

Computing Outcomes Portfolio



Year 4 - Spring 1
Block Coding (2Code - Gibbon 1)

Intent

This unit consists of lessons that continue on from Years 1, 2 and 3. The lessons will be based on the Gibbon activities in Purple Mash's 2Code.

The Gibbon guided activities provide further practice of the concepts that the children will be learning and can be used as extension activities. More able children can be encouraged to explore other things that they can change in their programs and experiment with the options available, such as timers and 'if' statements.

Children will often be able to solve their own problems when they get stuck, either by reading through their code again or by asking their peers; this models the way that coding work is really done. More able children can be encouraged to support their peers, if necessary, helping them to understand but without doing the work for them.

Lesson 1: L.Q. How can the properties of shapes be changed when clicked?

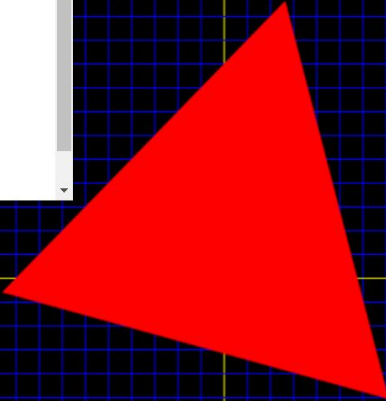
Next challenge >

Challenge: Clicking on the buttons makes the wrong type of shapes. Can you fix it?

See Code

Variable Watch

| | |
|--------|---------|
| shape | |
| x | = 0.05 |
| y | = -2 |
| speed | = 0 |
| size | = 10 |
| sides | = 3 |
| colour | = [red] |



Set to triangle Set to square Set to pentagon

when clicked **b** setTriangle

shape sides = set to 3

when clicked **b** setPentagon

shape sides = set to 5

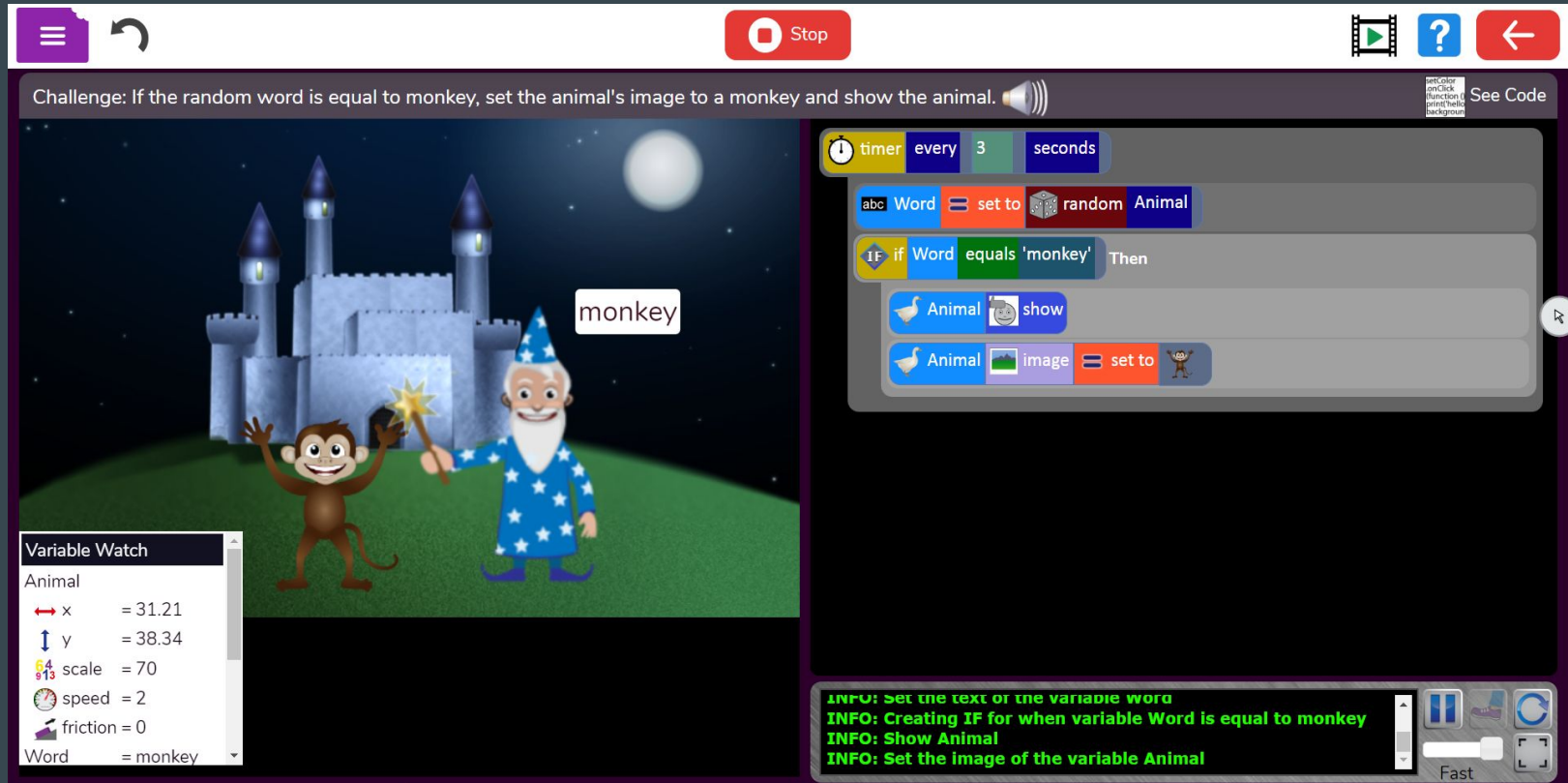
when clicked **b** setToSquare

shape sides = set to 4

INFO: Create a 'when clicked' block for setPentagon
INFO: Create a 'when clicked' block for setToSquare
INFO: Set the sides of the variable shape
SUCCESS: Challenge completed

Fast

Lesson 2: L.Q. What is one method of programming random words and corresponding images to appear on-screen?



Challenge: If the random word is equal to monkey, set the animal's image to a monkey and show the animal.

Variable Watch

| | | |
|----------|---|--------|
| Animal | | |
| x | = | 31.21 |
| y | = | 38.34 |
| scale | = | 70 |
| speed | = | 2 |
| friction | = | 0 |
| Word | = | monkey |

timer every 3 seconds

abc Word = set to random Animal

if Word equals 'monkey' Then

- Animal show
- Animal image = set to monkey

INFO: Set the text of the variable word
INFO: Creating IF for when variable Word is equal to monkey
INFO: Show Animal
INFO: Set the image of the variable Animal

Fast

Lesson 3: L.Q. How can a set of traffic lights be coded?

Challenge: When the user clicks 'go' set the traffic light to amber red. Then after a second set it to 'green' and move the car right.

```
when clicked go
  trafficlight set to amberred
  timer after 1 seconds
  trafficlight set to green
  vehicle right

when clicked stop
  trafficlight set to red
  vehicle stop
```

INFO: Create a 'when clicked' block for stop
INFO: Set DEBUGLOG_INDEXTEXT_TRAFFICLIGHT the variable trafficlight
INFO: Create a timer for after 1 second

Lesson 4: L.Q. What are the requirements of a program to convert from ounces to grams and vice versa?

The image shows a Scratch challenge interface. At the top, there is a navigation bar with a menu icon, a 'Next challenge' button, and icons for help, back, and forward. The challenge text reads: "Challenge: There is a problem with overtaking vehicles, can you fix it?". The main area features a 2D road with a red car and a green car. A 'Variable Watch' panel on the left shows the state of the 'racer' variable: x = 0.73, y = 0.55, angle = 90, speed = 5, scale = 100, and friction = 0. The script area on the right contains the following code blocks:

- when green flag clicked
- when racer collides with vehicle
- racer angle add 45
- timer after 1 seconds
- racer angle subtract 45

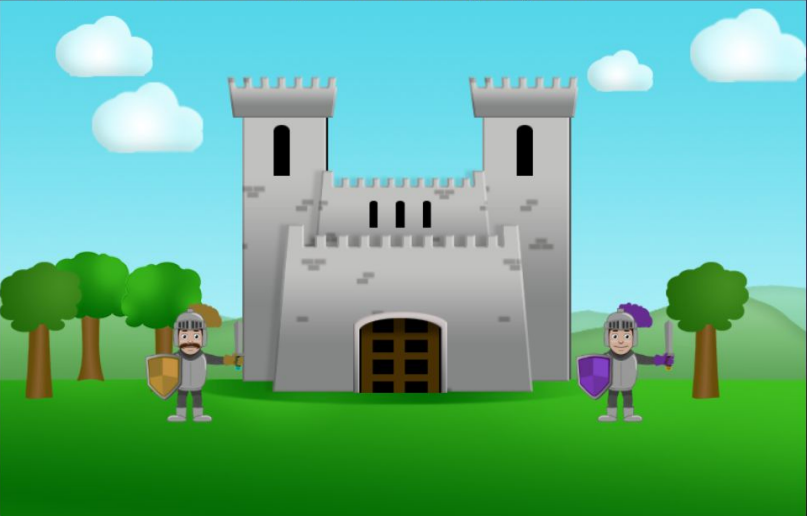
At the bottom right, there is an 'INFO' section with the following text:

- INFO: Create 'collision detection' block for when racer bumps into vehicle
- INFO: Increase the angle of the variable racer
- INFO: Create a timer for after 1 second

Below the info section is a 'Fast' slider and a 'See Code' button.

Lesson 5: L.Q. Using a timer and the x axis, how can an object's movements be programmed?

Challenge: The instructions to the knights have been mixed up. Can you fix it?



```
knight → right
knight2 ← left
timer every 1 seconds
IF if knight ← x greater 15 Then
  knight ← left
IF if knight ← x less 5 Then
  knight → right
IF if knight2 ↔ x less 5 Then
  knight → right
IF if knight2 ↔ x greater 15 Then
  knight2 ← left
```

INFO: Creating IF for when variable knight is greater than 15
INFO: Creating IF for when variable knight is less than 5
INFO: Creating IF for when variable knight2 is less than 5
INFO: Creating IF for when variable knight2 is greater than 15

Fast