICT Coordinator. This includes discrete C and ICT / DL as well as those taught in a cross curricular way in other areas. Learning objectives for each year group are outlined on previous pages.
- Planning must be centred around the needs of the pupils and designed to meet a range of differing needs, including those needing additional support.
- Planning must show opportunities for challenge and further support by highlighting key questions that may be asked of pupils to challenge or support them further.
- Where appropriate, planning must be linked to topics being studied.

Planning for inclusivity and challenge

At Wrenthorpe, all children have the right to access the computing curriculum. In order to ensure that children with special educational needs achieve to the best of their ability, it may be necessary to adapt the delivery of the computing curriculum for some pupils. We teach computing to all children, whatever their ability. Computing forms part of the national curriculum to provide a broad and balanced education for all children. Through the teaching of computing we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Where appropriate, computing can be used to support SEN children on a one to one basis where children receive additional support.

Assessment

Summative and Formative Assessment

Class Teachers will make assessments by making informal judgements during lessons, using the STEM 'I can' statements as a point of reference. This information will be used to assist in planning next steps for future work. Verbal feedback will be given to children during lesson time to help to guide their progress. Children working at expectations should be able to achieve most of these statements. Children securely achieving all of their year group expectations, and some of those within the next year group, will be assessed as being a 'Greater Depth' learner. In order to ensure lessons are pitched

correctly and children are challenged, teachers must regularly check progress alongside the expectations explained above. This will also feed in to the summative assessment, where Teachers will give an overall judgement of each child's ability according to whether they are working towards expectations, working at expectations or are working at greater depth.

Roles and Responsibilities

The ICT Coordinator – The school has a designated Computing Leader to oversee the planning, teaching and organisation of C and ICT / DL. The ICT Coordinator will be responsible for:

- Raising standards in C and ICT / DL across school by:
- Supporting others in planning, teaching and assessment;
- Facilitating the use of ICT across the curriculum, in collaboration with other subject coordinators;
- Ensuring staff are up to date with training to enable them to deliver the curriculum confidently and effectively.
- Providing advice to staff in terms of resourcing, planning, using software and equipment, effective resources;
- Managing school resources to ensure we have the technology to be able to deliver the new curriculum effectively;
- Monitoring the planning and delivery of the new C curriculum and reporting to the Head Teacher.

The Head Teacher and Governing Body – The Head Teacher and Governing Body provide support for the ICT Coordinator to fulfil their role, as outlined above. They will provide support by:

- Ensuring teachers are able to deliver the new curriculum by having access to the appropriate training and resources necessary;
- Providing opportunities for the Computing Leader to work with staff to plan and deliver lessons for the new curriculum;
- Reviewing policies relating to C, E-safety and Information Security.

The Class Teacher – The class teacher must:

- Follow the guidelines set out in the C, E-safety and Information Security policies.
- Plan effective C and ICT / DL lessons using the objectives from the long term plan outlined in this policy;
- Ensure all objectives for their year group are planned for either through discrete or cross-curricular lessons;
- Provide many opportunities for C and ICT / DL skills to be applied by pupils in a variety of ways, using a wide range of technology and software;
- Plan lessons which will support and/or challenge pupils as appropriate;
- Ensure they have access to a range of necessary resources to be able to deliver the curriculum effectively. This includes liaising with the Computing Leader that resources are available, ensuring equipment is ready to be used, and returning equipment for others to use. Any breakages or faults must be reported by teaching staff to the Computing Leader.
- Support the Computing Leader in monitoring and assessment by completing the relevant planning and assessment grids at the end of each term.
- Ensure support staff have access to planning and have the knowledge and skills to be able to support and challenge them in completing tasks.

Support Staff – Support staff must:

- Ensure they have the relevant planning necessary to support and challenge pupils;
- Ask for support from the class teacher and/or Computing Leader to ensure their training requirements are met.

Monitoring and Evaluation

In order to ensure the curriculum is being planned for and delivered effectively, the Computing Leader will monitor the following:

- The training requirements of staff as new concepts and technologies are introduced to the curriculum;
- The impact of training already undertaken;
- Planning and assessment formats – taking on board any suggestions from staff on how they could be amended or used more effectively;
- Planning for each year group to ensure it is pitched appropriately, challenging, engaging, uses a wide range of resources and meets the requirements of the new curriculum;
- Children’s work. This will be done in a variety of ways, including work scrutiny with commentary from the class teacher on how it was done; conversations with pupils; pupil skills audits;
- Computing teaching and learning by observing in the classroom, where possible.
- The impact of the Computing action plan and how this can be taken forward to further develop the subject;
- School resources to ensure staff and pupils have access to the appropriate and necessary equipment and software.

By monitoring the above areas, the Computing Leader, Head and Governing Body will be able to identify any areas of strength and development. These will be used to inform the next action plan to ensure clear direction.

Staff Development

At Wrenthorpe, we have a wide range of staff with differing areas of skills and knowledge in terms of C and ICT / DL. There is an expectation that all staff will endeavour to keep up to date with new developments and requirements in this area. To support this, the Computing Leader, Head Teacher and Governing Body will:

- Provide regular updates with regards to the new curriculum;
- Identify key areas to develop staff knowledge and skills;
- Provide opportunities for staff training in areas identified and/or requested. This may be delivered by the Computing Leader outside agencies;
- Identify areas of strength in knowledge and skills, and encourage these members of staff to assist in training and supporting others as well as leading by example and leading projects or specialism areas (E.g. programming, podcasting, blogging).

Resources and Access

ICT resources are accessed and deployed in a number of ways throughout school. This ensures the maximum amounts of resources are available and easily accessible to support delivery of an effective and powerful computing curriculum. At present we have:

- A computer suite containing 8 new desktop computers. This can be timetabled on a weekly basis. Class teachers can ‘sign-up’ to available slots each day to fit in with their C and ICT / DL needs;
- 16 iPads stored securely in the locked iPad cases. These are timetabled as per the computer suite. Classes may take all or some of the iPads when timetabled. Class teachers must request any Apps they may need, which will be purchased by the Computing Leader;
- 1 staff laptop per classroom. This can be used by the teacher to display learning materials, or by children as directed by the teacher.
- 1 iPad per class.
- Up to 2 other laptops per classroom. This should be used by the children where appropriate, and can be an independent task or adult-led;
- 1 visualiser per classroom;
- 1 Smartboard per classroom – to be used as a teaching tool by staff or to aid learning in group work by children;
- Other resources available from the ICT store room include: Bee-bots and mats, Log-Boxes, Lego WeDo.

A school network enables internet access to all devices in the school building, including mobile devices via Wifi. The school network is secure and can only be accessed by user name and password – monitored by the Computing Leader. The network also offers access to a shared area in which documents are stored and accessed. Please refer to the E-safety, Acceptable Usage and Information Security policies for further details.

E-safety

Internet access is planned to enrich and extend learning activities. Wrenthorpe’s Computing curriculum includes the teaching of e-safety throughout the year as an integral part of the curriculum. We strive to ensure that all pupils are responsible and safe users of the Internet and other communication technologies. We aim to provide a curriculum which includes education on how to stay safe online and when using other technology. We also offer a safe online environment through filtered internet access. Please refer to the school E-safety, Acceptable Usage and Information Security policies for further details.

Other Documents

Please also refer to the following documents for further and supporting information:

- E-safety policy
- Acceptable Usage policy
- Information Security policy
- KS1 and KS2 National Curriculum Coverage documents
- National Curriculum Level Descriptors for 2014

The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.

(Alvin Toffler discussing rapidly evolving technologies)

(Computing At School: 'Computer Science: A Curriculum for Schools')

Computational thinking influences fields such as biology, chemistry, linguistics, psychology, economics and statistics. It allows us to solve problems, design systems and understand the power and limits of human and machine intelligence. It is a skill that empowers, and that all pupils should be aware of and have some competence in.