purple mash

CODE WITH CONFIDENCE

Free resources from Purple Mash to support schools with coding.

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Email: hello@2simple.com | 2 - 10 Baron Street | London | N1 9LL | UK

OVERVIEW

Coding has been part of the National Curriculum since 2014. It equips pupils with essential skills, including problem-solving, logical reasoning, and critical thinking, while also fostering creativity.

Included in this pack, you will find a range of activities, lesson plans, and short videos to give you confidence in teaching coding.

Resources from 2Code are split into three age brackets and cover three activities for each age range.

All the resources are part of the Purple Mash Computing Scheme of Work: a comprehensive set of resources aligned with the National Curriculum. It is designed to support teachers in achieving the very best outcomes for children. It exposes children to a wide variety of digital tools, technological skills, and innovations. Through engagement with our scheme of work, we believe children will be equipped with essential digital skills, knowledge and the ability to think critically about the world around them.

It contains everything needed to deliver inspiring and engaging lessons, while allowing flexibility to meet individual school needs. Lessons are delivered from lesson plans with accompanying slide shows. We have included additional units that go beyond the expectations of National Curricula, whilst also providing 'Catch-Up' units to close gaps in learning. Wraparound supporting tools and resources are provided, including everything needed for assessment, tracking progression, and mapping prior and future learning links: to name just a few. The scheme for Early Years (Reception) shows opportunities for using Mini Mash or Purple Mash as part of the Early Years classroom to support children in working towards early learning goals.

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CONTENTS

2CODE

2Code has three key components: free code, guided lessons and debug challenges.

Free Code:

In free code mode, children can create any kind of program they like. The Computing Scheme of work utilises some of the guided lessons, debug challenges and free code modes.

Guided Lessons:

2Code contains a series of lessons that guide children through creating simple programs. Lessons are split into progressive stages, with 2Code automatically detecting when a stage has been completed and unlocking the next. Each guided lesson includes hints and video tutorials to support pupil understanding and learning outcomes.

There are three levels of lessons.

Approximate years of suitability are given:

Name	Focus	Approximate Years
Chimp	Develops foundational skills in coding, algorithm creation, and debugging.	Year 1 – 3
Gibbon	Introduces more complex ideas such as variables and selection.	Year 3 – 4
Gorilla	More advanced lessons that will guide the child into creating games and quizzes.	Year 5 – 6

CHIMP RESOURCES

Approximate years: Year 1 - 3

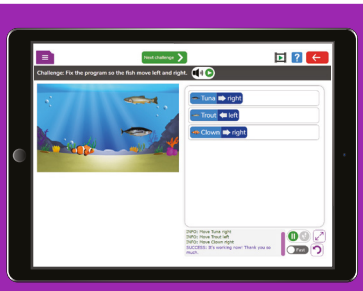
Fun With Fish

Learn how to make the fish move in different directions.

Children begin exploring what an object is and an action that can be given to objects.

LO: To move an object left and right.

SC: Move the tuna fish right.
Move the crab left.
Debug a program to move fish left and right.



TRY THIS OUT

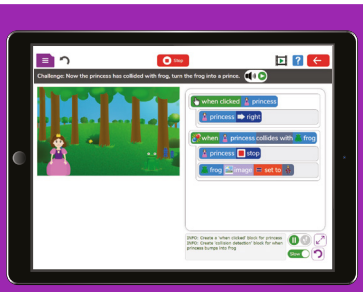
Princess and The Frog

Help the princess turn the frog into a prince.

Children explore making actions occur to objects on 'click' as well as incorporating collision detection into objects and basic use of the timer command.

LO: To move objects on click.
To program collision detection into objects.

SC: To move the princess on click.
To code collision detection so the princess stops.
Change an image on collision.
Use the timer command.



TRY THIS OUT

Newton and The Apple

Code the story of Isaac Newton and the apple.

Children explore further actions that can be applied to objects when clicked including hide/show objects, using timer commands and changing scale of images.

LO: Make the apple fall onto Isaac Newton's head.
Solve a debug challenge.

SC: Make the apple fall.
Make the apple hide.
Show and hide the bang caption and the bump.
Increase the bump size.
Solve a debug challenge.

TRY THIS OUT

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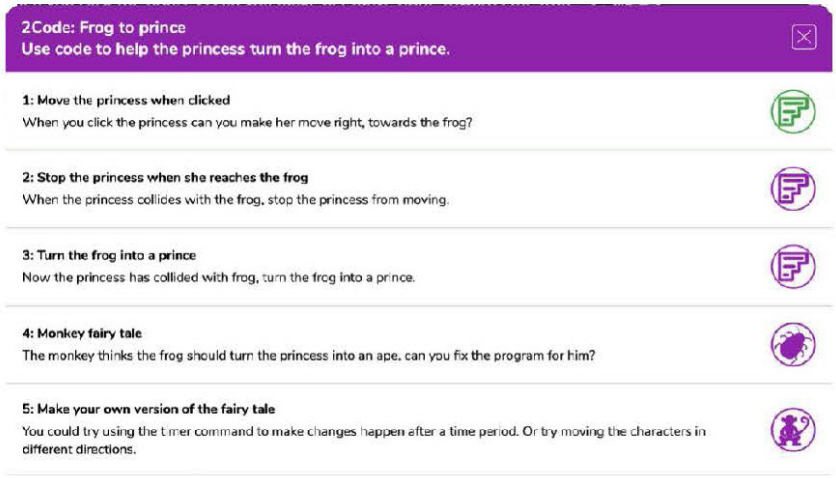
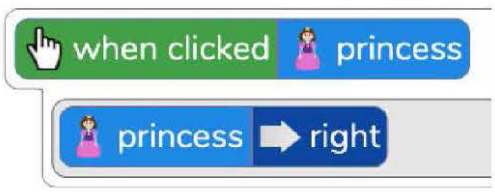
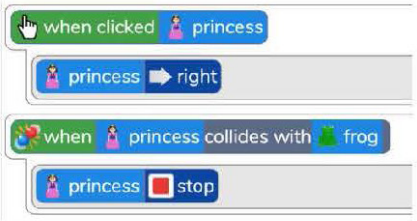
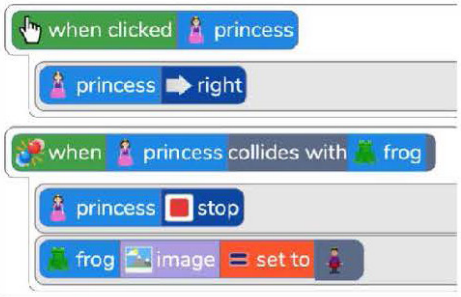
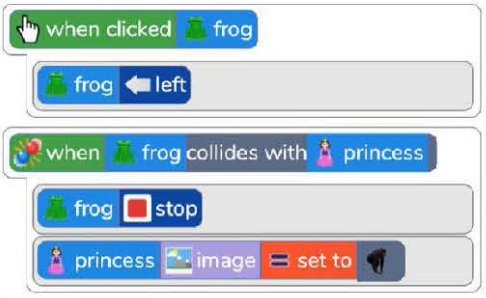
CHIMP SOLUTIONS

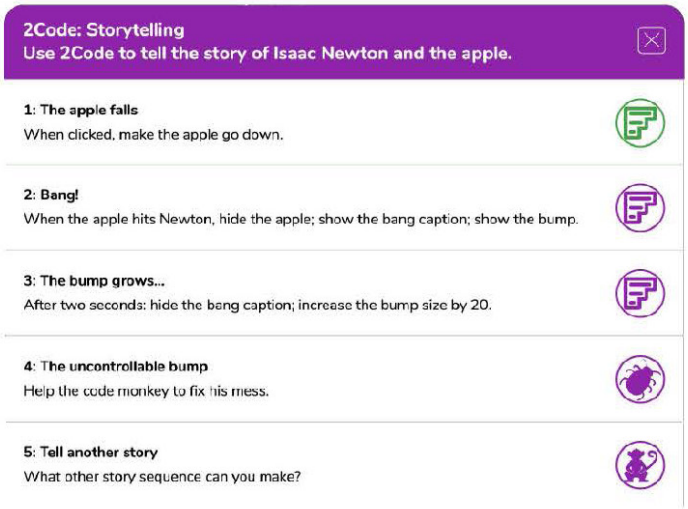
Level	Chimp	Task	PRINCESS AND THE FROG

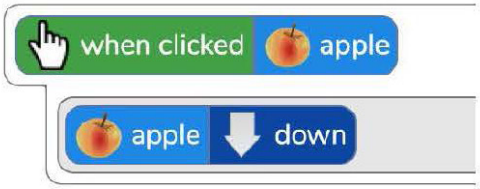
Lesson Objective	Overview of the lesson
To move objects on click To program collision detection into objects	
Success criteria	
To move the princess on click To code collision detection so the princess stops Change an image on collision Use the timer command	

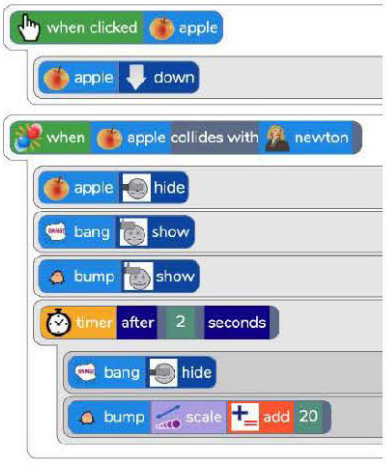
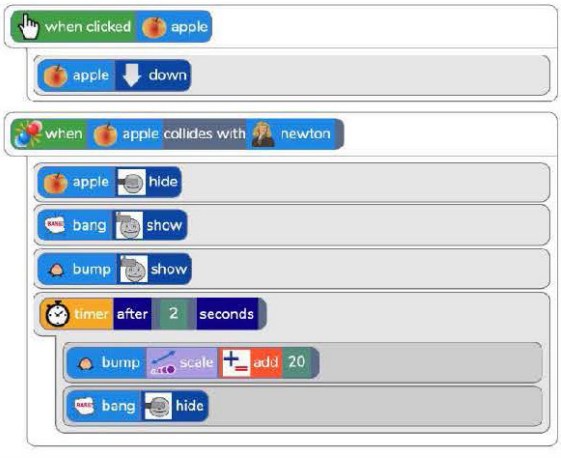
Activity 1	Activity 2
	

Activity 3	Activity 4
	

Level	Chimp	Task	NEWTON AND THE APPLE

Lesson Objective	Overview of the lesson
Make the apple fall onto Isaac Newton's head. Solve a debug challenge. **Success Criteria** Make the apple fall. Make the apple hide. Show and hide the bang caption and the bump. Increase the bump size. Solve a debug challenge.	

Activity 1	Activity 2
	

Activity 3	Activity 4
	

GIBBON RESOURCES

Approximate years: Year 3 - 4

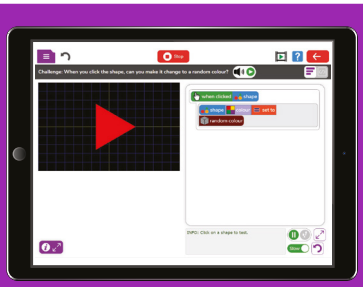
Shapes

A set of challenges involving shapes.

Children explore changing attributes of a shape when clicked such as number of sides an, size and random colour. They also debug buttons that are producing unintended outcomes.

LO: To change the attributes of a shape when clicked.

SC: Make a hexagon.
Change the attributes of a shape on click.
Fix the code so the buttons work correctly



TRY THIS OUT

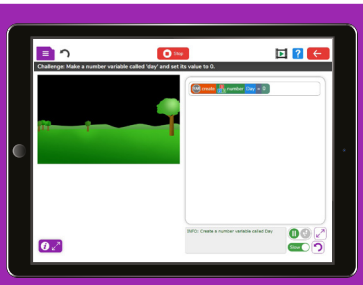
Night and Day

Make the sun rise and set repeatedly?

Children learn how to create number variables and the importance of setting the correct value, they also explore a simple IF/Else statement as well as timers using the 'timer every' feature as opposed to 'timer after'.

LO: Make the sun rise and set repeatedly by creating a variable.
Debug a challenge.

SC: Create a number variable.
Make a timer.
Use if and else statements to change from day to night and back again.
Show and hide.
Change the background colour.



TRY THIS OUT

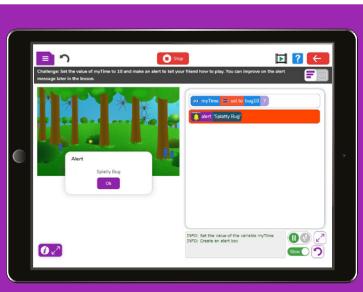
Splatty Bug

Code a simple game and splat the bug.

Children learn to explore using Alerts. They continue building on use of number variables to make a countdown timer including incorporating an If/Else statement which calls the timer every second subtracting 1 unless timer = 0. They incorporate the restart feature which is called when the timer = 0.

LO: Create a small amount of code to create a simple game!

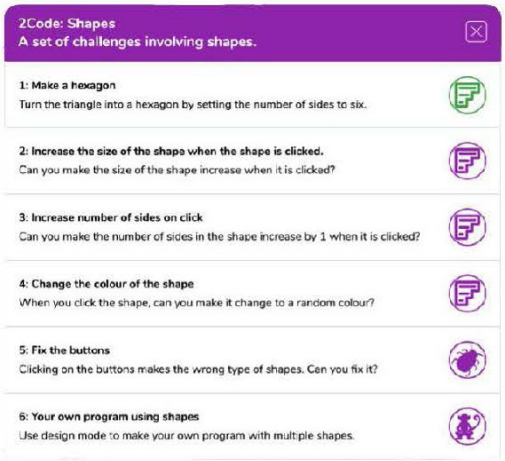
SC: Create an alert.
Make a timer count down.
Increase the score.
Create an if/else statement to restart the game.
Add a when clicked event to hide the bug.
Use x and y coordinates to replace the last bug clicked with a splat image.

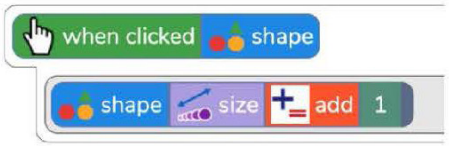


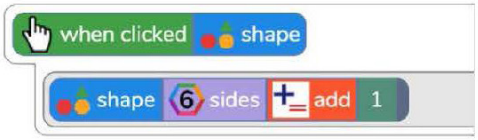
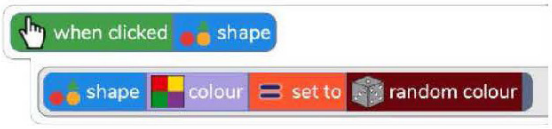
TRY THIS OUT

GIBBON SOLUTIONS

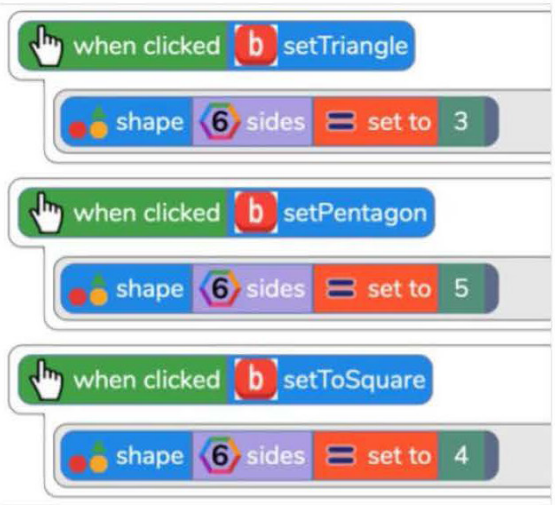
Gibbon - Shapes

Lesson Objective	Overview of the Lesson
To change the attributes of a shape when clicked	
Success Criteria	
Make a hexagon Change the attributes of a shape on click Fix the code so the buttons work correctly	

Activity 1	Activity 2
	

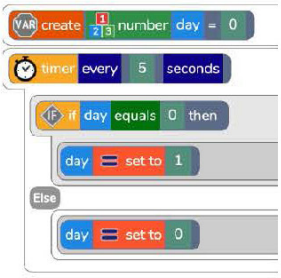
Activity 3	Activity 4
	

Activity 5

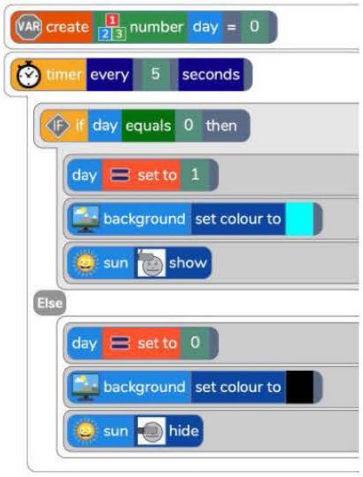


Gibbon – Night and Day

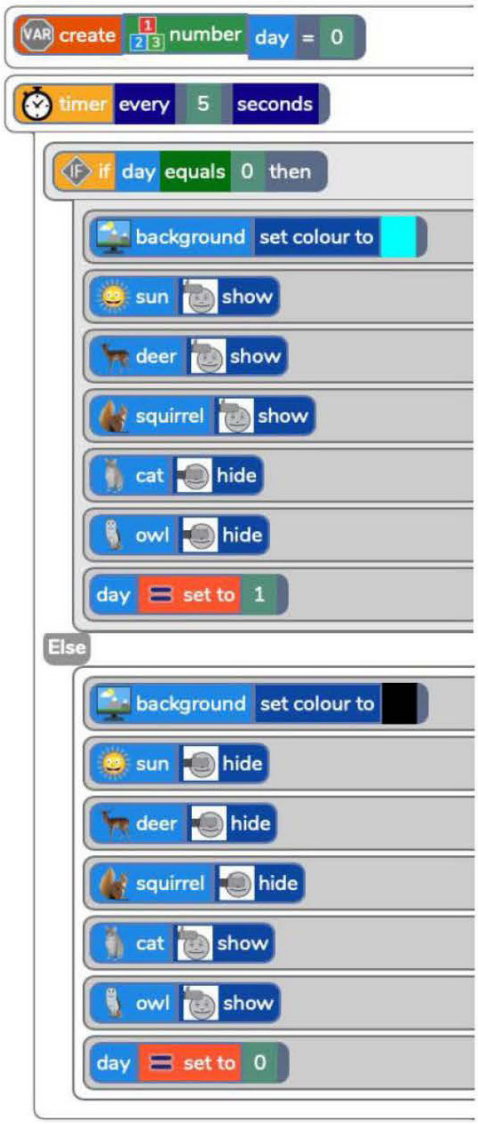
Lesson Objective	Overview of the Lesson
Make the sun rise and set repeatedly by creating a variable. Debug a challenge.	2Code: Night and Day (Gibbon) Can you make the sun rise and set repeatedly? **1: Holding the Day** Make a number variable called 'day' and set its value to 0. **2: Switching the day Variable** Make a timer that gets called every 5 seconds. Put an if/else block in it. If the day variable is 0, set it to 1. Otherwise set it to 0. **3: Turning the sun on and off** Show the sun and make the background light blue in the if block; hide the sun and set background to black in the else block. **4: Turning the sun on and off** Help the code monkey make sure only the deer and squirrel are visible during the day. **5: Improving the day** What else can you add to make these days and nights even more exciting?
Success Criteria	
Create a number variable. Make a timer. Use if and else statements to change from day to night and back again. Show and hide. Change the background colour.	

Activity 1	Activity 2
	

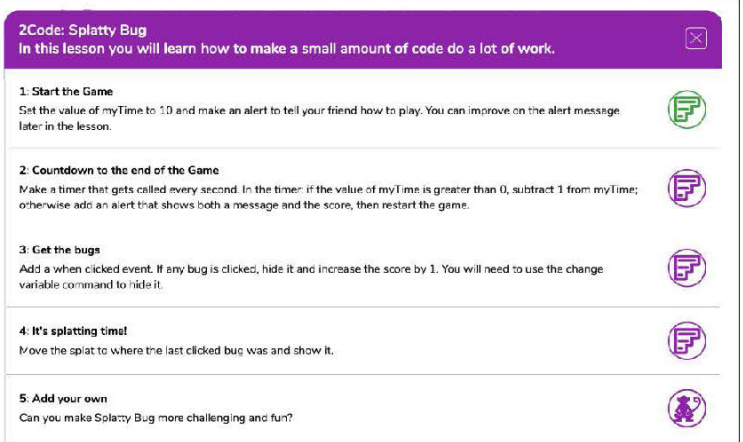
Activity 3



Activity 4 (Debug)

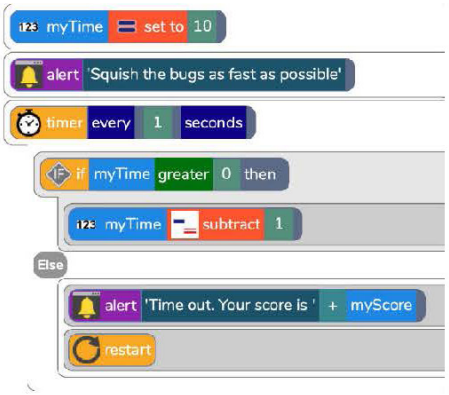


Gibbon - Splatty Bug

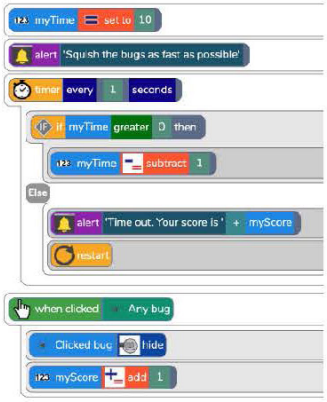
Lesson Objective	Overview of the Lesson
Create a small amount of code to create a simple game!	
Success Criteria	
Create an alert. Make a timer count down. Increase the score. Create an if/else statement to restart the game. Add a when clicked event to hide the bug. Use x and y coordinates to replace the last bug clicked with a splat image.	

Activity 1

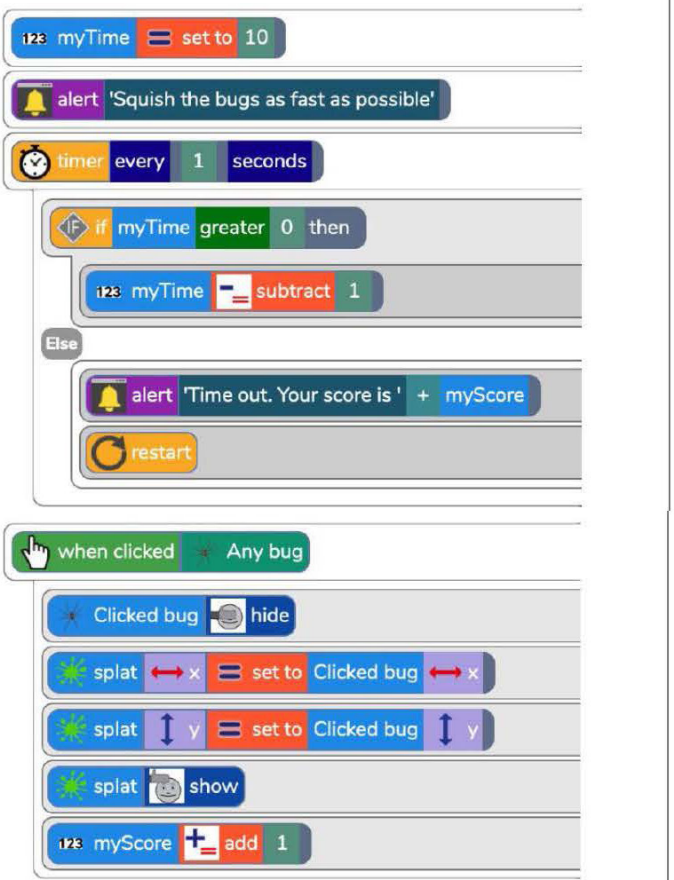
Activity 2



Activity 3



Activity 4


myTime set to 10
alert 'Squish the bugs as fast as possible'
timer every 1 seconds
if myTime greater 0 then
myTime subtract 1
Else
alert 'Time out. Your score is ' + myScore
restart
when clicked Any bug
Clicked bug hide
splat x set to Clicked bug x
splat y set to Clicked bug y
splat show
myScore add 1

GORILLA RESOURCES

Approximate years: Year 5 - 6

Turtle road crossing

Help the turtle avoid the obstacles and safely cross the road.

Children explore using vehicle objects including setting speeds, the When Key event, collision detection, sound output and the control 'restart'.

LO: Make a version of the classic game Frogger.

SC: Add speed to vehicles.
Use collision detection.
Use sound to enhance your game.

TRY THIS OUT

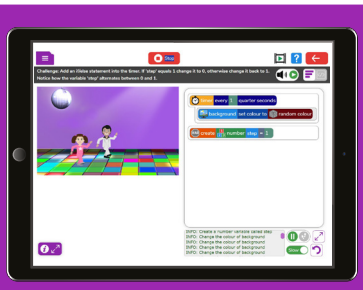
Dancer

Flash the lights and make the dancers dance!

Children explore manipulating controls such as 'timer' to change backgrounds, changing variable value using an IF/Else statement. Connecting buttons to achieve a desired outcome.

LO: Code a disco to change lights and move the dancers.

SC: Use a timer to change the background.
Create attributes.
Use buttons.



TRY THIS OUT

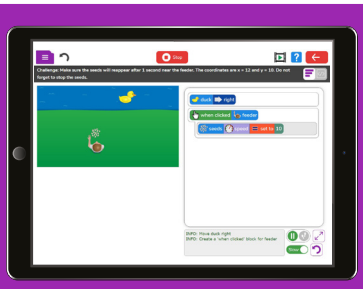
Feed the duck

Feed the duck so it grows nice and strong.

Children use when clicked and collision events, apply speed to objects, set x/y values. Change scales and angles.

LO: To use speed, keyboard and coordinate commands to control the elements.

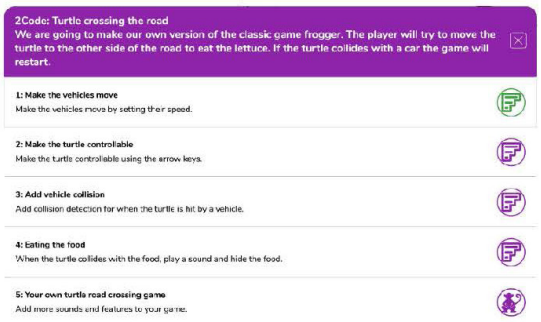
SC: Make the duck move.
Change the speed of the moving seeds.
Set the coordinates of where the seed should return to after moving.
Make the duck grow.
Use the arrow keys to change the angle of the feeder and the seeds at the same time.
Create your own game.

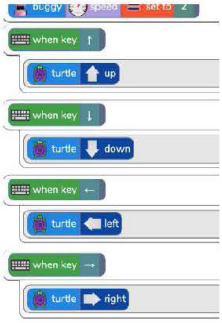


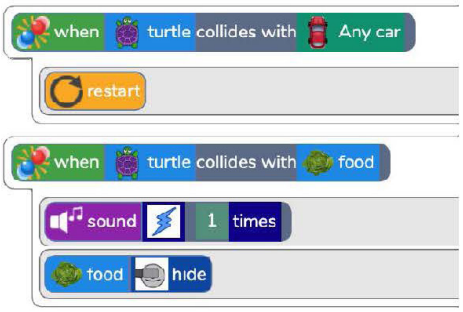
TRY THIS OUT

GORILLA SOLUTIONS

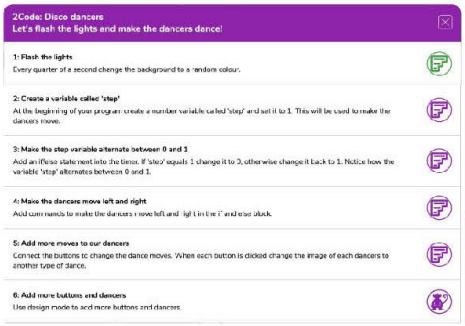
Gorilla – Turtle Road Crossing

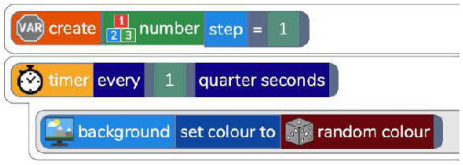
Lesson Objective	Overview of the Lesson
Make a version of the classic game Frogger **Success Criteria** Add speed to vehicles Use collision detection Use sound to enhance your game	

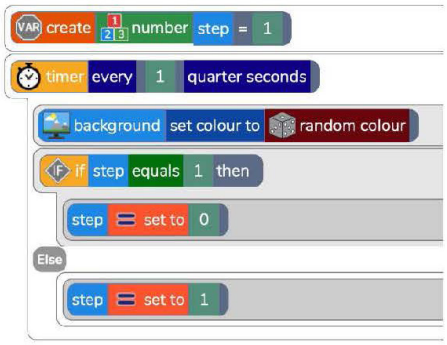
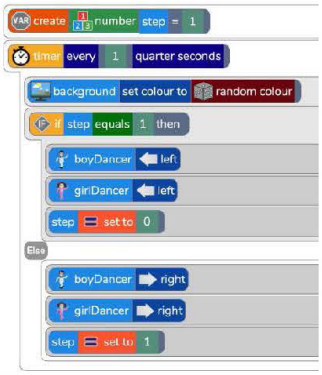
Activity 1	Activity 2
	

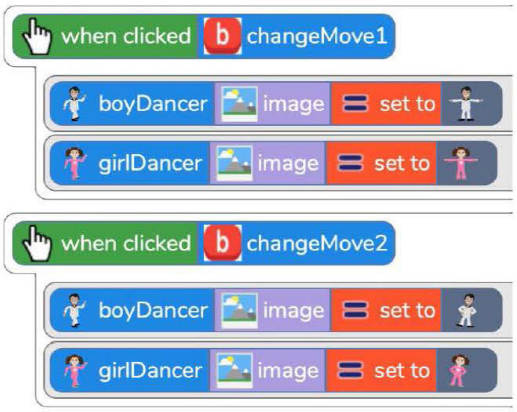
Activity 3	Activity 4
	

Gorilla – Dancer

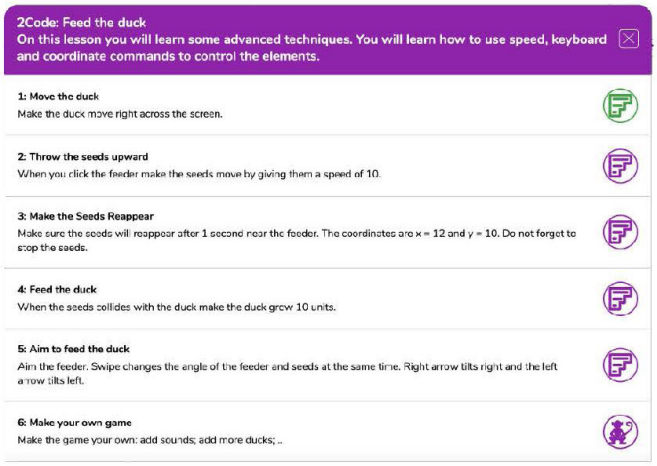
Lesson Objective	Overview of the Lesson
Code a disco to change lights and move the dancers **Success Criteria** Use a timer to change the background Create attribute Use buttons	

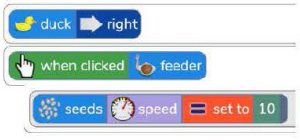
Activity 1	Activity 2
	

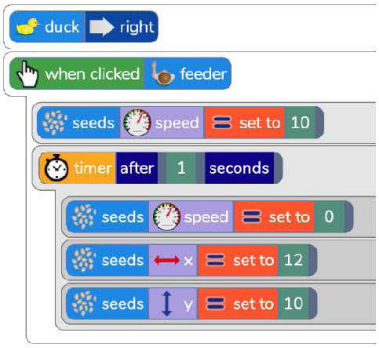
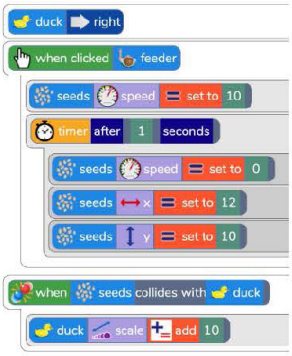
Activity 3	Activity 4
	

Activity 5


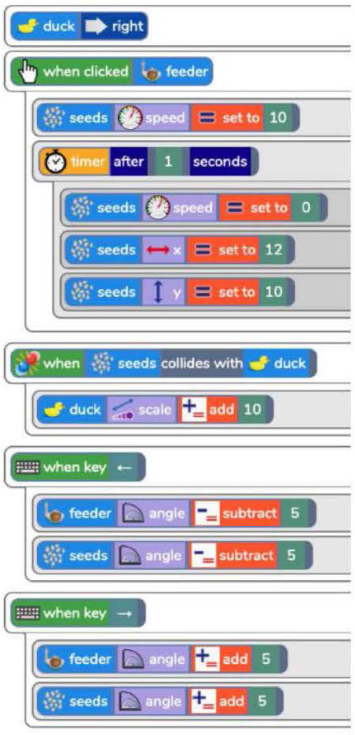
Gorilla- Feed the Duck

Lesson Objective	Overview of the Lesson
To use speed, keyboard and coordinate commands to control the elements.	
Success Criteria	
Make the duck move. Change the speed of the moving seeds. Set the coordinates of where the seed should return to after moving. Make the duck grow. Use the arrow keys to change the angle of the feeder and the seeds at the same time. Create your own game.	

Activity 1	Activity 2
	

Activity 3	Activity 4
	

Activity 5



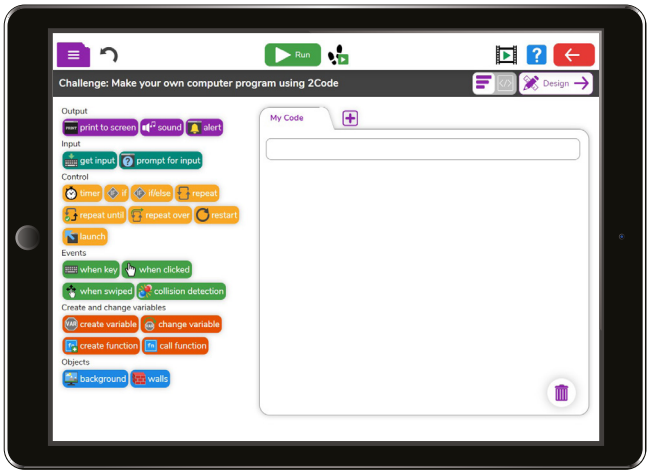
2CODE GAME PLANNER

A template to support children in planning a game they want to create using 2Code's Free Code mode.

TRY THIS OUT

FREE CODE GORILLA

Free Code Gorilla is the most advanced mode in 2Code, designed to encourage creativity. It provides access to all available code blocks, including Outputs, Inputs, Control, Events, Variables, and Objects.



TRY THIS OUT

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INTRODUCTION TO CODING

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CODING VOCABULARY

YEARS 1 AND 2

Action

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

Instruction

Detailed information about how something should be done or operated.

Properties

These determine the appearance and size of an object. Each object has properties (attributes) such as image, scale, and position.

Algorithm

A precise, step-by-step set of instructions used to solve a problem or achieve an objective.

Object

Items in a program that can be given instructions to move or change in some way (action).

Debug

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

Command

A single instruction in 2code.

Run

This is what you do when you click the run button in 2Code: The program runs.

Programmer

A person who writes computer programs. Sometimes called a coder.

Execute

This is the correct word for when you run the code. We say, 'the program (or code) executes'.

Output

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

Implement

When a design turned into a program is using code.

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CODING VOCABULARY

YEARS 3 AND 4

Algorithm

A precise, step-by-step set of instructions used to solve a problem or achieve an objective.

Command

A command is a single instruction within a computer program.

Event

An event is something that causes a block of code to run. It could be triggered by user actions such as pressing a key, clicking, or swiping the screen (e.g. 'when Key', 'when Clicked', 'when Swiped'). In 2Code, event commands create code blocks that are triggered when such events occur.

Debug

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

Selection

Selection is a decision command. When used, the program chooses which section of code to run, depending on a condition.

Input

Information entered into the computer. This might be the user clicking the mouse or typing on the keyboard. On tablets, inputs can include finger swipes, touch gestures, or tilting the device.

Repeat

This command can be used to make a block of commands run a set number of times or forever.

Execute

Clicking the Run button to make the computer respond to code. Execute is the technical word for when you run the code. We say, 'the program (or code) executes.'

Object

Items in a program that can be given instructions to move or change in some way (action). In 2Code Gibbon, these include character, turtle, button, vehicle, animal, food, shape, number, input and label.

Sequence

This is when a computer program runs commands in order.

Variable

A variable is a named area in computer memory used to store a value. The program can change this value while it runs. Variables help track things that can change during a program's execution.

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CODING VOCABULARY

YEARS 5 AND 6

Abstraction

Abstraction is a way of removing unnecessary details to help a program function more efficiently.

Concatenation

The action of linking a mixture of strings, variable values and numbers together in a series.

Decomposition

Breaking a task into manageable parts. This makes coding easier, as each part can be created independently and then reassembled within the program.

Function

A function is a block of code that can be reused whenever needed. This saves time by avoiding repeated code—just call the function when required.

Properties

These determine the look and size of an object. Each object has properties—attributes such as image, scale, and position.

Simulation

A model that represents a real or imaginary situation. Simulations can be used to explore options and to test predictions.

String

A string is a sequence of text characters and/or numbers. It can form words, phrases, or even full sentences.

Execute

Clicking the Run button to make the computer respond to the code. Execute is the technical word for when you run the code.

Nesting

Nesting is when coding commands are placed inside other commands. These only run when the outer command is executed.

Sequence

This is when a computer program runs commands in order.

Variable

A named area in computer memory. A variable has a name and a value. The program can change this variable value. Variables are used in programming to keep track of things that can change while a program is running.

Repeat

This command can be used to make a block of commands run a set number of times or forever.

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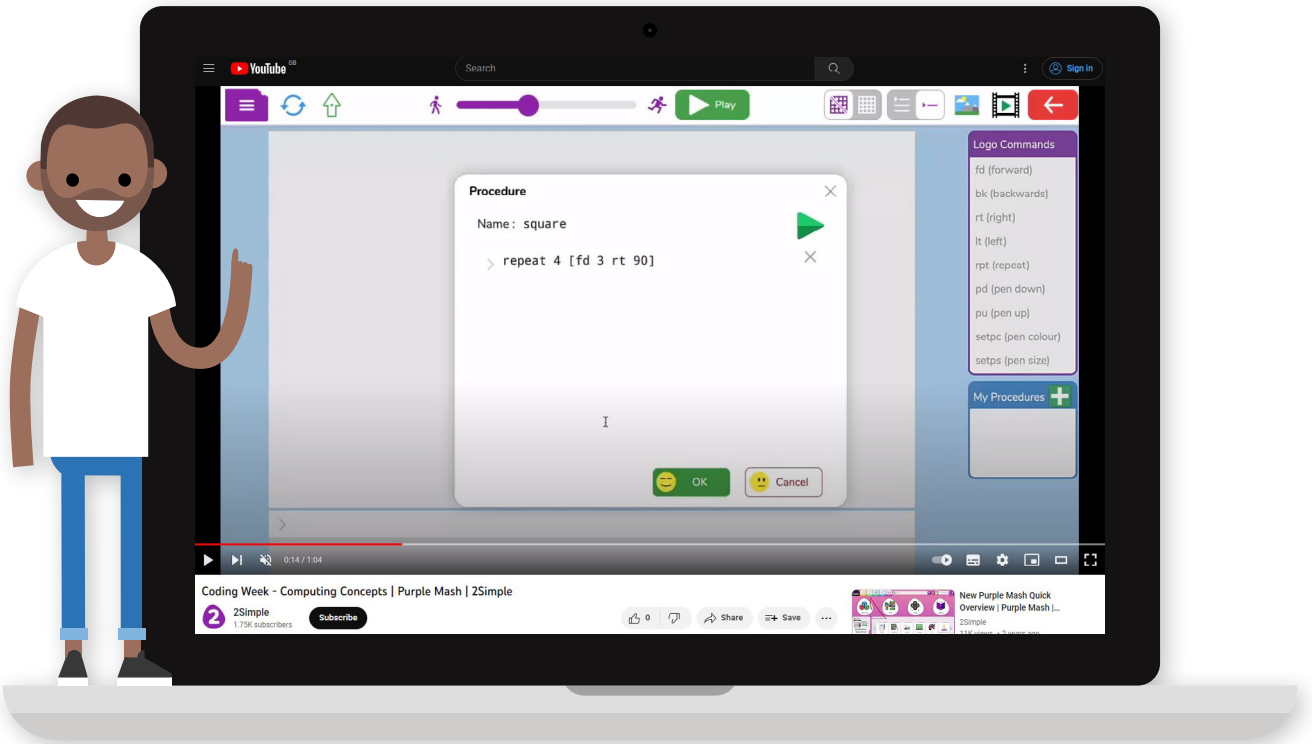
COMPUTING CONCEPTS

Teach decomposing, logical reasoning and variables during Coding Week with Purple Mash tools and activities.



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purple mash

All the resources mentioned in this pack are part of the Purple Mash Computing Scheme of Work, click bellow to discover our comprehensive set of resources aligned with the National Curriculum.

Click here to discover more

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