



## Burst the bubbles

### Overview

In this lesson children will learn that objects can be programmed to do actions at the start or when they are clicked on, they will learn that start and click are events

### Learning objectives

Learn how to combine start events and click events to make a simple game

### Success Criteria

**ALL** I can write code to make a bubble pop when it is clicked on

**MOST** I can write code to make a bubble move when my app starts, and pop when it is clicked on

**SOME** I can write code to make three bubbles move when my app starts and pop when they are clicked on

### Key words

code, icon, object, action, design, click

## Up in the air (PC/Mac)

### Overview

In this lesson children will practise using a key press event to make an object change direction, they will begin to use the terms 'algorithm' and 'execute' in a computer programming context

### Learning objectives

Learn how to program an object to change direction when different keys are pressed on a keyboard

### Success Criteria

**ALL** I can program a plane to change direction when a key is pressed

**MOST** I can program a plane to move and change direction when different keys are pressed

**SOME** I can design and program an app and explain which lines of code execute when different keys are pressed

### Key words

run, execute, direction, code, control, key pressed, algorithm

## Fly a helicopter

### Overview

In this lesson children will learn that objects can be programmed to do an action when a button is clicked and that different buttons can be programmed to make different actions happen

### Learning objectives

Learn how to program buttons to move another object around

### Success Criteria

**ALL** I can write code to program a button to make a helicopter move

**MOST** I can write code to program different buttons that can be used to control a helicopter

**SOME** I can write code to program a button to make a helicopter stop and hover and explain how my code works

### Key words

button, program, direction, run, execute, control, click

## Alien sequences

### Overview

In this lesson children will learn that code can be programmed to execute at different times. They will create simple animations, using time events to make objects perform actions in a sequence.

### Learning objectives

Learn how to program a sequence of actions, making different pieces of code execute at different times

### Success Criteria

**ALL** I can use time in my code to program an alien to eat food after an amount of time

**MOST** I can use time in my code to program a countdown sequence

**SOME** I can explain how I used time in my code to program a countdown sequence and make different objects move

### Key words

time, sequence, function box, after, execute, algorithm

# Space travel

## Overview

In this lesson children will practise using time in their code. They will create simple animations using time events to make objects perform actions in a sequence.

## Learning objectives

Practise using time to program a sequence of actions and make simple animation

## Success Criteria

**ALL** I can use time in my code to program a rocket to fly straight to the moon

**MOST** I can use time in my code to control a rocket to fly in a sequence of directions

**SOME** I can explain how I used time in my code to control a rocket to fly in a sequence of directions to different locations

## Key words

time, sequence, algorithm, function box, after, execute, seconds

# Traffic lights

## Overview

In this lesson children learn that 'time' can be used in programming to control physical systems such as traffic lights. They will write code to create a simulation of a traffic light.

## Learning objectives

Learn how to program a sequence of objects to appear and disappear at specific times to simulate a physical system

## Success Criteria

**ALL** I can use time in my code to program a light turn on and off at set times

**MOST** I use time in my code to create a simulation of a traffic light changing from green to amber

**SOME** I can explain how I used time in my code create a simulation of a traffic light using the correct sequence of colours

## Key words

sequence, control, seconds, time, physical system, simulation

## Bugs in the garden

### Overview

In this lesson children will consolidate their understanding of how code can be programmed to execute at different times. They will practise creating simple animations, using time events to make objects perform actions in a sequence.

### Learning objectives

Practise using time to program a sequence of actions and make simple animation

### Success Criteria

**ALL** I can use time in my code to program a spider to move and stop

**MOST** I can use time in my code to control a snail's movements towards some food

**SOME** I can explain how I used time in my code to control a snail eating its food without being eaten by birds

### Key words

time, sequence, seconds, function box, execute

## Your own app

### Overview

In this lesson children will design write and debug programs that accomplish specific goals. They will use logical reasoning to explain how algorithms work and detect and correct errors as they work. They will add their own pictures and use time in code to program them.

### Learning objectives

Learn to design, write and debug your own app; practise using time in code to create an animation

### Success Criteria

**ALL** I can design and create an app that programs an object to perform an action at a specific time

**MOST** I can design and create an app that programs objects to perform actions at specific times

**SOME** I can explain how my code executes, and how I found errors and debugged the code when there was a problem

### Key words

time, sequence, algorithm, function box, execute, debug, design

## Your own app (advanced)

### Overview

In this lesson children will design write and debug programs that accomplish specific goals. They will use logical reasoning to explain how algorithms work and detect and correct errors as they work. They will add their own pictures and buttons, and have the option of adding in click, start, keypress and after events.

### Learning objectives

Learn to design, write and debug your own app; add different events to make things happen and program actions in a sequence.

### Success Criteria

**ALL** I can design and create an app that programs an object to perform an action at a specific time

**MOST** I can design and create an app that programs objects to perform actions at specific times

**SOME** I can explain how my code executes and how I found errors and debugged the code when there was a problem

### Key words

time, sequence, algorithm, function box, execute, debug, design

## That's amazing!

### Overview

In this lesson children will learn that objects can be programmed to respond to their background or environment and begin to understand what the word 'condition' means in computer programming

### Learning objectives

Learn how to use conditional 'if' statements to program a maze game

### Success Criteria

**ALL** I can write code to program a spaceship to move in different directions when different keys are pressed

**MOST** I can use a conditional 'if' statement in my code to program a spaceship to stop when it hits a wall in a maze

**SOME** I can explain how I used a conditional 'if' statement in my code to make the spaceship stop when it hits a wall

### Key words

keys, wall, condition, if/then, background

## That's amazing! (tablet/iPad)

### Overview

In this lesson children will consolidate their understanding of how conditional events are used in computer programming and understand that inputs on a tablet/ iPad can be different to inputs on a computer.

### Learning objectives

Learn how to use conditional 'if' statements to program a maze game; learn to use the tip function to move the ball when the tablet/iPad tips.

### Success Criteria

**ALL** I can write code on an iPad to program a ball to move in different directions when the iPad is tipped

**MOST** I use a conditional 'if' statement in my code to program a ball to bounce when it touches a wall in a maze

**SOME** I can explain how I used a conditional 'if' statement in my code to make the football bounce when it hits a wall

### Key words

background, if/then, background, tipped, slide, accelerometer, condition

## Hungry snake

### Overview

In this lesson children consolidate their understanding of conditions in programming and learn how different types of conditions can be used in code for different purposes.

### Learning objectives

Learn how to use conditional 'if' statements to program a simple game; use 'if hit' statements to check if objects have collided

### Success Criteria

**ALL** I can write code to program a snake to move in different directions when different keys are pressed

**MOST** I can use a conditional 'if' statement in my code to program an egg to disappear when the snake hits it

**SOME** I can design a simple game and explain how the code used to create my app executes as the game is being played

### Key words

background, if/then, condition, conditional function, key pressed

## Hungry octopus

### Overview

In this lesson children consolidate their understanding of conditions in programming and how different types of conditions can be used in code for different purposes. They will break down the challenge and use computational thinking to help them plan and write their code.

### Learning objectives

Practise using conditional 'if' statements to program a simple game on a tablet/iPad; use 'if...hit' statements to check whether objects have collided

### Success Criteria

**ALL** I can write code to program an octopus to move in different directions when swiped

**MOST** I can use a conditional 'if' statement in my code to program a fish to disappear when the octopus hits it

**SOME** I can design a simple game and explain how the code executes as the game is being played

### Key words

background, if/ hit, condition, conditional function, key pressed, swipe

## Your own app

### Overview

In this lesson children will design, write and debug programs that accomplish specific goals. They will use logical reasoning to explain algorithms and to detect and correct errors as they work. They will add their own pictures and use different conditions in their code.

### Learning objectives

Learn to design and make your own app; practise using conditional events in code and debugging code when there is a problem.

### Success Criteria

**ALL** I can design and create an app in which an object moves around the screen in different directions when different keys are pressed

**MOST** I can design and create an app and program conditional events into my code

**SOME** I can explain how each line of code in my app works and show I debugged the code when there was a problem

### Key words

if/hit, if/background, condition, conditional function, key pressed, swipe

## Your own app (advanced)

### Overview

In this lesson children will design, write and debug programs that accomplish specific goals. They will use logical reasoning to explain algorithms and detect and correct errors as they work. They will add their own pictures and events and use different conditions in their code.

### Learning objectives

Learn to design and make your own app. Practise using conditional events in code and debugging code when there is a problem.

### Success Criteria

**ALL** I can design and create an app in which an object moves around the screen in different directions

**MOST** I can design and create an app and program a conditional event into my code

**SOME** I can explain how each line of code in my app works and how I debugged the code when there was a problem

### Key words

if/ hit, If/ background, condition, conditional function, key pressed, swipe