Scratch – Simple Programming

Simple Game Part 2

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Unit Overview

Objectives

Understand why computer programming scripts are used.

Understand the use of Variables as place holders for information.

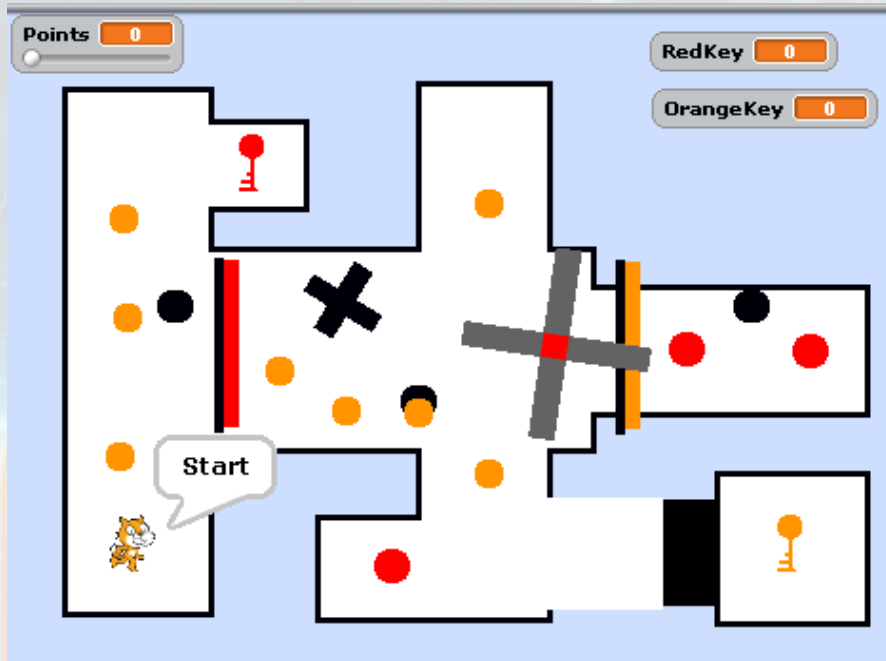Understand the script required to build simple games.

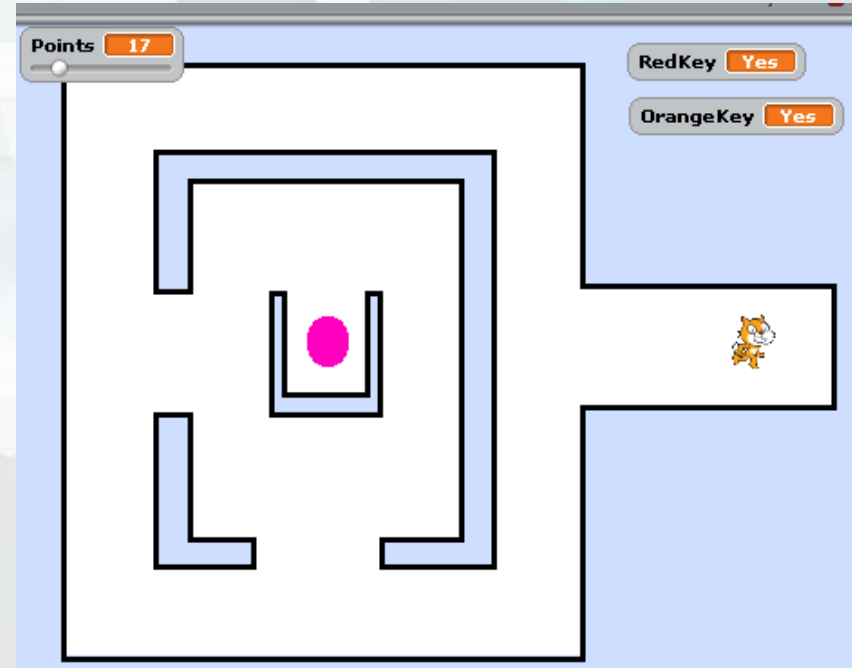| Outcomes		Time
Task 1	Glide (X & Y axis)	
Task 2	Glide Game	
Task 3	Create Maze	
Task 4	Character Controls	
Task 5	Maze: Forever IF	
Task 6	Maze: Points	
Task 7	Broadcast	
Task 8	Levels	

Unit 3 – Scratch

Level 1

Level 2

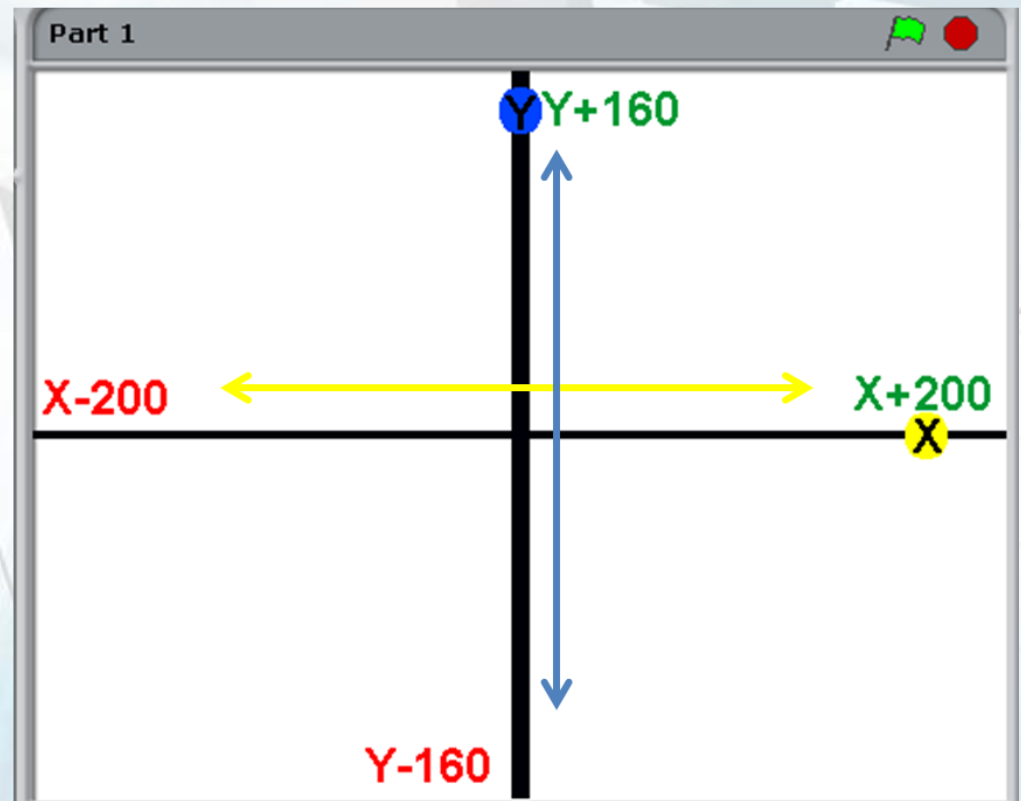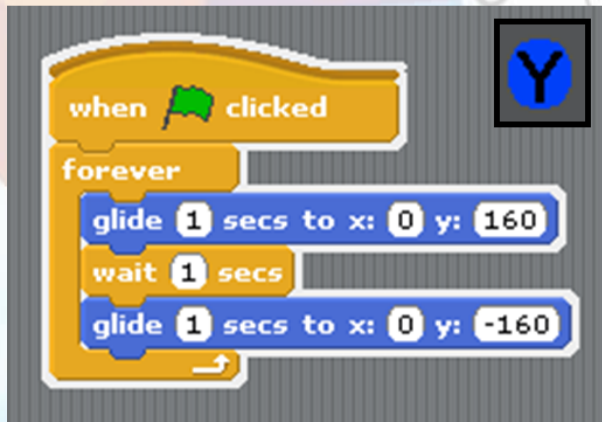

What is the purpose of this game?
How would you complete this game?
Describe the use of the variables?
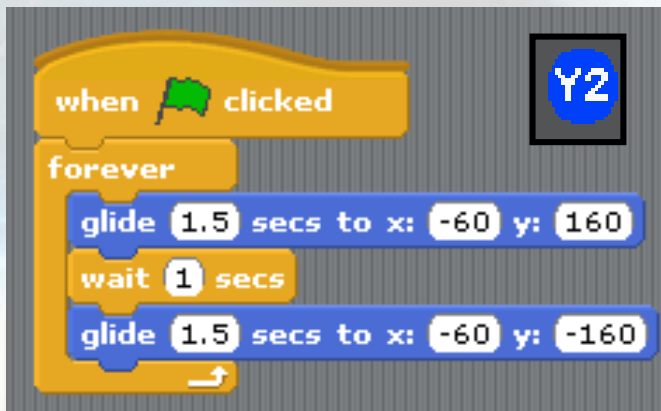**Identify the different scripts used in this game?**

Task 1 – Glide (X & Y axis)

1. Open the **Glide Scratch File**.

2. Create the script shown so that the **blue (Y)** and **yellow (X)** ball glide along the appropriate axis.

Task 1 – Glide (X & Y axis)

3. Create duplicate sprites for the blue and yellow balls on the same scratch file.

4. Create the script shown for the new sprites.

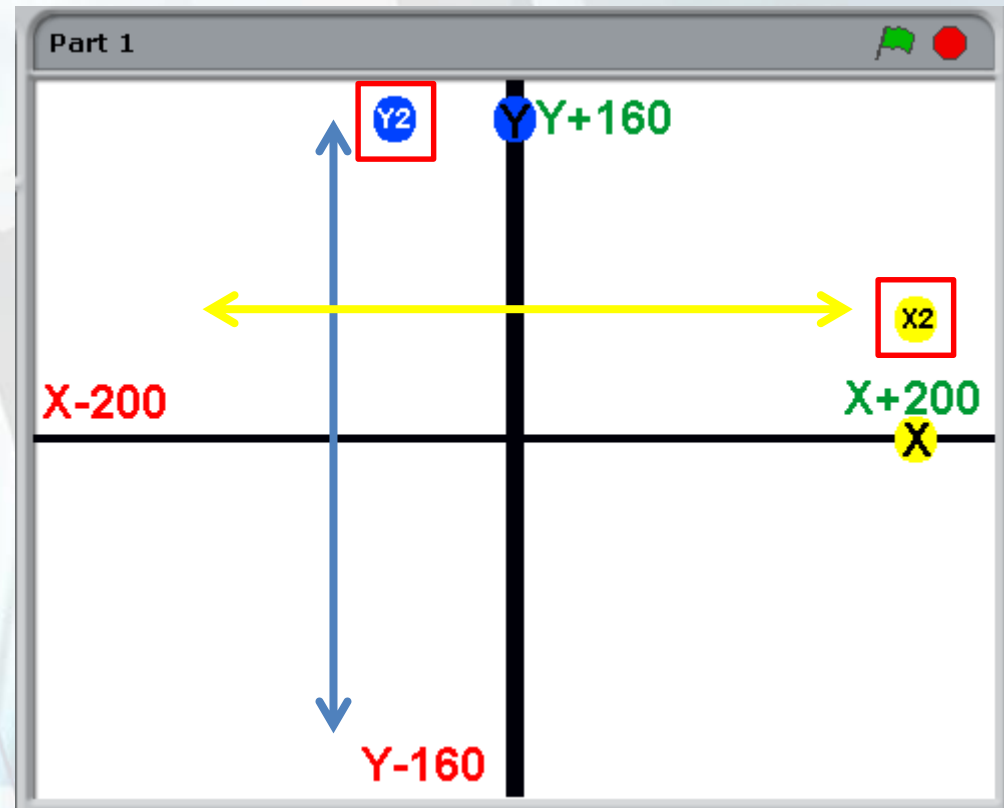5. Click on the green flag to preview the glide.

Task 2 – Glide Game

Aim: To collect all the points without touching anything in black.

Create new sprites for the content.

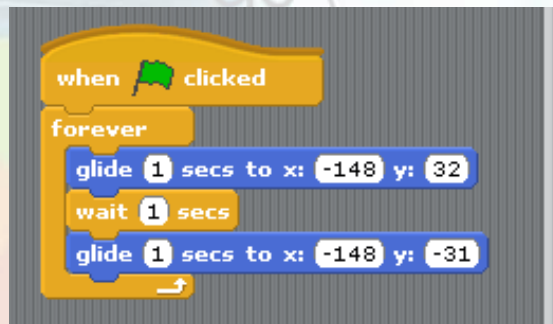**Tip: You can duplicate some sprites.**

1. Create the content (sprites) for the Glide Game including:

- Black bars
- black gliding balls
- Black Crosses

2. Set the character controls (keyboard).

Task 2 – Glide Game

3. Click on the relevant sprite and add the script shown below:

Black Gliding Balls: You will only have to change the position of the different gliding balls on the X (horizontal) axis.

Black Cross: The cross will forever turn by 1 degrees and loop until the game ends.
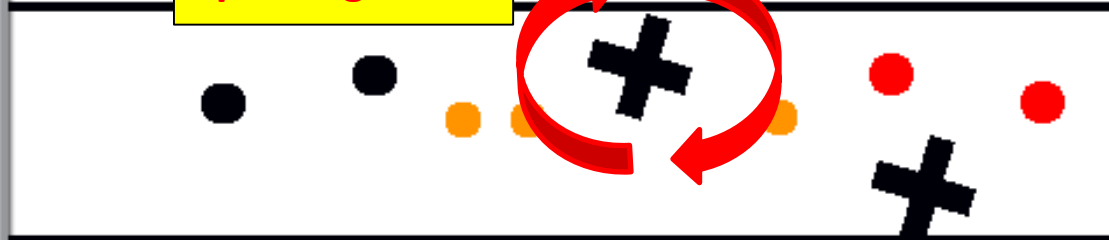
Gliding Balls

```
when [flag] clicked
forever
  glide 1 secs to x: -148 y: 32
  wait 1 secs
  glide 1 secs to x: -148 y: -31
```
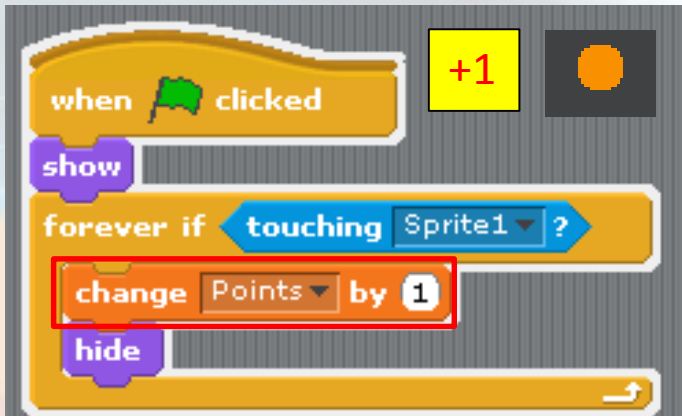
Spinning Cross

```
when [flag] clicked
forever
  turn ↻ 1 degrees
```
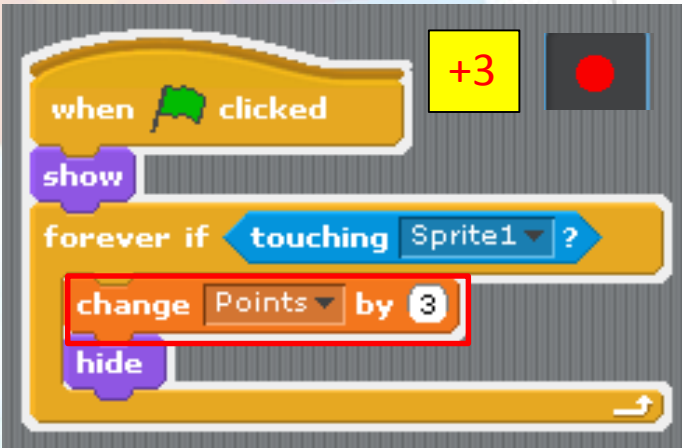
Task 2 – Glide Game

4. Create a **variable for the points**.

5. Click on orange and red sprites and add the script for the points.

When the cat (sprite1) **touches the orange and red balls, points will be added to the points variable** and the sprite will then be hidden.
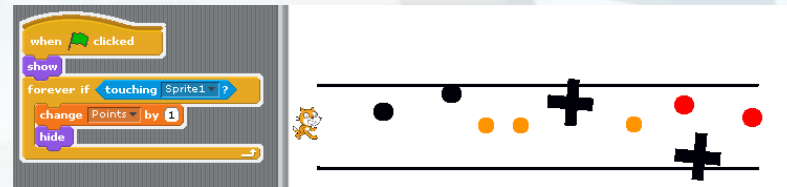

Stop All: When the points equal ten then **all the scripts will stop**. Place this script on the **stage**.

Task 2 – Glide Game (Broadcast)

6. You should have a sprite which will be shown once the game has ended (Sprite 1 – Cat) touches the black.

7. Using the **broadcast** and **receive** script show the scary face once the game has ended.
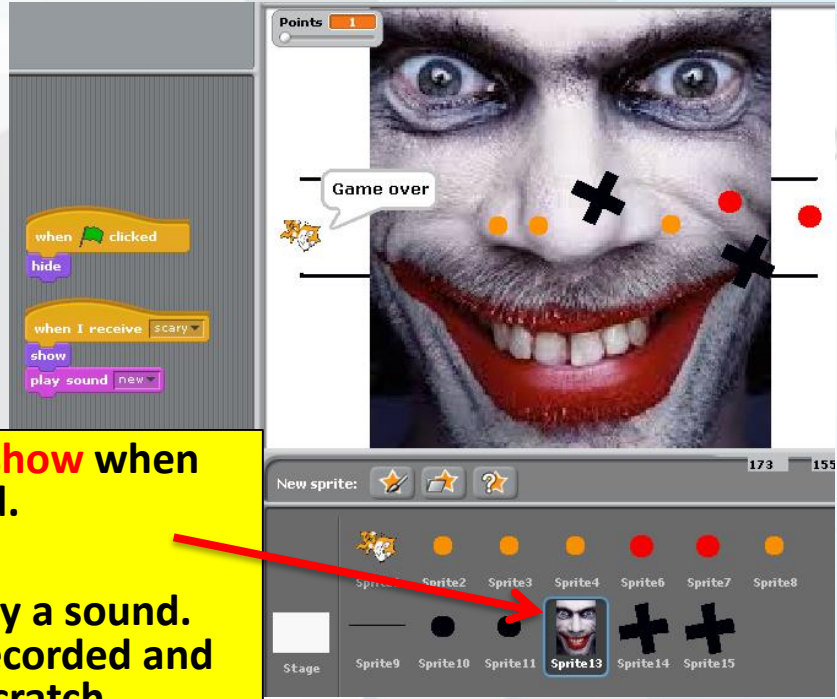
Broadcast scary when game ends.

Scary Face will be hidden when game starts.

Scary Face will show when scary is received.

You can also play a sound. Sound can be recorded and imported into scratch.

Task 3 – Create Maze
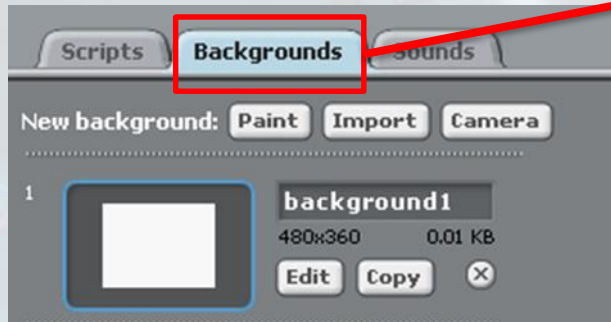
1. Edit the **stage background** and draw your maze using the **Rectangle** and **Fill** tools.

The outline of the maze should be **black** which will mean if the sprite makes **contact with the outline** then the **game will come to an end**.

Tip: Use a White rectangle or brush to cover the black lines inside of the maze.

Rectangle tool (draw outlined or filled rectangle or square)

Fill tool (fill areas with color or gradient)

Task 4 – Character Controls

Set a start point and a countdown for the sprite.
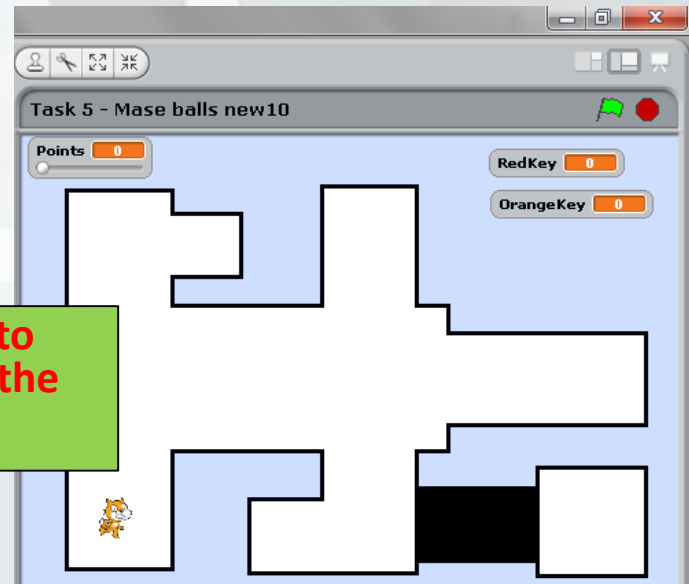
Conditions to move onto the next level.

Task 5 - Mase balls new10

Points 0

RedKey 0

OrangeKey 0

Conditions to win the game.

Conditions to end the game.

2. Set the **character controls** (keyboard or mouse). Mouse controls have been used for this example.

3. Set a **start point** for the sprite.

4. Create a **points variable**.

Task 5 – Forever IF

5. Create a **variable for Red Key** and **Orange Key**.

6. Create the **sprite for the Keys** and the **doors** and add the script shown. Make sure the outline of the door is black so that the game will end if the sprite comes into contact with the door.


```
when [green flag] clicked
show
forever if < touching [Sprite1 ▾] ? >
    set [RedKey ▾] to [Yes]
    hide

when I receive [Gameover ▾]
hide
```

```
when [green flag] clicked
show
forever if < [RedKey] = [Yes] >
    hide

when I receive [Gameover ▾]
hide
```

```
when [green flag] clicked
switch to background [background1 ▾]
set [Points ▾] to [0]
set [RedKey ▾] to [0]
set [OrangeKey ▾] to [0]
set [GreenDoor ▾] to [0]
```
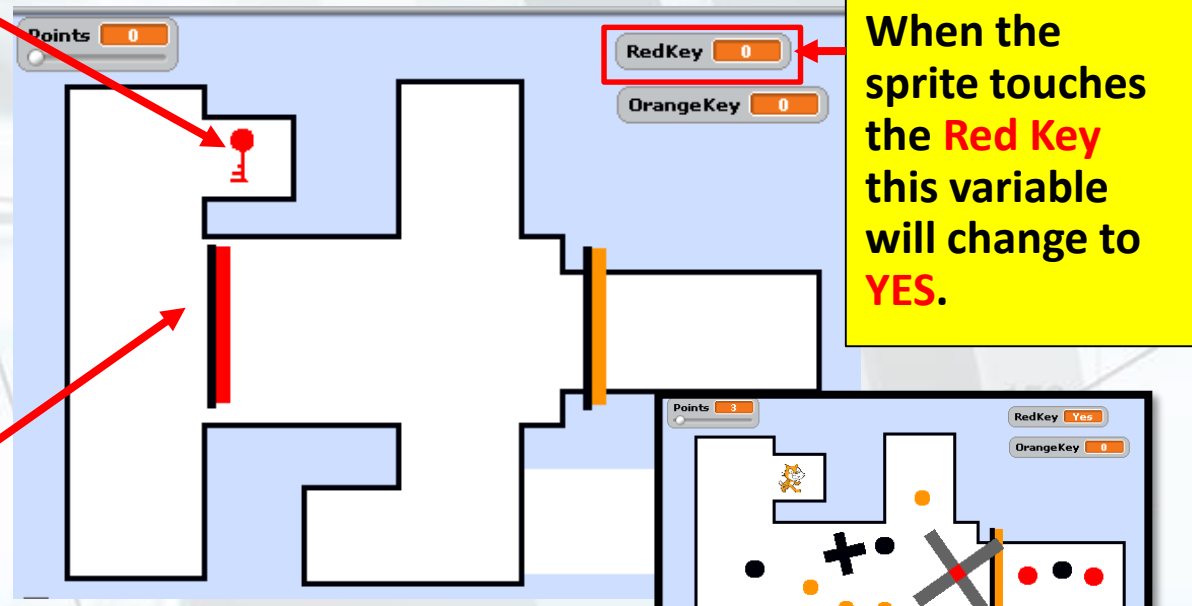
When the sprite touches the Red Key this variable will change to YES.

This door will show until the Red Key Variable changes to YES.
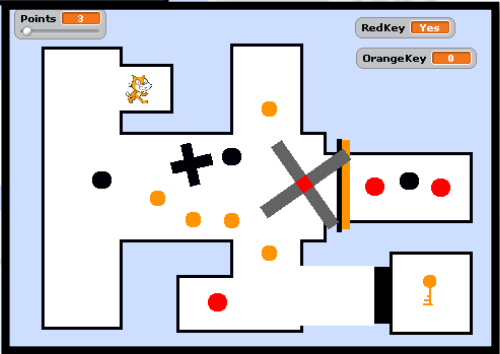
On the stage set the variables to 0 at the start of each game.

Task 5 – Forever IF

Forever IF: Conditions to decrease size of the sprite.

Task 5 - Mase balls new10

Points 0

Start green flag script

OrangeKey 0

3

7 Create a sprite for a big cross. Then create two more costumes and decrease the size of the cross.

8. Add the script shown. The cross will spin and decrease in size when the points are collected. Eventually the cross will disappear.

costume1
118x123   1 KB
Edit Copy

costume2
84x86   0.65 KB
Edit Copy

costume3
50x48   0.35 KB
Edit Copy

Shrink sprite
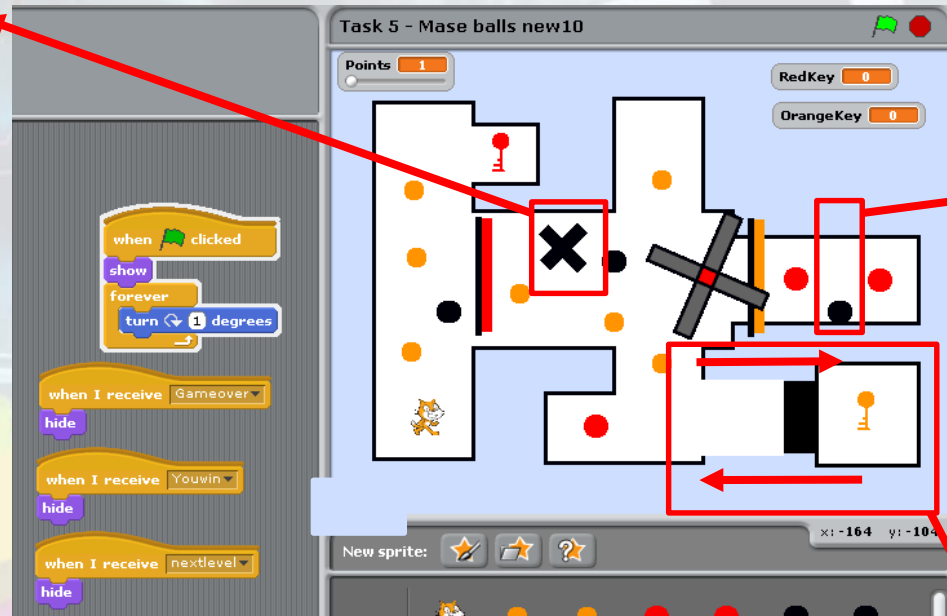
Costumes decreases in Size

Task 5 – Forever IF & Glide

You can also make the cross glide up and down.

Hide the sprites when the game is over (Win/lose) or when you move to the next level.

9. Create the sprites which will be either spinning or gliding.

10. Apply the script shown to these sprites.

White Rectangle will be gliding. Sprite will have to get across to collect the orange key. However if the sprite touches the black the game will end.
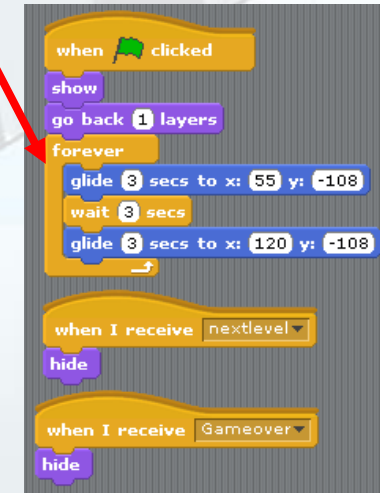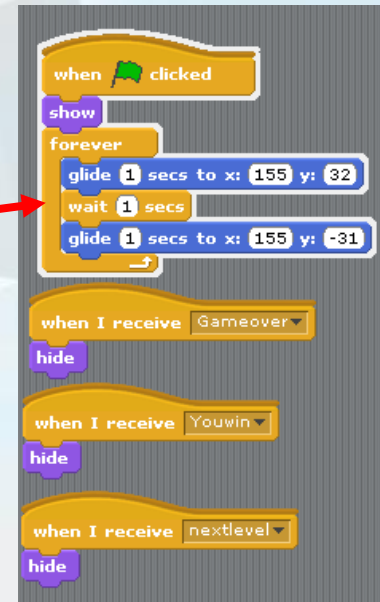
Task 6 – Points

11. Create the sprite for the points and add the script shown.

- The **orange ball** will **add one** to the **points variable.**
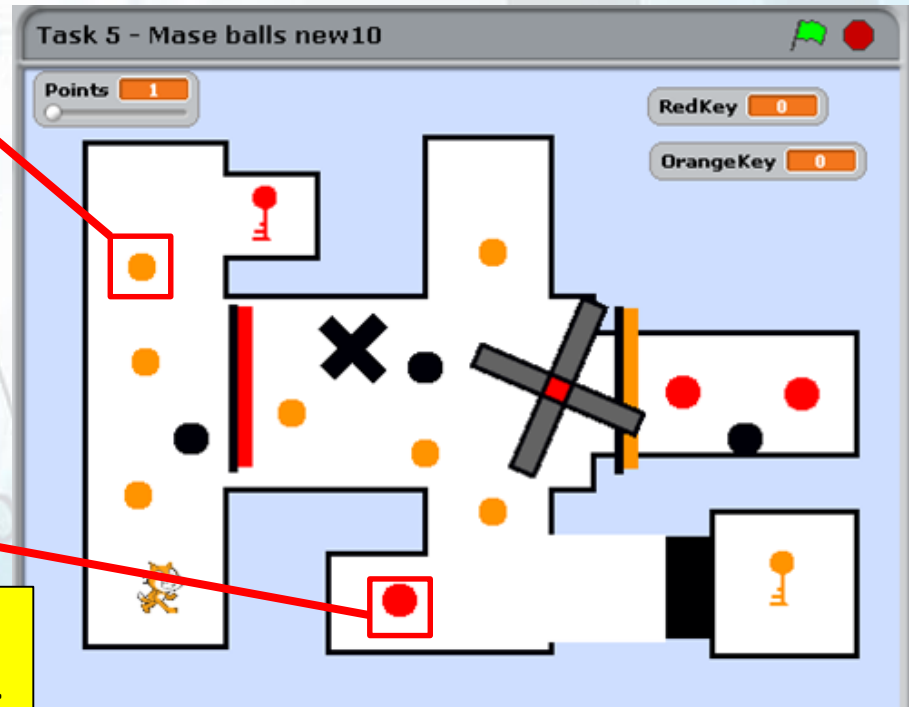- The **red ball** will **add three** points to the **points variable**.

Hide the sprites when touching sprite 1 (cat) or the game is over.

Task 7 – Broadcast

12. Add the **broadcast** script when the condition for the game ending (**Touching black**) has been met.

13. You can **create** a **new sprite for the Game Over Screen**.

14. Add the **receive script** for the Game Over sprite.

When **the game starts** the **game over sprite will be hidden**.

When the **Gameover broadcast is received** then all other game **elements will be hidden** and the game over sprite will only be visible.

Game Over

Task 8 – Level

Broadcast for next level

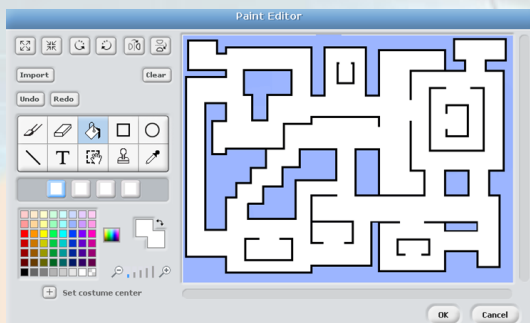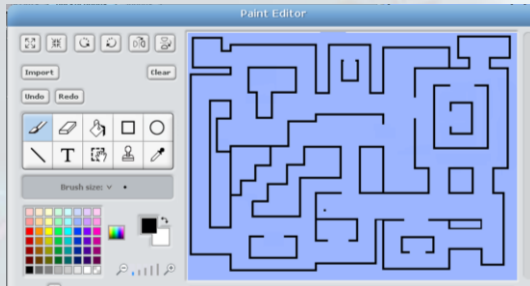**Receive to show background2**

15. Set the condition for the game to go to the next level **(Points = 17)**.

16. Then create a **broadcast for the next level**.

17. Create a **new background** with a **new maze**.

18. Create a condition for the game to end (Win).

19. Create a **broadcast and receive script** to **show the You Win sprite**.

You Win

Create your own game
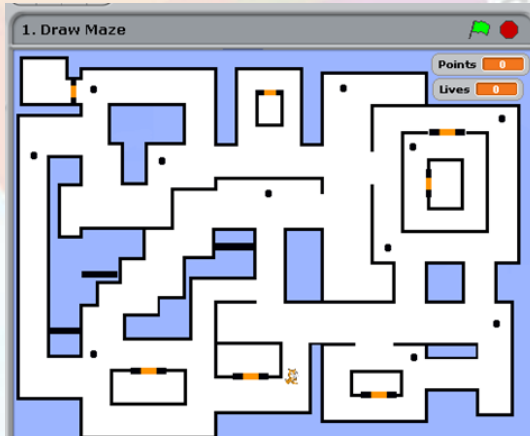
Create your own game using the skills you have picked up from this task. You may include additional features such as lives.
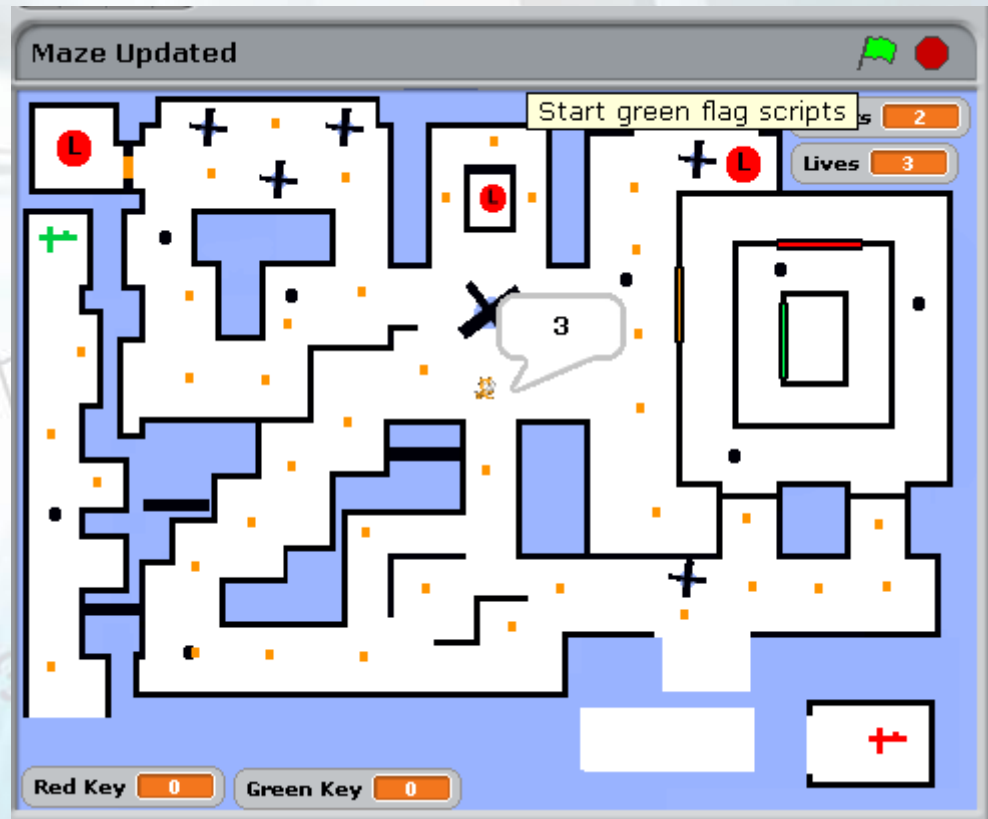
Plenary – Refer to the Lesson Objectives

Objectives

Understand why computer programming scripts are used.

Understand the use of Variables as place holders for information.

Understand the script required to build simple games.

Plenary Task (Q&A)

Peer assess each other scripts.
Based on the skills you have learnt think about creating your own game. What type of scripts would you use.

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