

Game Control

Introduction to Flowcharts



DCF



DATA & COMPUTATIONAL THINKING



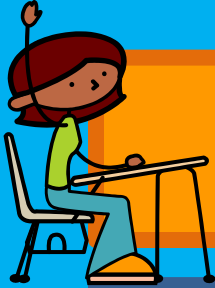
Learning Objective

- "Learn how to recognise different flowchart symbols and how to put them together".
- Write this Learning Objective onto Page 1 of your workbook.

Sequences of Instructions

- When completing a task instructions must be followed in order:
A SEQUENCE
- How would you explain to an alien how to make a cheese sandwich?

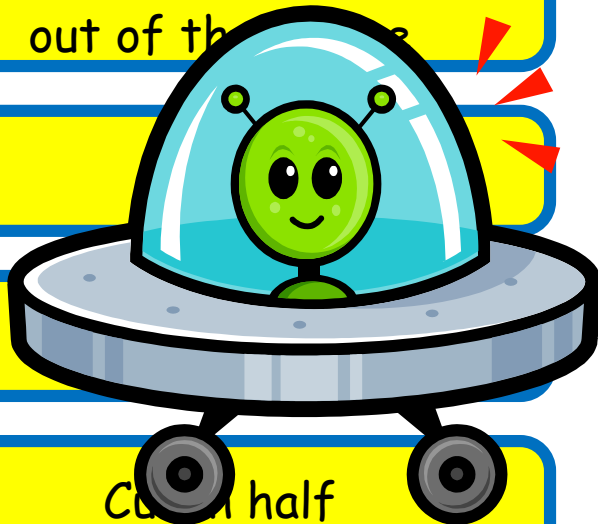




The Cheese Sandwich



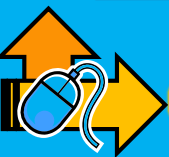
Take butter and cheese
out of the fridge



Cut in half

Put slices of cheese on the
bread

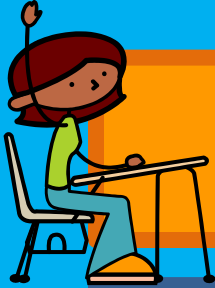
Take two slices of bread



Game Control

Learn how to recognise different flowchart symbols
and how to put them together

LO



How Things Work

- All everyday machines work by following a set of instructions.

- Here's a toaster -



- What instructions do you think it needs to follow?

The Toaster



- Check temperature setting
- Heat the bread
- Check toast is hot enough
- Pop up toast once cooked

Flowcharts

- Sequences of instructions can be broken down using flowcharts.
- These are the symbols:



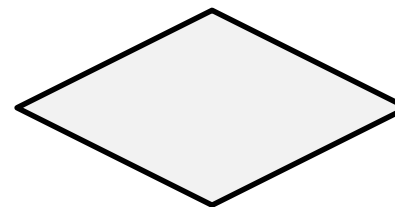
= Start/Stop



= Process

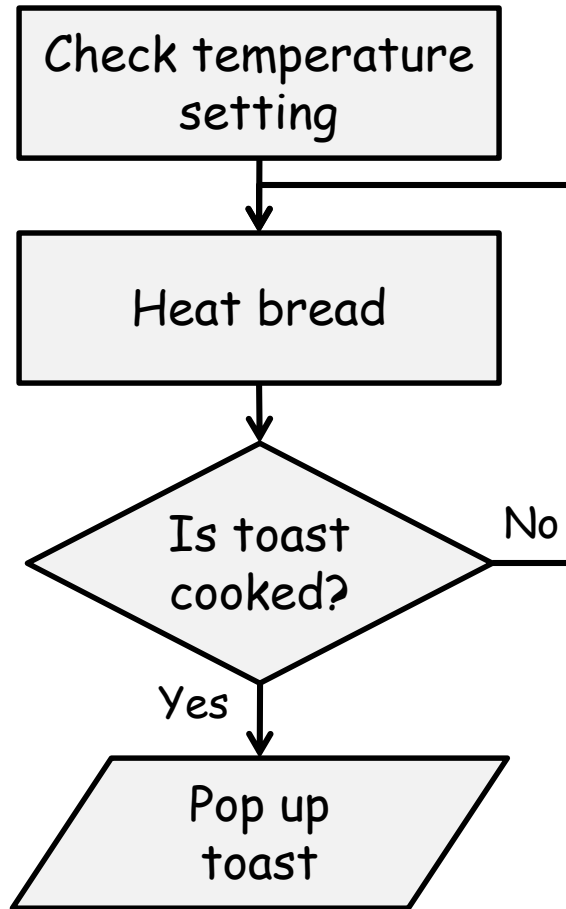


= Input/Output



= Decision

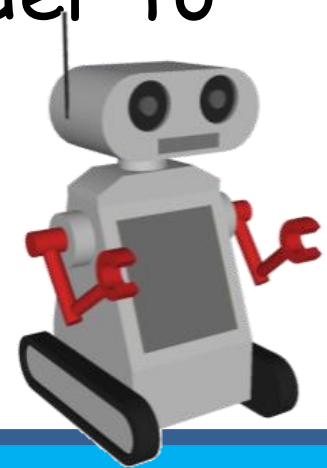
Back to the Toaster



This is a **Loop** - instructions that repeat over and over again.

Introduction to Task 1

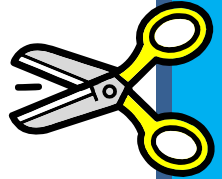
- ROBBO the Robot is not working properly as all his instructions have been mixed up!
- You will need to put them in order to make him work correctly!





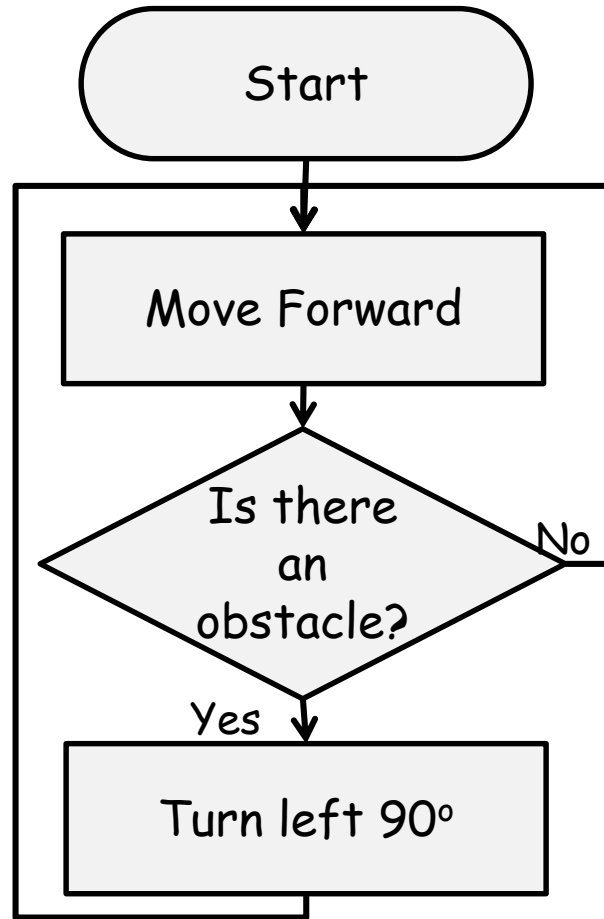
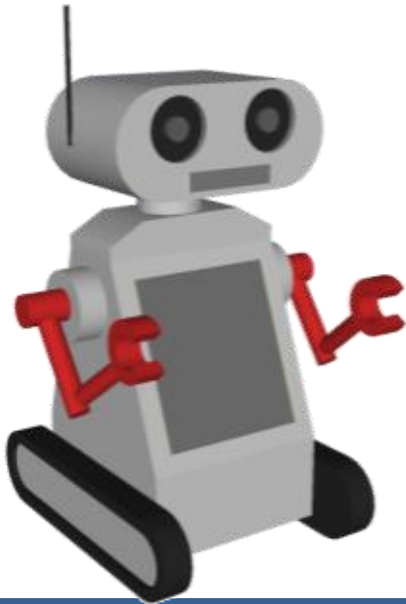
Task 1

- Cut out page 2 from your workbooks.
- Now cut out each of the flowchart symbols around the dotted lines - - -



Glue all the pieces onto the page 4 in order and draw the arrows to make R.O.B.B.O work correctly.

Task 1 Answer





Task 2

- On page 5 draw a flowchart to represent the instructions for making a cup of coffee.
- Make sure you use the correct symbols:



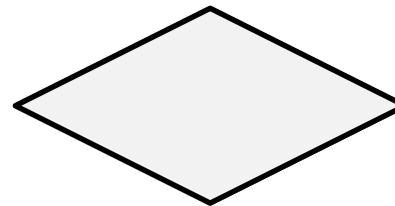
= Start/Stop



= Process



= Input/Output



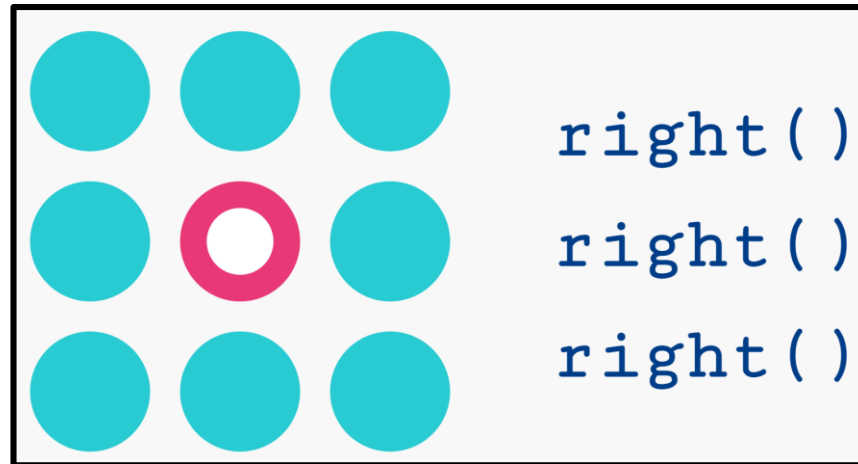
= Decision



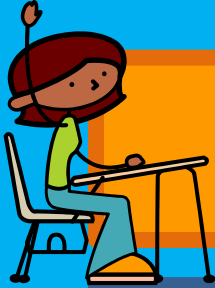
Extension Task

- Play the **Compute it Game** - use your arrow keys and follow the instructions.

<https://hourofcode.com/computeit>

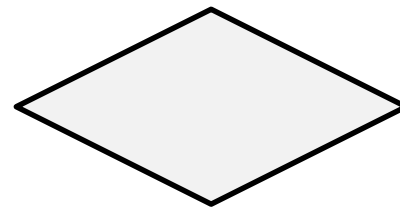


What level can you get to?



What can you remember?

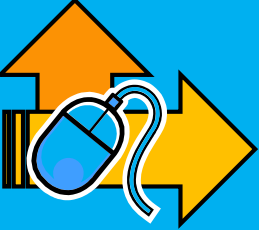
- What are these symbols called?





Learning Objective

- "Learn how to recognise different flowchart symbols and how to put them together".
- Put 😊 or ☹️ onto your **Self Assessment** page to show whether or not you have achieved today's learning objective.



Game Control

Motion and Looks



DCF



DATA & COMPUTATIONAL THINKING



PRODUCING



Answers

Instructions for computers can be summarised in flowcharts, using special symbols and language.

The instructions in flowcharts are displayed in sequence this sequence is shown by the direction of the arrows connecting the symbols.



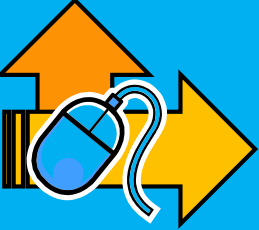
Learning Objective

- "Learn how to use Motion and Looks instructions in Scratch".
- Write this Learning Objective onto **Page 1** of your **workbook**.

Introduction to Scratch

- Scratch is a program that allows you to make animations and games by putting instructions together.
- This term you will be using it to make some simple games.





Game Control

Introduction to
the Scratch
Interface



Sprites

- A sprite is a character or object in your game or animation.



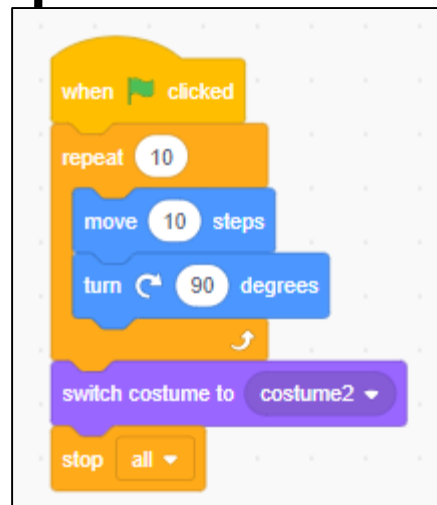
- Sprites can have different "costumes" to change what they look like:



Swapping between these two costumes would make this sprite look like it's walking.

Writing a Script

- A sequence of instructions is called a script.
- In Scratch instructions are put together like parts of a jigsaw puzzle:



The Scratch Interface

Select different types of instructions

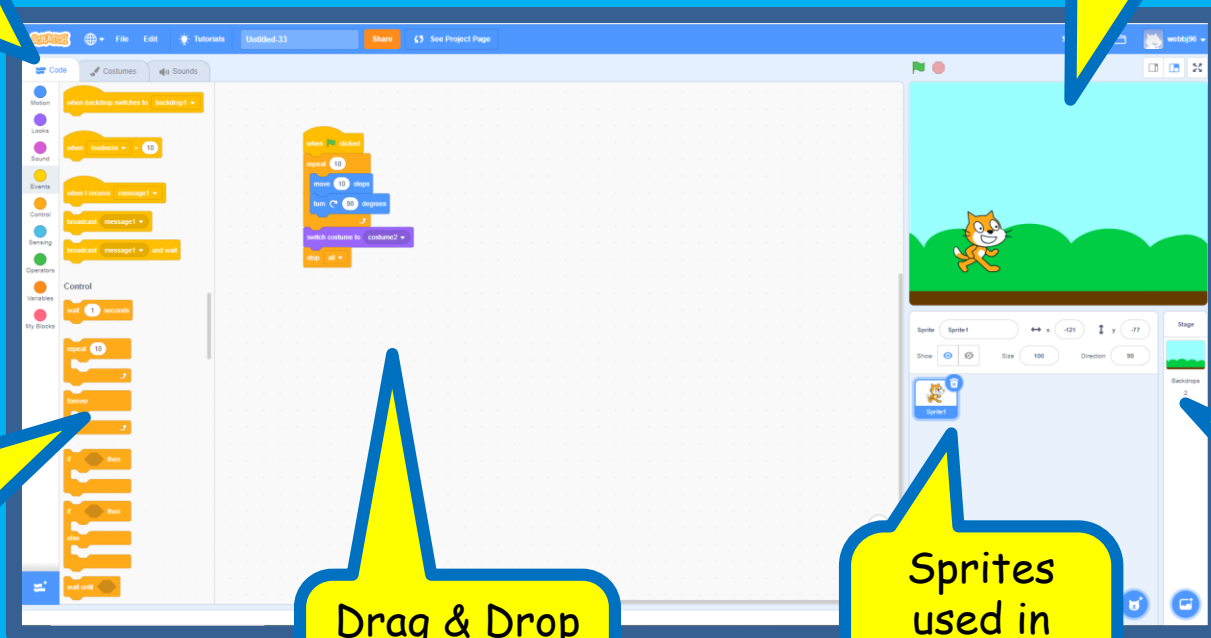
Game display window

Here is where you select your instructions

Drag & Drop instructions onto here.

Sprites used in your game.

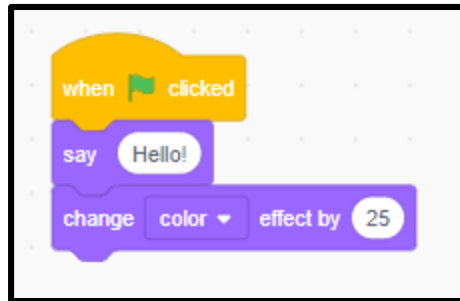
Stage



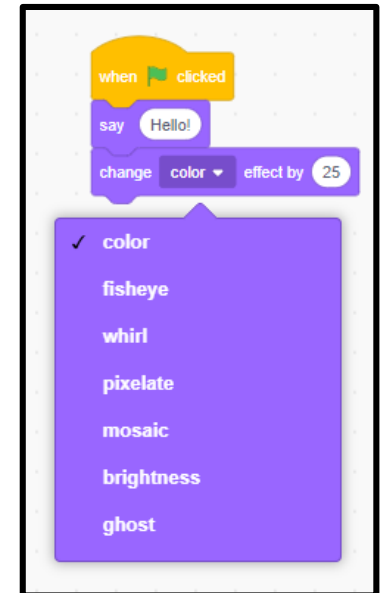


Task 1

- Create the following script and see what happens to the cat sprite:



- Now try changing the effects:
 - See what each one does.





Task 2

- Now change your script so it looks like this:

```
when clicked
show
say Hello! for 2 seconds
change color effect by 25
move 20 steps
next costume
say Goodbye! for 5 seconds
hide
```

- What happens now?



Task 3

- Add another sprite to your program and try to make a short animation where the two sprites move and talk to each other.



(Turn to page 11 of your workbooks for help)



Extension Task

- Follow the instructions on your Scratch Card to create a new program.





Learning Objective

- "Learn how to use Motion and Looks instructions in Scratch".
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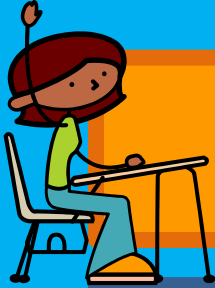


Homework

- It is **free** to download Scratch so you can use it at home by going to this website:

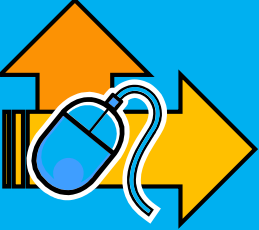
<http://scratch.mit.edu>

- Use your Hwb email to log in
- Try making an animation at home and show it next lesson.



What can you remember?

- What is a **sprite**?
- What is a **script**?
- What is the **stage**?



Game Control

Creating a
Virtual Pet





Learning Objective

- "Learn how to, independently, make a virtual pet in Scratch".
- Write this Learning Objective onto **Page 1** of your **workbook**.

Virtual Pets

- A simulation game where the goal is to look after a creature/animal to keep it alive.





Your Own Virtual Pet

- Create a Virtual Pet using Scratch. There is some help on **page 16** of your workbooks to get you started.
- The game will need to include:
 - A variable (starting at 0) to store **Hunger**. This will go **up** every 30 seconds.
 - If **Hunger** gets up to **10** the pet will die.





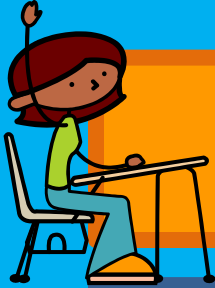
Extension Task

- Try adding the following features to your game:
 - Aging - make your pet get bigger as time passes.
 - Make the pet change into a ghost and float off the screen when it dies.
 - Add a variable for health which will go down over time and if it's not fed often enough.



Learning Objective

- "Learn how to, independently, make a virtual pet in Scratch".
- Put 😊 or ☹️ onto your **Self Assessment** page to show whether or not you have achieved today's learning objective.



What can you remember?

- What do we use to store the pets' hunger?
- How would you get the pet to change into a ghost and float off the screen?