Computing Progression of Skills - Long Term Planning

Rationale

Today's young children are growing up in a world in which technology is ever changing and ever evolving. Developing early computing skills is essential in order that children can access this modern world. At Old Town we strive to provide the starting point for the fundamental communication and technological skills they will develop throughout education and life. Computers are now part of everyday life, technology surrounds us and therefore nurturing computing capability is an essential skill for life to enable learners to participate more readily in this rapidly changing world.

In order to equip our children for this, we offer an exposure to a range of technology so that they may adapt to new technologies as they arise. Computing at our school encourages our children to become critical thinkers, problem solvers, inquisitive learners, and allows children to create programs and express themselves in a digitally literate manner.

At Old Town Infant School we want our pupils to be able to thrive as digital citizens, who are confident and competent to use technology positively, responsibly and safely. At the forefront of our teaching of computing is **Online Safety**. We will ensure that each child will be confident in making safe choices when using the internet, keeping personal information private and know where to go for help and support if they are concerned about anything they might encounter online. Online safety is covered explicitly in specific e-safety lessons but also revisited and reinforced within many other opportunities across the curriculum.

We aim to provide an exciting and engaging Computing curriculum that is accessible to all children. Computing teaching at Old Town is delivered through explicit lessons in KS1. Knowledge and skills are revisited across the whole year to embed key learning, linking particularly with literacy, maths, science and design and technology. We believe it is important our children are able to use computing skills to access learning across the curriculum.

Our curriculum aims for children to leave school with an understanding of the following concepts, which we believe underpin the subject of computing**.**

1) That programs are written to perform tasks (Computer Science)

2) That the use of technology has both benefits and risks, and should be used responsibly (Digital Literacy)

3) That software is used to accomplish goals and hardware enables us to do this (Information Technology)

a) Understanding how specific software packages work

b) Understanding the role of hardware and how to use it

	Nursery	Reception	Year 1	Year 2
Information Technology (Using Technology)	- **To explore how things work. (3-4 Year-Olds - UTW)** - To match their developing physical skills to tasks and activities in the setting. (3-4 Year-Olds - PD) - To develop manipulation and control (birth to 3 PD) - To choose the right resources to carry out their own plan 3-4yrs PD	- To know that a desktop/laptop computer has the following parts; screen, mouse, keyboard**.** - To know that there are two main types of keyboard, physical (e.g. desktop computer) and touch screen (e.g. tablet / phone) - To know there are different types of technology, which have different functions - To know that digital devices can be used to take videos, and photos - To know how to switch on an ipad - To know how to open an app - To know that clicking on different icons will cause things to happen in a computer program	- To know that all electronic devices need a power source (mains or battery) - **To know that computers have a limited memory which information can be stored within (saving)** - **To know that there are steps (route) to be followed to save and retrieve created content** - **To know that to retrieve a document you need to know what the file is called, what file type it is and where it was stored** - **To know that a web page is a page of information** - To know that web pages all have different addresses - **To know that a website (is often) a collection of web pages that are linked together** - **To know that email is a way to communicate with people, which sends messages back and forth through the internet. To do this you need an email address for both yourself and person you wish to email.** - To know that real people send messages to one and another on the internet - **To use technology purposefully to create and manipulate digital content.**	- To know that a computer can sometimes be re-booted by turning it off and on again - **To know that there is a sequence of instructions to follow in order to save and retrieve a file and shut a computer down correctly** - To know that a computer needs to be shut down correctly otherwise it will not be able to follow the correct sequence to re-start - **To know that many programs can be closed by clicking on the cross in the top right corner** - To know that some programs have undo and re-do buttons which are generally denoted with forwards and backwards arrows - To know that some digital devices (e.g. printer) can be connected a computer - **To know that created content / files within a computer can be organised into folders, this can make it easier to view and retrieve them** - To know that the size of created content / files is measured in bytes (KB, MB, GB, TB) and the more bytes or content there is, the more memory it will take up - To know that the address of a website takes you to a specific page on the world wide web - **To know that a search engine uses programs that search through pages on websites and return results linked to the keywords entered into it.** - **To use technology purposefully to create, organise and manipulate digital content**

Digital Literacy (Using technology safely)	- To develop their sense of responsibility and membership of a community 3-4yr PSED - To remember rules without needing an adult to remind them. (3-4 Year-Olds - PSED) - **To Increasingly follow rules, understanding why they are important. 3-4yr PSED**	- **To know who to speak to in school if something upsets them at home (identifying safe adults in school)** - **Say how to keep themselves safe online eg talk to trusted adult, don't talk to strangers, don't use my name, not click on unknown things** - **To know trusted adults can help to keep us safe (online and offline)** - **To know to follow the schools online safety rules in order to be safe online/on screens both at school and at home** - To know that too much screen time is not a sensible choice. - To know they should ask permission of the person they are going to take the photo of - To know what a password is and its purpose - Describe ways that some people can be unkind online - To know to not click on things when - you don't know what they are - To know not to speak to strangers - To know to not give out their name online - To know who to go to if something worries me or upsets me online/on a screen - Ask an adult when they want to use the internet - To know that the internet can be used to connect people and help them find out about things	- To know that there is lots of online content that is positive, but this isn't always the case - To know that sometimes there is content online that might make them feel uncomfortable e.g. adverts and pop ups. - **To know that following online rules e.g. 'zip it, block it, flag it' will help them to stay safe on the internet** - To know that their name, school, address, age and gender are pieces of personal information that should not be shared with any one (online) or people that they do not know well (offline) - To know the difference between online and offline - **To know that it is important to be kind and polite to others both offline and online** - To know that every school has a set of rules that are designed to keep pupils safe (acceptable use policy) and that they must follow these rules - To know that the internet is a way in which computers across the world communicate - **To know that some websites are suitable for certain age groups and others are not** - **To know that passwords should not be shared** - To know that using a username and password helps to keep information safe - **To know why some digital devices use passwords**	- **To know that online people aren't always who they say they are** - To know that whilst technology has many benefits, (e.g. including finding information, creating and communicating) electronic devices should be used as part of a balanced lifestyle, for short blocks of time. - To know that although the internet is useful, there are times when other resources are more beneficial - **To know that some applications have pop ups and that these can be closed by using the X in the top right corner.** - To know some pop ups advertise other games / in app purchases and that clicking on these will cost money to the person who holds the account or owns the device - To know that they can also call child line if they have concerns (0800 1111) - **To know that to send an email you need to put the correct email address in the 'to' bar.** - To know that the subject line is a title of the email that recipients can see before they open it. - **To know that information put online leaves a digital footprint or trail.** - **To know that we must think about the information they leave online.** - **To understand more about how 'Zip it block it flag it' can keep us safe online.** - To know the importance of a strong password and what they are

Computer Science (Action leads to an outcome)	- **To notice and correct an error in a repeating pattern** - To show resilience and perseverance in the face of challenge. 3-4yr PSED	- To know that technology can help us - Name technology in their home - **To know there is a range of technology at home and in school** and we select and use technology for particular purposes**.** - To suggest technology for a purpose (ipad /camera) - **To know that pushing a button can cause a reaction (outcome) e.g. mouse button, on/off, icon.** - **To know that pushing a sequence of buttons results in a reaction (outcome) e.g. bee bot, codepillar** - To use technology in school to support learning (games for phonics etc) - To know how to handle technology safely - To be able to give instructions to a program (e.g.beebot)	- **To know that an algorithm is a set of clear instructions** - **To know how to create a sequence of instructions to produce an outcome** - **To know that an algorithm is written to solve a problem or achieve a particular outcome.** - **To know that sometimes algorithms are wrong and need to be 'de-bugged'**	- **To know that instructions need to be in order and written in the correct language in order for the computer to understand them. This is called a program** - **To know that an algorithm's outcomes can be predicted** - To create a simple program. - **To know that debugging involves four steps 1) identify there is a problem (Y1), 2) work out which part of the program is causing it 3) Find a solution and fix it 4) Check it has worked**
Vocabulary	Pattern Photograph Screen Video password	Keyboard, device, mouse, hard drive, screen, touch screen, photograph, recording, video Sequence, icon, click, reaction, instructions, avatar Password, technology, rules, safe	Password, Username Keyboard, device, mouse, hard drive, screen, Log on, Create, Save, File, Backspace, Sequence, icon, reaction, instructions Algorithm, Predict, Debug, program Technology, rules, Safe, Private, personal information,	Keyboard, device, mouse, hard drive, screen, log on, create, save, file, password, backspace, folders, re-do, undo, minimise, kilobyte, megabyte, gigabyte, terabyte, search engine, key words. Sequence, icon, reaction, instructions, algorithm, predict, debug, software, programming, execute Technology, rules, safe, username, private, E-safety, trusted, report, real, reality, in app purchase, minimise, healthy choices, balance, child line

Oracy opportunities (linked to oracy curriculum)	- Identify things they like/dislike and maybe offer a simple reason; - Engage in self-initiated tasks for a short period of time (5 minutes) - Engage in small group tasks led by an adult for a short time (5-10 minutes) - Take on different roles in role-play and begin to adjust their language. - Listen to a simple instruction and respond appropriately.	- Use talk in play to practise new vocabulary. - Offer reasons for their opinions using 'because'. - Engage in self-initiated tasks for a short period of time (10 minutes) - Engage in small group tasks led by an adult (10-15 minutes) - Sit in a whole class input for 10 minutes focused on the teaching - Make relevant contributions and ask questions. - Describe events that have happened to them in detail. - Know that others can have a different view or need to their own – demonstrated by listening to someone else's opinion/view during play or adult-led activity - Speak within a small group.	- Use adverbials of time to organise and sequence ideas, eg: firstly, next, then - Use appropriate vocabulary that is specific to the topic at hand. - Maintain focus on an adult-led task independently for 10-15 minutes. - End a task at a given time. - Recognise when they haven't understood something and ask a question to help clarify. - Explain ideas and events in logical or chronological order. - Share own opinions and ideas in response to a question in front of the class. - Listen to others and be willing to listen to and understand their opinions	- Use word banks provided by my teacher to try out new language with accuracy. - Complete tasks with urgency to ensure they are finished in an agreed time frame. - Ask questions to find out more about a subject. - Listen to multiple people within a group conversation and respond appropriately. - Navigate waiting for a turn in a larger group and also ensure others have time to talk.

Links to Vision and Values	Respect:  • We can let a grown up know if someone has been unkind. DL • We can let a grown up know if something has gone wrong. DL • We do not call people names or say unkind things to others. DL • **We take turns and share.** • We can wait for our turn. • We try to look after everything in our school. • We sit quietly and listen to others when they are speaking without interrupting. • We understand someone's view may be different to our own. DL • We are considerate of how other people may be feeling and will always be kind to them. DL • We are polite. DL • We help our friends if they get stuck	Resilience:  • **We always try our best and are ambitious with our learning.** • We are confident to give a new activity a try – even if we are not sure that we will be successful straight away. • **We persevere when things are difficult.** • **We don't give up easily.** • **We know what to do when we are stuck and keep a positive, 'can-do' mindset.** • We keep going and try different ways to solve the problem. • We know to ask an adult for help. • We can be patient and keep on trying to solve a problem. • We listen carefully to our adults as this helps us with our learning. • We regularly talk about things we have already learnt to make sure that we do not forget key knowledge. • We know that by practising our skills, we can get better. • We know that it is ok to make mistakes and our mistakes help us learn.	Independence:  • **We try to do things for ourselves** • We don't automatically ask others to do things for us without giving it a try ourselves first. • We know who we can turn to for help. • **We can improve and learn from mistakes.** • We are learning to listen carefully when a grown up tells us what we have done well and how we can improve our work. • **We can ask questions to help us learn.** • **We know that we can learn from others around us – both grown-ups and our friends.** • We will not be unkind or laugh at anyone who needs or asks for help – we will always be supportive. • **We take responsibility for our own decisions.** • **We encourage and celebrate everyone's individuality.** • We do not say anything unkind to anyone who is different to us or has a different point of view. DL	Curiosity:  • **We love learning about new things.** • We like to 'wonder' and think about things beyond what we already know • We like to experience the joy of finding out about new things • **We can ask great questions to develop our understanding.** • **We can wonder 'why'?** • **We want to find out more.** • We like being challenged to think harder • We are eager to find things out beyond what we have already been told • We remember that sometimes there isn't just one 'right' answer • **We explore, investigate and seek answers for ourselves**. • We are not afraid to think differently, or have a different opinion, to others

OTIS Computing Cultural Capital offer includes:

- At Old Town, Cultural Capital is seen in the way we incorporate our school values of Respect, Resilience, Curiosity and Independence into all our areas of learning.
- We aim to foster children's curiosity and fascination with technology.
- A clear Online safety focus allows us to incorporate many of our values, particularly respect. Good moral values are explored when using digital technology, including mobile devices regarding online safety.
- Children's self-esteem is promoted through presentation of their work.
- Children are encouraged to help each other in problem solving, developing empathy and collaborative skills
- By the end of their Old Town journey, we want children to be confident and clear communicators

EYFS

- Children will be able to explore technology in a safe and often child-led way developing a familiarity with equipment and vocabulary allowing them to have a strong start in Key Stage 1 computing and all that it demands.
- Computing in EYFS is centred around play-based, unplugged activities that focus on building pupils' listening skills, curiosity, creativity and problem solving.
- Children will take photos with a camera or tablet, play games on the interactive whiteboard or on iPads, watch video clips and listen to music

Key Stage 1

- Opportunities are provided for pupils to identify technology and how its responsible use improves our world in school and beyond.
- Children will create media by digitally painting, writing and creating musical compositions. There are frequent opportunities for problem solving

- All classrooms display an Online Safety poster and this is also outside on the playground.
- A progressive computing vocabulary is delivered across the school.
- Significant people - Computing pioneers are embedded across the curriculum eg added to the history timeline is each class
- Virtual visits and tours in cross curricular topics – zoo, museums, theatre shows
- Social media channels used to keep parents up to date with events in school and reaching the wider community.

Enhancement days and assemblies–

- Safer Internet Day – class activities based around real life scenarios and assemblies to guide them to be responsible digital users.
- PSED lessons and assemblies – particularly Jigsaw Celebrating Differences and Relationships
- Anti-Bullying Week – considering safe and respectful use of technology.