



Computing: Coding: 2: Summer

National Curriculum Objectives

Understand what algorithms are; how they are implemented as programmes on digital devices; and that programs execute by following precise and unambiguous instructions

Create and debug simple programs

Use logical reasoning to predict the behaviour of simple programs

Prior Learning

In Year 1:

We used blocks to code, and understood objects, actions and events

Future Learning

In Year 2:

Using 2Code to understand algorithms, introduce sequencing, use timers and debug

In Year 3:

We develop coding skills using 2Code (use flow charts in 2Chart, use times, introduce repetition and test and debug)

Key Questions

What is an algorithm? And why is it useful in coding? Step by step set of instructions used to solve a problem or achieve an objective

If you are good at coding, you don't need to bug? Is tis true? All coders need to debug

Why is it important to know there are different object types? They do different actions

Substantive Knowledge (key facts, dates and concepts)

In computing, a set of instructions is known as an algorithm. Steps in an algorithm must be followed to achieve the intended outcome

The collision detection event is a way to cause an action when two objects collide with each other

Programs follow a sequence of instructions (commands) in order

Timer commands can be used to make parts of the program run after a set time

Different object types in 2Code have different attributes that can be changed

Event commands in 2Code are used to create blocks of code that are when an event happens. There are different event command blocks in 2Code

Debugging is the process of testing that a program works as intended

Disciplinary Knowledge (thinking and working like a)

Follow a written algorithm; identify required events, objects and actions from a program algorithm

Identify the collision detect block within the event category blocks; assign to objects within the collision, assign an event for when two objects collide

Run code and see the sequential effect that occurs

Identify the timer command within the control category blocks; use the time after command and se; nest actions within the timer

Use a variety of object types; identify attributes which appear under some objects and not in others; alter attributes of an object

Recognise the event command blocks; use specific event commands for specific objects

Use logical reasoning to identify the source of bugs and attempts to fix them

Knowledge organiser

Key Vocabulary

Action

The way that objects change when programmed to do so. For example, move.

Attribute

A detail about an object in a program. For example, its name, or its size.

Algorithm

A set of instructions in order.

Bug

A problem in a computer program that stops it working the way it was designed.

Button Object

A type of object in 2Code that responds only to click events.

Collision Detection

An event command that detects whether two objects have touched each other.

Program Design

When coding, the program design includes details of the objects, events and actions that the program should include.

Sequence

When a computer program runs commands in order.

Timer

In coding, use a timer command to run a block of commands at regular intervals.

Command

A single instruction in a coding program.

Debug\ Debugging

Fixing code that has errors so that the code will run the way it was designed to.

Event

Something that happens in a program that causes a block of code to be run.

Object

An item in a program that can be given instructions to move or change in some way.

Output

Information that comes out of the computer e.g. sound.

Program

A set of instructions (an algorithm) that tells a computer what to do.

When Clicked

An event command that is triggered when an object is clicked on.

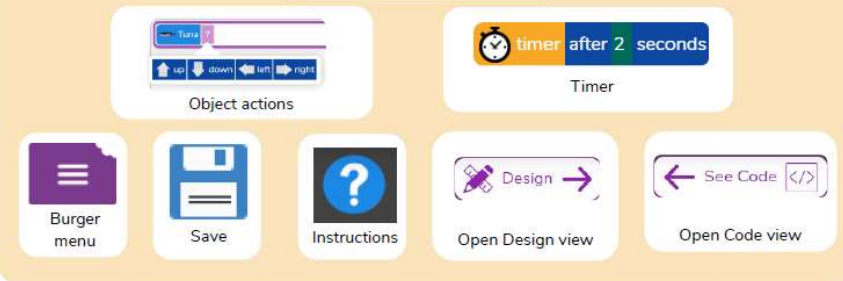
When Key Event

An event triggered when a user presses a particular key on the keyboard.

When Swiped Event

An event triggered when the user swipes a particular area of the screen e.g. the background (touch-screen devices only).

Key Images



Key Resources



Sequence of lessons

1 Sticky Knowledge What does the word “programmer” mean? Which of these images shows a command? (prior learning) Intent To create a computer program using an algorithm	2 Sticky Knowledge What is an algorithm? Which of these shows the algorithm? (last lesson) Which of these object attributes do you see in the code block view? (prior learning) Intent To understand way that the collision detection event can be used in a program	3 Sticky Knowledge What is meant by “collision detection”? Which of these code blocks ins an event block? (last lesson) Which attribute allows you to change the size of an image? (prior learning) Intent To design a program that follows a timed sequence.
4 Sticky Knowledge What is the timer control used for in coding? After how many seconds does the rabbit hide in this code? (Last lesson) Which sentence is true about attributes? (prior learning) Intent To understand that different objects have different attributes (properties)	5 Sticky Knowledge Which is an example of on object attribute? Which if these blocks should be used of you want to use a space bar as an input? (last lesson) What is meant by code view? (prior knowledge) Intent To understand the function of button objects in a program	6 Sticky Knowledge What is a “button” in coding? You can add movement to a button. True or false? (last lesson) What is meant by design view? (prior learning) Intent To understand the importance of testing and debugging.

