Knowledge Progression for Computer Science and Computational Thinking Year 4

Year 3

Write a program in Block Code to create an animation

Put the blocks of their Block Code script into order

Correct mistakes in their coded animation programs

Create their own sound and graphics for the sprites and the backdrop

Explain the connection between a storyboard and a scene they are animating

Year 4

Design /develop an interactive game and/ or an on screen toy

Put Code blocks into the right order for their game

Use the *if/then/else* block correctly

Keep track of random numbers and the score (variables)

Integrate sound into their game

Correct mistakes in their game

Year 5

Create or select music for use in their coded game

Use selection and repetition in their coded game

Correct errors in their game

Improve their game on the basis of the feedback they receive

Add instructions to their game

Compare and contrast Morse and semaphore with the internet

Explain the algorithm for the Caesar cipher

Decrypt messages using a general substitution cipher with an unknown key using frequency analysis

Vocabulary

Selection

Repetition

Variable

Algorithm

Debug

Random

Interactive

Script

Knowledge Progression for

Digital Literacy and Online Safety

Year 4

Year 3

Can give some examples of things they should or should not do when using digital technology in a range of contexts

Can use email responsibly to communicate with a classmate or as part of class project.

When given a list of web pages, the child can decide which they think will be most useful for their purpose or to answer a question they have.

Begin to understand that information shared online cannot always be controlled

Develop a deeper understanding of the consequences of online bullying

Understand the role of a bystander in online bullying

Year 4

Can demonstrate that they can act responsibly when using technology: when developing computer games or prototype products or when using sampled music or creating a composition (including observing copyright and any terms and conditions).

Can contribute positively to a shared blog or wiki

Understand that online and peer pressure can be a positive and negative influence

Understand that although information posted on the internet might not always be true or accurate, it lasts forever.

Understand that virtual friends are still strangers that they do not know

Year 5

Appreciate the importance of using encryption to keep information private and the need for strong passwords and https: to protect their identity.

Can act responsibly when creating web pages or writing blog posts.

Can understand the difference between acceptable and unacceptable behaviour when using digital technology.

Recognise that online behaviour can have real life negative effects on other people.

Vocabulary

Influence

Copyright

Wikipedia

Blog

Report

Collaboration

Online bullying

Virtual Friends

Digital footprint

Knowledge Progression for Information Technology

Year 4

Year 3

Be able to research a topic efficiently

Be able to find appropriate, Creative Commons licensed images using Google

Design and record an effective PowerPoint (or similar) presentation

Analyse existing video/film to learn how this is shot

Record high quality footage

Export the movie from e.g. an animation app or camera roll to a video editing app or software edit clips and films

Record a detailed, informative commentary or narrative

Use email to work together on a joint project

Collect and analyse data collected via the internet

Move information between different applications e.g. add data collected to a chart or graph

Year 4

Create, refine and develop a simple composition using sequencing software

Record and combine samples to produce a piece of music

Find and read an article on Wikipedia

Evaluate an article for trustworthiness

Create content for a wiki /blog

Edit their own and others content

Edit the HTML for a web page

Use weather measurement equipment safely

Enter data into a spreadsheet to create simple charts

Make predictions and present findings using presentation software

Year 5

Create a tessellating pattern using simple and complex shapes with computer software or a website tool

Use repetition in a coding program to draw more complex geometric figures

Create a pattern using repeating, varied shapes

Can explain how a search engine creates an index from a cached copy of the web and uses this to select and rank results.

Create, and comment on blog posts

Add an image, audio or video to a blog post or web page they have created

Create complex, compound objects using SketchUp or other 3d Software application

Vocabulary

Samples

Composition

Wikipedia

Evaluate

Collaboration

HTML

Blog

Spreadsheet

Predictions