



Computing – Year 6 – Medium Term Plan
Autumn 1, Unit 1: Intro to Python and Online safety



Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One: Tinkering with Logo	To tinker with a new piece of software.	<ul style="list-style-type: none"> - I can predict what I think something new will do. - I can explore something independently. - I can explain what I found. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - code - command - instructions - loop - pattern 	<ul style="list-style-type: none"> - Devices with internet access. - Whiteboard and pens. - Turtle Academy Link.
Two: Nested loops	To understand nested loops.	<ul style="list-style-type: none"> - I can explain what a loop is. - I can understand why we use loops. - I can explain how a nested loop works. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - nested loop - repeat - shape 	<ul style="list-style-type: none"> - Devices with internet access. - Turtle Academy Link.
Three: Using Python	To understand basic Python commands.	<ul style="list-style-type: none"> - I can decompose a picture. - I can 'remix' a project by tinkering. - I can choose Python commands for a purpose. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - input - import 	<ul style="list-style-type: none"> - Whiteboards and pens. - Devices with internet access. - Trinket Link. - Trinket base code.
Four: Using loops in Python	To use loops when programming.	<ul style="list-style-type: none"> - I can explain what a loop is. - I can suggest an appropriate place to use a loop. - I can use the syntax for a loop. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - design - indentation 	<ul style="list-style-type: none"> - Whiteboards and pens. - Devices with internet access. - Trinket Link. - Trinket base code. - Trinket Decagon

					repeated pattern
One: Life online	To describe online issues that give us negative feelings and know how to get help.	<ul style="list-style-type: none"> - I can describe scenarios that could make someone feel sad, worried, uncomfortable or frightened. - I can give examples of how to get help online and offline. - I can explain the importance of asking for help. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<ul style="list-style-type: none"> - block - online - privacy settings - report 	<ul style="list-style-type: none"> - Computers. - Whiteboards and pens. - Scissors. - BBC own it link.
Two: Sharing online	To explore the impact and consequences of sharing online.	<ul style="list-style-type: none"> - I can describe how to be kind and show respect for others online. - I can identify the risks of sharing things online, even if they are sent privately. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<ul style="list-style-type: none"> - consent - inappropriate - privacy settings - private - respect - screenshot - selfie 	<ul style="list-style-type: none"> - Whiteboards and pens. - Scissors. - BBC own it – check your selfie link. - BBC own it link – someone posted my image.
Four: Capturing evidence	To describe how to capture bullying content as evidence	<ul style="list-style-type: none"> - I can identify a range of strategies to collect evidence. - I can describe who to share evidence with to help me. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<ul style="list-style-type: none"> - block - copy - online bullying - paste - report - screen grab - URL 	<ul style="list-style-type: none"> - Whiteboards and pens. - Computers. - BBC own it- why people bully link. - BBC own it- Are you a bystander link?
Six: Think before you click	To be aware of strategies that help protect people online.	<ul style="list-style-type: none"> - I can describe simple ways to increase my privacy settings. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a 	<ul style="list-style-type: none"> - antivirus - financial information - malware 	<ul style="list-style-type: none"> - Whiteboards and pens. - A3 paper.

		<ul style="list-style-type: none"> - I can explain why I should keep my software updated. - I can describe strategies to identify scams. 	range of ways to report concerns about content and contact.	<ul style="list-style-type: none"> - personal information - phishing - reliable source - scammers - software updates 	<ul style="list-style-type: none"> - Colouring pencils. - Computers. - BBC own it – think before you click link.
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Assessment:

Python is used to teach computers how to think for themselves. What is this called?

Which of these is a computer coding program?

What is a word for creating a sequence of instructions that, when followed, solve a problem?

Which one of these is another programming language?

What does 'anonymity' mean?

What does 'URL' stand for?

What do we call a security system that requires two separate ways of identifying a user before granting access?

What do we call software that searches for known threats to a computer device?

What is a 'digital footprint'?



Computing – Year 6 – Medium Term Plan
Spring 1, Unit 2: Computing and networks systems (Bletchley park) and History of computers

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
Computing systems – Bletchley Park One: Secret codes	To understand there are many different types of secret codes.	<ul style="list-style-type: none"> - I can explain why codes might be valuable. - I can identify some common secret codes. - I can decipher some secret codes. - I can write a message using a secret code. 	Pupils should be taught to: <ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. 	<ul style="list-style-type: none"> - acrostic code - Caesar cipher - cipher - data shift cipher - Nth letter cipher - pigpen cipher - scrambled - secret 	<ul style="list-style-type: none"> - Whiteboards and pens.
Two: Brute force hacking	To understand the importance of having a secure password.	<ul style="list-style-type: none"> - I can describe what is meant by brute force hacking - I can understand why it is important to have a secure password. - I can explain why a longer password is more secure than a short one. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. - 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. 	<ul style="list-style-type: none"> - brute force hacking - chip and PIN - combination password - secure - trial and error 	<ul style="list-style-type: none"> - Digital devices. - Link – scratch Brute force emulator.

<p>Three: Bletchley Park</p>	<p>To understand the importance of Bletchley Park to the World War II war effort.</p>	<ul style="list-style-type: none"> - I can understand that Bletchley Park was important during WWII. - I can explain what the first computer was built for. - I can create an information poster about Bletchley Park. 	<p>Pupils should be taught that:</p> <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - brute force hacking - cipher - encrypt - invention - secure - technological advancement - trial and error 	<ul style="list-style-type: none"> - Whiteboards and pens. - Digital devices. - Microsoft resources. - Google resources.
<p>History of computers</p> <p>Three: First Computers</p>	<p>To understand how computers have changed and the impact this has had on the modern world.</p>	<ul style="list-style-type: none"> - I can identify how computers have evolved over time. - I understand that computers are everywhere in modern life. - I can recognise some of the earliest computers and how they impacted the modern world. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - byte - computer - gigabytes - graphics - kilobytes - megabytes - terrabyte 	<ul style="list-style-type: none"> - <i>Whiteboards and pens.</i> - <i>Devices</i> - <i>Link- Frogger classic game</i>
<p>Four: Computers that changed the world</p>	<p>To research one of the computers that changed the world and present information about it to the class.</p>	<ul style="list-style-type: none"> - I can present information about one device that changed the world. - I can research information carefully. - I can recognise whether the 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - computer - device - memory - storage 	<ul style="list-style-type: none"> - <i>Whiteboards and pens (one each).</i> - <i>Equipment for the Colossus teacher demonstration (see Attention grabber):</i>

		<p>information is reliable.</p> <ul style="list-style-type: none"> - I can cite and record sources found on the internet. 	<p>accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>		<ul style="list-style-type: none"> - <i>a large space (e.g. a hall or playground);</i> - <i>1 metre stick;</i> - <i>1 smartphone.</i> - <i>Devices (one between two).</i>
<p>Five: Future computer</p>	<p>To design a computer of the future.</p>	<ul style="list-style-type: none"> - I can recognise the components of a computer and why they are important. - I can identify how computers have evolved over time. - I can use my understanding of historic computers to design a computer of the future. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - CPU - GPU - hard drive - mouse - operating system - RAM - ROM - touch screen - trackpad 	<ul style="list-style-type: none"> - <i>Devices (one between two).</i> - <i>Paper (optional – see Main event).</i>

Assessment:

What was the name of the computer constructed by codebreakers at Bletchley Park?

Which one of these is another word for information written in a secret way?

What is the name of a type of code where the first letter of each word, line or paragraph when put together spells a message?

What does trial and error mean?

Which one of these is a famous historical figure in computing?

What is it called when a hacker tries different methods to crack entry into secured information?



**Computing – Year 6 – Medium Term Plan
Summer 1, Unit 3: Data Handling**



Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One: Barcodes	To identify how barcodes and QR codes work.	<ul style="list-style-type: none"> - I can identify and collect data from QR codes. - I can recall how the data contained within barcodes and QR codes can be used by computers. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - barcode - QR code - QR scanner 	<ul style="list-style-type: none"> - Access to a device that can read QR codes via a camera, app or browser extension. - Whiteboards and pens. - Clipboards.
Three: RFID	To recognise how RFID is used.	<ul style="list-style-type: none"> - I can identify how RFID can be used to transmit data. - I can recall that encoding keeps data safe. - I can type formulas into cells using a spreadsheet. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - barcodes - chip - encrypt - infrared - QR codes - radio waves - RFID - wireless 	<ul style="list-style-type: none"> - Access to a device with spreadsheet software. - Link- What Is RFID.
Four: Using RFID	To input and analyse real-world data.	<ul style="list-style-type: none"> - I can recognise further uses of RFID. - I can input and present data in a spreadsheet. - I can make conclusions from a data source. 	Pupils should be taught to: <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - column - data - input - RFID - row - spreadsheet 	<ul style="list-style-type: none"> - Whiteboards and pens. - Access to device with spreadsheet software.
Five: Transport data	To analyse and evaluate data.	<ul style="list-style-type: none"> - I can recall how RFID is used in data transfer. - I can identify how RFID helps to solve 	Pupils should be taught to: <ul style="list-style-type: none"> - 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, 	<ul style="list-style-type: none"> - algorithm - brand - commuter - contactless 	<ul style="list-style-type: none"> - Access to a device with spreadsheet software, e.g. Excel, Numbers

		<p>real-world data challenges.</p> <ul style="list-style-type: none"> - I can sort and compare data within a spreadsheet. 	<p>analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - systems analyst 	<p>or Google Sheets (one between two).</p> <ul style="list-style-type: none"> - Link- Contactless payment for travel.
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Assessment:

What is the name for the red section of the electromagnetic spectrum which can transmit small amounts of data?

Which of these can you not do with infrared waves?

Which one of these words refers to 'a machine-readable code of lines and numbers'?

What does 'NFC' stand for?

What word describes someone who travels between places on a frequent basis, e.g. from work to home?

What does 'QR code' stand for?

What is the right to keep information private sometimes called?

What is RFID (Radio Frequency Identification)?

What do we call a person who manages, sorts, analyses and models data?

Why is data collection and analysis so important? Are there any negatives?