Castercliff Primary Academy – Year 5 Computing Progression.

<table>
<tr><th>Yr 5</th><th colspan="2"></th></tr>
<tr><td rowspan="3">Computing systems and networks</td><td colspan="2">Computing Science</td><td rowspan="3">Sticky Knowledge (inc. Online Safety)
To know how search engines work.
To understand that anyone can create a website and therefore we should take steps to check the validity of websites.
To know that web crawlers are computer programs that crawl through the internet.
To understand what copyright is.</td></tr>
<tr><td colspan="2">Information Technology
Developing searching skills to help find relevant information on the internet.
Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.
Learn about different forms of communication that have developed with the use of technology.</td></tr>
<tr><td>Digital Literacy
Recognising that information on the Internet might not be true or correct and learning ways of checking validity</td><td>Online Safety
To know different ways we can communicate online.</td></tr>
<tr><td rowspan="3">Programming 1</td><td colspan="2">Computing Science
Predicting how software will work based on previous experience.
Writing more complex algorithms for a purpose.
Iterating and developing their programming as they work.
Confidently using loops in their programming.
Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.
Writing code to create a desired effect.
Using a range of programming commands.
Using repetition within a program.
Amending code within a live scenario.</td><td rowspan="3">Sticky Knowledge (inc. Online Safety)
To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.
To understand that using loops can make the process of writing music simpler and more effective.
To know how to adapt their music while performing.</td></tr>
<tr><td colspan="2">Information Technology
Using logical thinking to explore software more independently, making predictions based on their previous experience.
Using a software programme (Sonic Pi/Scratch) to create music.
Identify ways to improve and edit programs, videos, images etc.</td></tr>
<tr><td>Digital Literacy</td><td>Online Safety</td></tr>
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		To understand how online information can be used to form judgements.	
Data handling	**Computing Science** Learning that external devices can be programmed by a separate computer. Recognising how the size of RAM affects the processing of data. Learning the vocabulary associated with data: data and transmit. Recognising that computers transfer data in binary and understanding simple binary addition. Relating binary signals (Boolean) to the simple character-based language, ASCII. Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.		**Sticky Knowledge (inc. Online Safety)** To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. To know what numbers using binary code look like and be able to identify how messages can be sent in this format. To understand that RAM is Random Access Memory and acts as the computer's working memory. To know what simple operations can be used to calculate bit patterns.
	Information Technology Understanding how data is collected in remote or dangerous places. Understanding how data might be used to tell us about a location. Learn about different forms of communication that have developed with the use of technology.		
	Digital Literacy	**Online Safety** To understand some ways to deal with online bullying	
Programming 2	**Computing Science** Decomposing a programme without support Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose. Programming in animation Iterating and developing their programming as they work. Confidently using loops in their programming. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Writing code to create a desired effect. Using a range of programming commands.		**Sticky Knowledge (inc. Online Safety)** To know that a Micro:bit is a programmable device. To know that Micro:bit uses a block coding language similar to Scratch. To understand and recognise coding structures including variables. To know what techniques to use to create a program for a specific purpose (including decomposition).

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<table>
<tr><td rowspan="3"></td><td colspan="2">Using repetition within a program.</td><td rowspan="3"></td></tr>
<tr><td colspan="2">Information Technology
Using logical thinking to explore software more independently, making predictions based on their previous experience.
Identify ways to improve and edit programs, videos, images etc</td></tr>
<tr><td>Digital Literacy</td><td>Online Safety
To know that apps require permission to access private information and that you can alter the permissions.</td></tr>
<tr><td rowspan="3">Creating media</td><td colspan="2">Computing Science
Decomposing animations into a series of images.
Decomposing a story to be able to plan a program to tell a story.</td><td rowspan="3">Sticky Knowledge (inc. Online Safety)</td></tr>
<tr><td colspan="2">Information Technology
Using video editing software to animate.</td></tr>
<tr><td>Digital Literacy</td><td>Online Safety
To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.</td></tr>
<tr><td rowspan="2">Skills showcase</td><td colspan="2">Computing Science
Learning the difference between ROM and RAM.
Recognising how the size of RAM affects the processing of data
Understanding the fetch, decode, execute cycle.
Learning how the data for digital images can be compressed.
Recognising that computers transfer data in binary and understanding simple binary addition.
Understanding how bit patterns represent images as pixels.</td><td rowspan="2">Sticky Knowledge (inc. Online Safety)
To understand that bit patterns represent images as pixels.
To understand that the data for digital images can be compressed.
To know the difference between ROM and RAM.
To understand various techniques that will improve the design of a 3D object (using CAD software).</td></tr>
<tr><td colspan="2">Information Technology
Using logical thinking to explore software more independently, making predictions based on their previous experience.
Independently learning how to use 3D design software package TinkerCAD.</td></tr>
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	Learn about different forms of communication that have developed with the use of technology.		
	Digital Literacy	**Online Safety** Recapping on-line safety – Year 5	