

LKS2

COMPUTING KNOWLEDGE ORGANISER

Cycle A



KEY SKILLS IN LKS2

Year 3

- Describe what a computer is (input > process > output).
- Explain the difference between input and output devices on a computer.
- Know where to save and open files (e.g. in shared folder).
- Save files with appropriate names.
- Use a keyboard effectively to type in text.
- Use left-, right- and double-click on the mouse.
- Add an image to a document from the internet.
- Resize and move an image in a document.
- Use a search engine to find simple information.
- Recognise that school computers are connected (if using PCs).

Year 4

- Recognise that you can organise files using folders.
- Explain what a good file name would look like.
- Delete and move files.
- Use key parts of a keyboard effectively, e.g. shift, arrow keys, delete).
- Know how to copy and paste text or images in a document.
- Crop an image and apply simple filters.
- Use a search engine to find specific information.
- Recognise that school computers are connected

KS2 National Curriculum Objectives

- 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
- 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
 - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable

COMPUTING

COMPUTER SCIENCE

In computer science, you will understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation

You will analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.

INFORMATION TECHNOLOGY

Information technology is about the use of computers for functional purposes, such as collecting and presenting information, or using search technology.

DIGITAL LITERACY

Digital literacy is about the safe and responsible use of technology, including recognising its advantages for collaboration or communication.

What apps will I use?

Google Docs - Word Processing



Google Drawings - Graphics and Publications



Google Slides - Presentation



Google Sheets - Spreadsheets



Google Sites - Web-page creation



Web-Based Applications and Useful Links

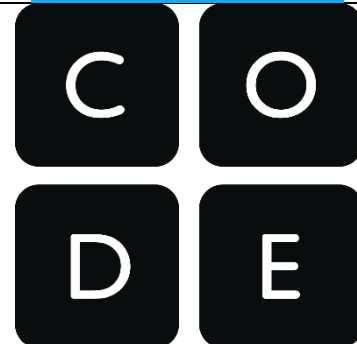
<https://classroom.google.com/>



<https://scratch.mit.edu/>



<https://code.org/>



<https://makecode.microbit.org/>



<https://www.j2e.com/jit5>



<https://www.tinkercad.com/>



Computer Science

Command - a single instruction that can be used in a program to control a computer

Loops - (count-controlled, condition-controlled, or infinite) Commands that repeatedly run a defined section of code

Program - a set of ordered commands that can be run by a computer to complete a task

Repetition - part of a program where one or more commands are run multiple times in a loop

Scratch - programming application

Sequence - sequence means arranging instructions for algorithms and programs in a particular order

Information Technology Digital Literacy

Animation - animation is a method in which figures are manipulated to appear as moving images

Clone - creating an exact copy of another application program or object

Copy - copying a piece of data or information in order to place it somewhere else on a document

Crop - when you crop an image or photo, you remove part of the image.

Digital Device - a computer or a device with a computer inside that has been programmed for a specific task

Export - to convert a file into another format than the one it is currently in

Filters - changes the appearance of an image or part of an image by altering the shades and colours of the pixels

Flip - a feature that allows you to turn an image horizontal or vertical

Input - data that is sent to a program to be processed

Network - a group of interconnected computing devices

Output - the result of data processed by a computer

Paste - taking data (a word, phrase or image) from one part of a document and placing it somewhere else

Process - a program, or part of a program, that is running on a computer

Rotate - turn an image clockwise/anti-clockwise

What should pupils already know?

Computer Science

KS1

Moving a robot - Writing short algorithms and programs for floor robots, and predicting program outcomes.

Robot algorithms - Creating and debugging programs, and using logical reasoning to make predictions.

Programming animations - Designing and programming the movement of a character on screen to tell stories

Information Technology

KS1

Technology around us - Recognising technology in school and using it responsibly

Information technology around us - Identifying IT and how its responsible use improves our world in school and beyond.

Digital painting - Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.

Digital writing - Using a computer to create and format text, before comparing to writing non-digitally

Making music - Using a computer as a tool to explore rhythms and melodies, before creating a musical composition

Digital photography - Capturing and changing digital photographs for different purposes

Grouping data - Exploring object labels, then using them to sort and group objects by properties.

Unit	Assessment Opportunity
Systems and networks- Connecting Computers	Summative Assessment - https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers
Programming- Sequence in music	<p>This unit explores the concept of sequencing in programming through Scratch. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. Learners also apply stages of program design through this unit. Children working at Expected will have to meet the following learning objectives:</p> <ul style="list-style-type: none"> • Describe the purpose of the project, for example, to create sounds when keys are pressed • Choose a name that describes the action of the sprite <ul style="list-style-type: none"> • Choose relevant backdrops and costumes • Create an algorithm for each sprite • Adapt their code for additional named sprites • Run their code and identify if it meets the requirements of the task • Evaluate how successful they were in meeting the task requirements

Programming- Repetition	<p>Children to create a final project that demonstrates their knowledge and understanding of repetition.</p> <ul style="list-style-type: none">- Create a dance party explaining how sprites are programmed using repetition- What does repetition look like?
Creating media- photo editing	<p>Children will take a number of pictures throughout the project. In order to assess, children will review, edit and evaluate a final publication.</p> <ul style="list-style-type: none">• Explain the key requirements of the task• Identify the types of image needed in relation to their chosen theme• Outline how the images will be used together• Suggest colours and effects that might suit their scene• Select images and combine them into one• Use a range of tools to create their image• Add relevant text to their publication• Evaluate how successful they were in meeting the task requirements
Creating media- stop-frame animation	<p>Children will create a final project using stop-frame animation software. This can relate to the topic.</p>

Children working at Expected will need to meet the following learning objectives:

- Explain the key requirements of the task
- Storyboard has a clear beginning, middle, and end
 - Movement is smooth
- The animation follows the storyboard
 - Make some improvements
 - Add some additional media
- Evaluate how successful they were in meeting the task requirements

Unit Overview	Children EXS
Systems and networks- The Internet	
Programming- events and actions	
Data and Information - Branching database	
Programming - Repetition	
Creating Media - Desktop publishing	