



Respect, Believe, Achieve

Year 5 Programming in Scratch

Computer Science



Key Words

| Key Words | |
|------------------|--|
| inputs | An example of an input are the keyboard arrow keys, which could be programmed to move a sprite. |
| selection | The sprite can be programmed to make a choice. For example, selecting whether an answer is right or wrong in a quiz. |
| sensing | A sensing block is triggered when a sprite touches another sprite or a colour. |
| variables | Something that changes in a program such as score or the speed of a car sprite. They can also be random to make the game more unpredictable. |
| debug | Find an error in your code and correct it. |

What do I already know?

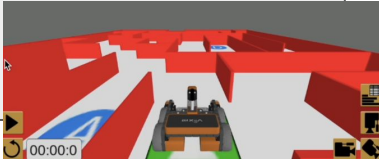
- Know that sprites can be controlled in different ways using keyboard or touch screen inputs.
- Know that sprites can be programmed to sense other sprites or colours then make decisions. (Eg, a car sprite could win the game if it touches a blue finish line or go back to start if it touches the green off the track.)
- Know how to program variables, including data variable that can used to add a scoring system.

Our Learning Steps

1. Scratch maze
Write a program with inputs, movement, selection, sensing and data variables.



2. Scratch virtual robot
Program distance sensing and movement (Virtual Robot).



3. Scratch football
Program Inputs, outputs, loops, selection, sensing and variables.



4. Scratch sentences
Program list variables that chooses randomly.



5. Scratch unplugged
Complete unplugged activities to consolidate learning.

Scratch Challenges Name: _____

1. Can you match the Scratch tools down the left with what they can be used to help program penalty shootout game? The first one has been done for you.

| | | |
|------------------|--|---|
| Keyboard inputs | The goalkeeper continually moves side to side. | Score a point when a coin is collected. |
| Random variables | Triggers a goal when the ball touches the goal. | Move the sprite around the maze. |
| Sensing | Send the ball to a position in the goal. | Sprite moves back to the start when it hits a wall. |
| Loops | The ball bounces off the goalkeeper at unpredictable angles. | |

2. Can you draw a line between the Scratch tools down the left with what they can be used for on the right, to help program a maze game?

| | |
|------------------|---|
| Keyboard inputs | Score a point when a coin is collected. |
| Random variables | Move the sprite around the maze. |
| Sensing | Sprite moves back to the start when it hits a wall. |
| Loops | |

3. Circle the code below which is correct for moving a sprite back to the start line (Co-ordinates x:-205 y:-127) if it touches a black wall.

| | |
|--|--|
| | |
| | |

4. Below is selection and sensing code for a ball sprite that when it touches a goalkeeper sprite it slides to a random position and says "No Goal" for 2 seconds. If it touches the pink/purple colour in the goal it says Goal for 2 seconds. There are 3 errors, Can you draw an arrow to them and say what they should be.

```
when green flag clicked
  touching sprite clicked
  glide 1 secs to random position
  say No Goal for 2 secs
  touching color clicked
  glide 1 secs to random position
  say Goal for 2 secs
```