

ICT– Programming A Variables in games

Year 6

Previous knowledge

Ways that digital images can be edited.	Tools I can use to edit digital images.	How to search, save and use digital images.	How to cite an image owner in my work.	How to identify fake images.
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Key Vocabulary

variable	A named piece of data (often a number or text) stored in a computer's memory, which can be accessed and changed by a computer program.	sprite	Sprites are the images on a Scratch computer program screen.
program	A set of ordered commands that can be run by a computer to complete a task.	code	The commands that a computer can run.
algorithm	A precise set of ordered steps that can be followed by a human or a computer to achieve a task.	debugging	The process of finding and correcting errors in a program.

Key Knowledge

A variable is a named piece of data stored in a computer's memory.	Variables can hold letters or numbers. A variable can hold only one value at a time.	A variable can be set and changed throughout the running of a program. Variables have names and values. The value of a variable can be changed.	Scratch is a free programming language and online community where you can create your own interactive stories, games, and animations.
Events in a program can be used to set a variable.	Change blocks can be used to change variables in a program.	Code can be tested by running a program. Errors can be rectified by debugging.	Games can be extended by adding further variables.

Next steps

To use spreadsheets to answer questions.	To format spreadsheets.	To create formula in spreadsheets.	To spot mistakes in a formula.	To use spreadsheets to present data.
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ICT- Data and Information Spreadsheets

Year 6

Previous knowledge

That data can be used to answer questions.	That a database is a large quantity of indexed digital information.	What data needs to be collected to answer a specific question.	Information can be presented in different ways.	How to save, open and print work independently.
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Key Vocabulary

data	Information words, numbers, images, sounds	formula	A formula is an expression telling the computer what mathematical operation to perform upon a specific value
data set	A collection of related data that can be manipulated by a computer	cell	A cell is the intersection where a row and a column meet. On a spreadsheet that starts with cell A1
spreadsheet	A computer application that allows users to organise, analyse and store data in a table.	asterisk *	Spreadsheets don't understand x as multiply. Instead, they use *
input	Information or data sent to a computer for processing is considered input	output	Any information that is processed by and sent out from a computer or other electronic device is output

Key Knowledge

Organising data is an important aspect of data and information. It supports the use of calculations and provides the opportunity to use sorting and filtering, which enables ease of use and reduces human error.	Data headings must be used on a spreadsheet so that users know what the data represents.	Cells with letters and numbers cannot be calculated. Spreadsheets should be formatted so that the correct type of data is stored in each cell.	A spreadsheet has columns and rows. Each box is a cell. Each cell has a unique reference which helps users to say where a particular piece of information is held.
A formula tells a computer which mathematical operation to use for a calculation- x + - ÷ It also tells the computer which piece of data to use within the calculation.	Formulas can easily be duplicated into many cells. Changing the input will change the output of the calculation.	Spreadsheets can be used to answer questions.	Spreadsheets can be used to produce graphs which show the answer to a question.

Next steps

To know what a micro:bit is	To use if, else statements	To represent a decision in my programming	To debug my code	To isolate sections of code.
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ICT- Programming B Sensing movement

Year 6

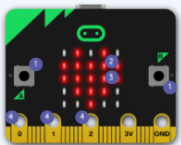

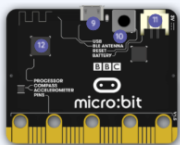
Previous knowledge

Ways that digital images can be edited.	Tools I can use to edit digital images.	How to search, save and use digital images.	How to cite an image owner in my work.	How to identify fake images.
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Key Vocabulary

micro:bit	An input output device that can be programmed. It is a tiny computer.	accelerometer	A sensor that detects movement.
emulator	A simulation of a physical micro;/bit where code can be tested.	hardware	The BBC micro:bit device itself and all the bits that make it up including the board, processors, sensors, pins, power supply and display.
output	Data that a computer sends.	Micro USB	A small and thin USB connector that is used to power the micro:bit from your computer. Mobile devices often use this connector, but make sure that the micro USB lead you are using is able to transfer data as well as power.
flashing	Transferring the program you have created to the micro:bit by usb cable.	input	Data that a computer receives.

Key Knowledge

<p>Parts of a micro:bit — front</p> <ul style="list-style-type: none"> ① Buttons Press these to make things happen ② LED display Show pictures, words, and numbers ③ Light sensor Measure how much light is falling on the micro:bit ④ Input and output pins Connect other devices to the micro:bit 	<p>Parts of a micro:bit — rear</p> <ul style="list-style-type: none"> ① Temperature sensor Measure how warm the environment is ② Compass Find out which direction the device is facing ③ Accelerometer Detects movement ④ Radio: communication i/o Communicate with micro:bits and other devices 	<p>Parts of a micro:bit — rear</p> <ul style="list-style-type: none"> ① USB port Connect your micro:bit to a computer using a micro USB lead ② Reset button Use this to restart a program ③ Battery socket Connect two AAA batteries to power your micro:bit away from a computer ④ Processor The 'brain' of the device which carries out your instructions 	<p>A micro:bit is a pocket-sized computer. It has an LED light display, buttons, sensors and many input/output features that, when programmed, let it interact with us and our world.</p>
<p>A micro:bit will only run code that has been downloaded. If the code is changed on the editor, it must be downloaded again to the device.</p>	<p>In programming, decisions are represented as if, then, else statements.</p>	<p>Two if then statements can be combined into one if, then, else, if statement.</p>	<p>Code can be debugged more efficiently by isolating and substituting code blocks.</p>

Next steps

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ICT- Computing Systems and networks

Year 6

Prior knowledge

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Key Vocabulary

address bar	The place where the address of a website is displayed.	index	The collection of webpages that a search engine scans.	ranking	The order in which pages are displayed in an internet search
communication	The imparting or exchanging of information by speaking, writing, or using some other medium.	URL	Uniform Resource Locator: a nickname (address) for a website. When you are viewing a page on the World Wide Web, it is the long address that appears in the address bar at the top of your browser.	selection	The webpages a search engine displays.
search bar	The space where you type in your search term on Google, Bing, Yahoo etc	bot	An automatic program which searches the internet for a search engine.	web crawler	Web crawlers move between web pages via links. They build up a search engine's index by taking copies of the pages they visit.
omibox	The address bar in a browser.	crawler	They 'crawl' websites for searchable content and store where it is found in an index.	search engine	programs that search an index of the world wide web for keywords and display the results in order

Key Knowledge

Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine are examples of different search engines.	To search effectively use specific key words and " " or -	Each search engine will produce unique results because of its own search algorithms(rules)	Search engines use bots (autonomous programs) which crawl through websites looking for information. These are called web crawlers.	Search results can be influenced by the search term used by the user, the choice of search engine and the setting they have chosen.	Search results can be influenced by the search engine's web crawler's rules, the adverts and sponsored results and the settings available.
Search results can be influenced by the content creators' terms, text and images used as well as the links in and out of a page.	The page rank influences the order in which search results are shown. It is affected by the name of the site, the presence of the search term on the site, the number of links to a site.	Companies pay search engines for their links to come up first in internet searches. This is how search engines make money.	Email and Whats App are private, two-way methods of communication. You have to be 13 to use WhatsApp.	The index of web pages is created by each search engine's web crawler. The index helps us find the result we want quickly.	When sharing information electronically, you must have people's permission and must share information in the safest way.

Next steps

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ICT- Creating media- 3D modelling Year 6

Previous knowledge

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Key Vocabulary

3D modelling	Using a computer to create and manipulate three-dimensional (3D) objects.	duplicate	A duplicate is anything that is an exact copy of another thing
Tinkercad	A free easy to use CAD software that works in a web browser.	align	Describes how text or objects are placed on the screen.
CAD	Computer aided design (CAD) is the use of computer software to design new products in 3D	group	A way of locking objects together so that they can be moved as one.

Key Knowledge

3D modelling is used in video games, movies and animations, in interior design and architecture and 3D printing.	3D objects can be resized in different ways.	They can be moved- including overlapped- rotated, resized, deleted, grouped, changed colour, copied and pasted, zoomed in and out.	Duplicating 3D objects or models helps us make changes to existing models, saves time when similar 3D models are needed and allows us to print multiple copies of the same object.
3D objects can be used as placeholders to create holes in other objects.	Grouping 3D objects helps us make the same change to many 3D objects at once.	Grouping means all 3D objects have to be the same colour.	Tinkercad allows us to create 3D models.

Next steps

A website is a collection of information relating to a particular topic that can be accessed on a range of devices	Websites are made up of code called Hypertext Markup Language	Copyright law protects the control you have over the things you create	Fair use allows us to use part of the work as long as you don't make money from it and credit the owner	Breadcrumb trails or navigation paths allow users to keep track of where they have been on the website or how it is structured.
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