



Unit: 5.1 Coding

Learning intention: To design and create efficient programs using sequence, selection, repetition and variables.



Simulating a physical system

observe the system



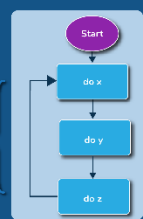
decomposition

- 2 break down a task into components

abstraction

- 2 removing unnecessary details

create the algorithm



code, test, debug



Functions

create function

create function when the ball hits the walls

football x set to 3

football y set to 8

football speed set to 0

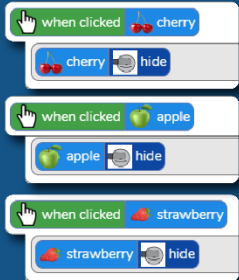
call function

when football collides with walls

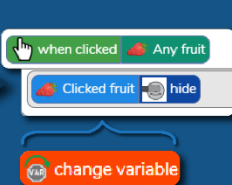
call when the ball hits the walls

Simplifying for efficiency

original code



simplified code



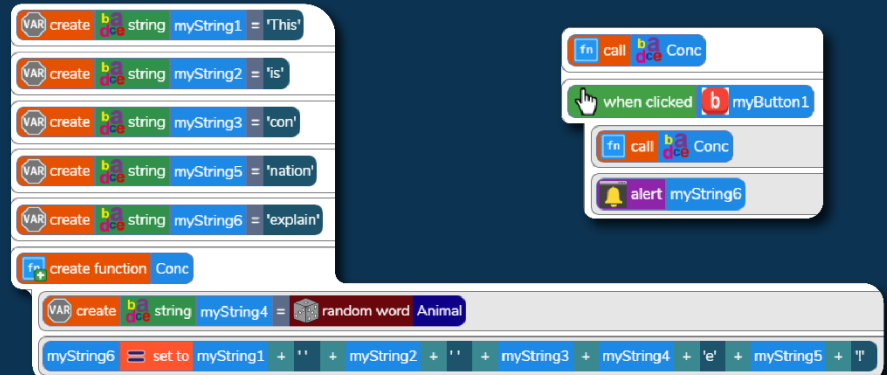
Simplified code runs faster and uses less processing memory, it is said to be more efficient.

Variables



- 2 The value can be changed in the code.
- 2 Values are only stored while the program is running.
- 2 Values should be initialised when the variable is created to prevent errors.

2 What value for myString4 would make sense?



































Unit: 5.1 Coding

Reference guide to objects and attributes in 2Code Gorilla



object attributes

	 button	 number	 input	 text	 character	 food	 animal	 car	 shape	 turtle	 hotspot
 name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 tags					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
 image					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
 x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 allow off screen					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
 rotation style							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
 movement type					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
 angle								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
 speed					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
 scale					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
 show/hide				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 draggable					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
 text	<input checked="" type="checkbox"/>										
 text size/style	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
 colour text/background/border	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
 width & height											<input checked="" type="checkbox"/>
 value		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
 sides									<input checked="" type="checkbox"/>		



Unit: 5.2 Online Safety

Learning intention: To learn about online threats, sources of support and responsibilities.



Support

- 2 Use the helping hand model to think of five adults who you trust to help you if you have a worry.
- 2 Also think of friends who could help you to get support.
- 2 To add more details use the leaflet by scanning the QR code.



Outer Circle

Organisations who can help.
For example,
Childline and emergency services.

Responsibilities

- 2 Behave respectfully to other people.
- 2 Think about your safety.
- 2 Think about the safety of others.
- 2 Think! Could something you post cause harm to anyone?
- 2 Report inappropriate content.
- 2 Trust 'uncomfortable' feelings.



S IS FOR SAFE

Never give out personal information to strangers on the internet. Personal information includes things like your home address and your birthday.

M IS FOR MEET

Never ever meet up with a stranger you have met online unless a parent or guardian has said it is ok and is present. Never, never, never, never, never.

A IS FOR ACCEPTING

Don't open emails from people you don't know, they could contain viruses. If you get a strange email from a friend and you think they might have a virus make sure you let them know!

R IS FOR RELIABLE

Don't believe everything you read online, check your facts! Did you read it on a reliable website like the BBC? Are other websites saying the same thing? Does it tell you where they got the information from?

T IS FOR TELL

If you have an online safety problem, make sure you tell someone. Tell a parent, guardian, or teacher as soon you can.

Images

- 2 Check copyright before using.
- 2 Include artist, webpage, date.

Secure Passwords

Things to consider

- 2 Don't use one password for everything
- 2 6+ characters
- 2 UPPER and lower case
- 2 Combine letters, numbers and special characters

Password



Quotes & Citations

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy" [1]
 "nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis" (Ipsum, 2025)

Bibliography & References

[1] Publication title, Author Name, Publisher, Date or Surnames and Initials, Date, Title, Publication, Edition or Author name, Date, Web Address



Unit: 5.3 Spreadsheets

Learning intention: To use formulae and advanced features of a spreadsheet to analyse data.



Formula bar

Begin all formulae with the equals symbol '='

B1

=A1*4

cell reference
formula

Copy and Paste

- 2 copy: Ctrl + C
- 2 cut: Ctrl + X
- 2 paste: Ctrl + P
- 2 on tablets: press and hold, then drag the blue border.

Formula Wizard

Automatically perform calculations.

Simple **Advanced**

1: Select the first cell in the calculation.

2: Choose the operation.

3: Select the last cell in the calculation.

+
-
×
÷

Includes averaging and totalling calculations as well as + - × ÷

Simple **Advanced**

1: Choose a function which will be applied to a range of cells.

2: Select a range of cells for your function. Hold down shift to select multiple cells or drag the selection box.

select function

select function

Total

Average

Minimum

Maximum

Spreadsheet

The spreadsheet shows a table with columns labeled 'Temperature', 'Conversion', and 'Tool'. Rows are numbered 1 to 11. A blue bracket on the left indicates 'rows' and a blue bracket at the bottom indicates 'columns'. A blue callout box labeled 'count tool' points to a hand icon over a cell. A blue callout box labeled 'sum tool' points to a green arrow icon over a cell. A blue callout box labeled 'copy tool' points to a green arrow icon over a cell. A blue callout box labeled 'Formula bar' points to the top of the spreadsheet window.

Totals

Copy Cell:

→

→

↓

←

Totals:

→

←

↓

→

Controls

Controls:

↑

↓

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Unit: 5.4 Databases

Learning intention: To create and interrogate databases.



Data

A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision making.

Database

A set of data that can be held in a computer in a format that can be searched and sorted for information.

Searching

Use

2 AND

2 OR

to combine field searches to answer complex questions.

database record

Data Name: LadyBird

Field sound:

1 wings: yes

2 habitat: On flowers/plants

3 number of legs: 6

fields



search

Find

wings is yes

and

number of legs = 6

Display in Venn Diagram

Table view

Table View of Records

see all records

Name	Eyes	Planet	Strength	Special Powers	Earth Habitat	Favourite Food	Body Texture	Hobbies
Lucy	1	Moon	10	laser breath	old house	frags and old bread	smooth skin	reading
Lucy	1	Moon	10	laser eye ray	sewer	jetty sweets and peas	scaly	
Eviezo	7	Zoro	45	laser eye ray				

search

combine text and data to formulate a report

Reports

Name View

Insert

Calculate Statistics

habitat Percentages

Single Count Groups: yes = 10

Multiple Count Groups: underground - 5.58%

Under logs/rocks - 16.67%

In water - 11.11%

On the soil - 5.56%

In flowers/plants - 44.44%

In animals - 11.11%

In wood - 5.38%

table

search

sort, group, arrange

statistics and reports

charts

Sort: Up Down

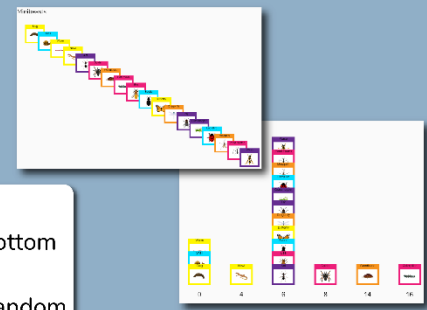
<field>

Group: <field>

Arrange:

Tiled Top Bottom

Left Right Random





Unit: 5.5 Game Creator

Learning intention: To design and create a 3D game.



Designing a Game

- Things to consider
- 2 theme
 - 2 story
 - 2 aim
 - 2 extension; further levels
 - 2 completion
 - 2 playability and fun
 - 2 instructions
 - 2 constructive feedback

Scene elements

ground, ceiling, sky, walls



water, fire, objects



other elements



lighting



background music



wall height



Winter Treasure Hunt

Collect the treasures hiding in the snow.

Be careful, there are giant squirrels and bears on guard and they will throw you back to the start!

Images used are from Purple Mash



Instructions

- 2 The story
- 2 How to play the game
- 2 What to collect
- 2 What to avoid
- 2 Consequences
- 2 Credit sources of all media.

Game settings

lives, time limits, sounds.



preview level



Quest:

collection objects and baddies



copy to all objects



use clipart



webcam



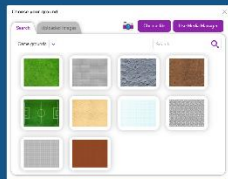
drawing tools

Choose:

- 2 Movement
- 2 Action
- 2 Sound effects
- 2 Points gained (collection objects)
- 2 Damage done (baddies)

editing methods

samples



use clipart



webcam



upload image

draw



draw floor



erase walls



Unit: 5.6 3D Modelling

Learning intention: To design for a purpose in 3D using a computer aided design tool.



The screenshot shows three panels in a software interface:

- points view:** A wireframe pentagon with five vertices marked by grey dots. A button labeled "add or remove point" is positioned below it, with two small icons showing a point being added to or removed from a square.
- net view:** A 2D flat layout of the pentagon, showing its unfolded shape with various tabs and flaps. A search icon and a "net" label are visible.
- 3D view:** A 3D perspective view of the grey pentagonal prism that would be formed by the net. A search icon and a "3D" label are visible.

3D Printing

- 2 Print the net on paper by exporting as a .pdf file
- 2 Export as a .stl file and print using a 3D printer

An illustration showing a laptop displaying a 3D model, a 3D printer with a red part being printed, and several printed parts including a red car and a red lift.

Pattern Fill tool

The flowchart illustrates the process of using a pattern fill tool:

- Pattern fill tool:** Represented by an icon of a hand holding a brush.
- Design pattern:** A grid of red and brown squares.
- Click net areas:** A red and white net of a house.
- View in 3D:** A 3D perspective view of a red house with a grey roof and white windows.

Design Documentation

- 2 Purpose
- 2 User\Customer
- 2 Ideas; moodboard, notes, sketches
- 2 Colour palette
- 2 Patterns
- 2 Design net

An icon showing a blue grid with a white star, a yellow pencil, and a pair of compasses.



Unit: 5.7 Concept Maps

Learning intention: To use mind mapping to represent concepts and develop ideas collaboratively.



Concept Map

- 2 Tool for organising and representing knowledge about a concept.
- 2 Forms a web of interconnected ideas called 'nodes'.
- 2 Sometimes called a mind map or thought shower.

Nodes

resize

edit



Arial 25

Picture Sound Notes Link

Node Colour

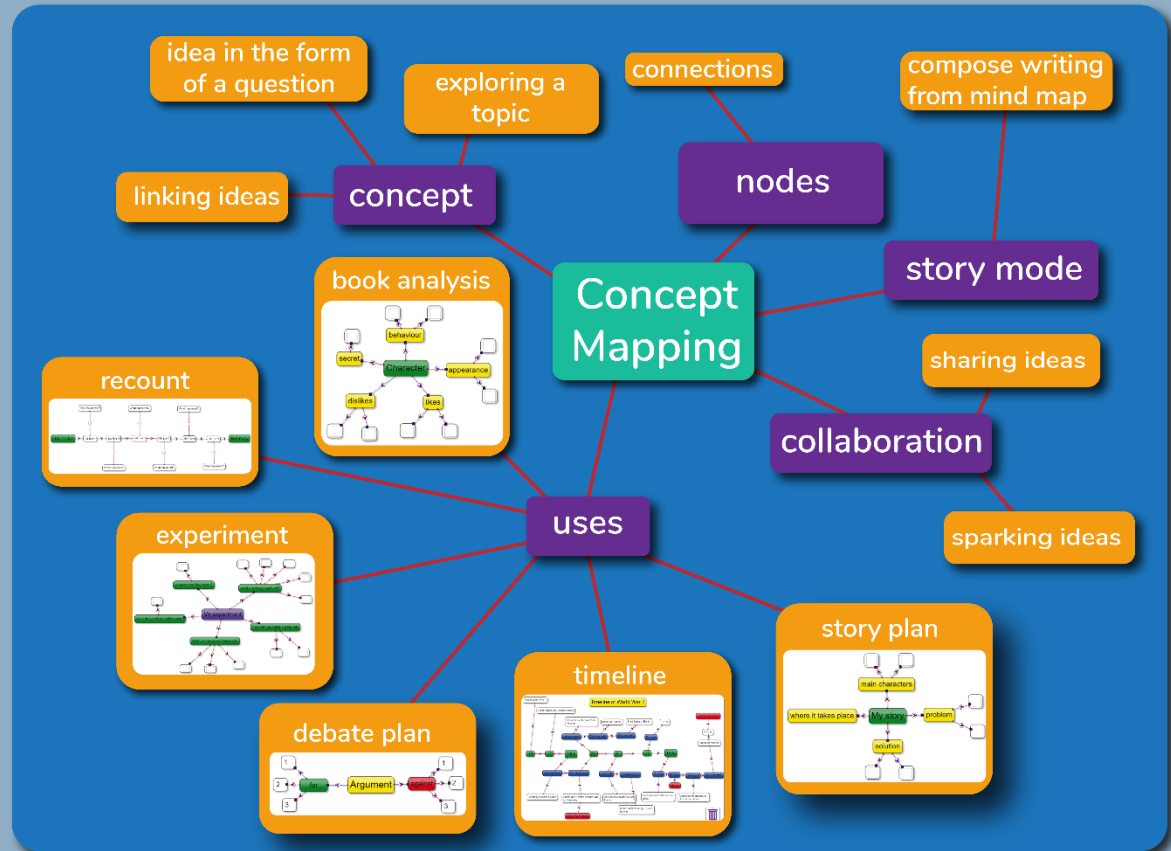
B I

clipart picker

sound picker

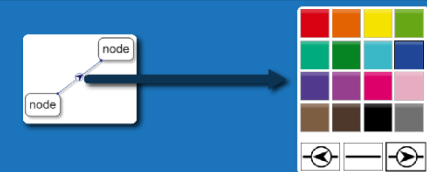
expanded notes

Link to your work in Purple Mash or a relevant website.



Connections

Represent a relationship or link between two nodes.





Unit: 5.8 Word Processing

Learning intention: To use the features of a word processor to enhance writing and presentation of digital artefacts.



W

Main screen - Home tab

font styling paragraph styling writing style find, replace, select editing help

cut, copy, paste

lists

dictate text

expand menu

What is Word Processing?

Word Processing refers to the action of using an electronic device to create, edit, save, share and print documents.

Table of words			
cut	select	copyright	capital
copy	font	attributing	lower case
paste		licence	

Copying and Pasting

- 2 Keyboard shortcuts (Ctrl + C, Ctrl + X, Ctrl V).
- 2 Touchscreen; use long press then select then cut, copy, paste.

Capital letters

- Cap Lock all upper case.
- Shift all upper case while pressed.
- Tablet; double-tap all upper case.

Images Picture Format

- 2 consider copyright
- 2 credit all sources

- crop
- resize
- wrapping
- transparency
- layering

Tables Table Design Layout

- Merge Cells
- insert rows/columns
- Distribute Rows
- Distribute Columns
- border styles
- Pen Color
- Shading
- background colours

Selecting Text

- 2 Double-clicking a word: select whole **word**.
- 2 Click left-hand margin: selects the **line**.
- 2 Mouse down and drag: selects **text dragged over**.
- 2 Click start of selection, use shift + arrow to selects **precisely**.

Insert

- Pictures
- Shapes
- WordArt
- Text Box

Review

- Editor
- Spelling and Grammar
- Word Count
- Read Aloud
- Proofing
- Speech



Unit: 5.8 Word Processing

Learning intention: To use the features of a word processor to enhance writing and presentation of digital artefacts.



Main screen - Home tab

writing style font styling paragraph styling

lists

What is Word Processing?

Word Processing refers to the action of using an electronic device to create, edit, save, share and print documents.

Table of words			
cut	select	copyright	upper case
copy	font	attributing	lower case
paste		license	

Copying and Pasting

- 2 Keyboard shortcuts (Ctrl + C, Ctrl + X, Ctrl V).
- 2 Touchscreen; use long press then select then cut, copy, paste.

Capital letters

- all upper case.
- upper case while pressed.
- tablet; double-tap all upper case.

Selecting Text

- 2 Double-clicking a word: select whole **word**.
- 2 Mouse down and drag: selects **text dragged over**.
- 2 Click start of selection, use shift + arrow to select **precisely**.

Insert

image drawing

table link

Drawing

shape textbox

line

- undo (Ctrl + z)
- redo (Ctrl + y)

Images Image options

- 2 consider copyright
- 2 credit all sources
- rotate
- crop
- borders
- wrapping
- resize
- > Recolor

Tables

- 1 select cells
- 2 click
- 3
 - cell colour
 - border colour
 - border width
 - border style
- Format > Table > Merge
- Format > Table > Insert row\column



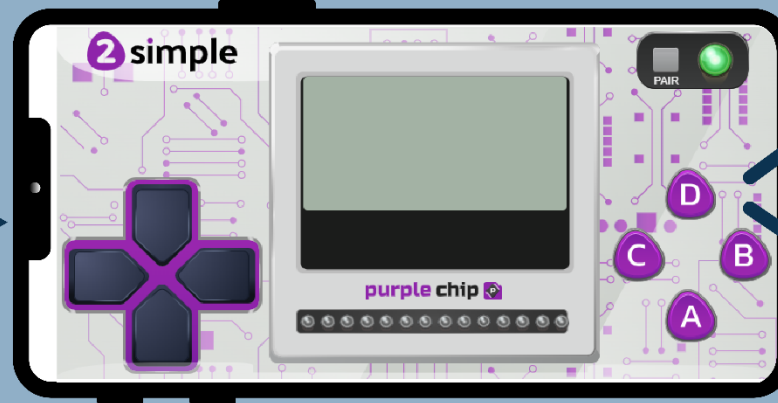
Unit: 5.9 Using External Devices



Learning intention: To create programs which use the tools and functions of external devices to control the program.



link 2Code to device



Events (inputs)

- when chip tilted movement sensor
- when chip button touch sensor
- when chip shaken movement sensor
- when sound detected sound sensor

Outputs to external device

- flash
- device sound
- vibrate
- chip show text
- chip show image

Outputs to the 2Code program

- sound
- print to screen
- control objects:
 - dog → right
 - purpleChicken image = set to
- set variable values:
 - score + add 50

2Code structures reminder

Variables



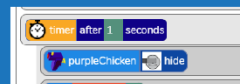
- `VAR create 1 number question = 1`
- 2 The value can be changed in the code.
- 2 Values are only stored while the program is running.
- 2 Values should be initialised when the variable is created to prevent errors.

Tabs



- 2 Used to organise code.
- 2 Helps with debugging.

Timer



Function

A block or sequence of code to call when needed, so you don't have to rewrite the code.



Using tags



Hotspots



Selection

