

Scratch Activities
Version 1.0



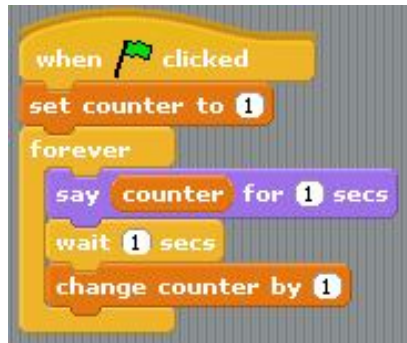
by
Richard Wiktorowicz
Moorefield Girls High

richard_wiktorowicz@yahoo.com.au

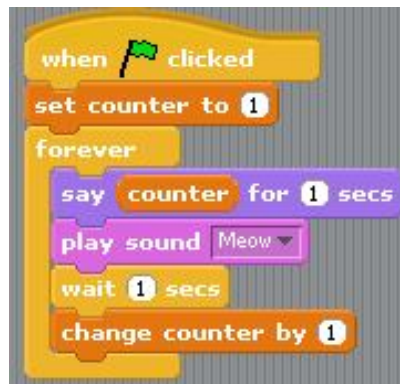
These worksheets may be freely used, on the condition that, if you have developed your own Scratch activities, please email me so they can be added to this resource.

Scratch Activity #1 - Count Sprite

1. Count Sprite – This script makes the Sprite count by 1



2. Change Count Sprite to count only in odd numbers.
3. Change Count Sprite to count only in even numbers.
4. This script counts and has a meow after. Modify it so that it has a “meow” after odd numbers and a dog “bark” after even numbers.



5. This script alternates costumes and sounds. Modify so that your script in 4 (above) also changes costume as well as sound.

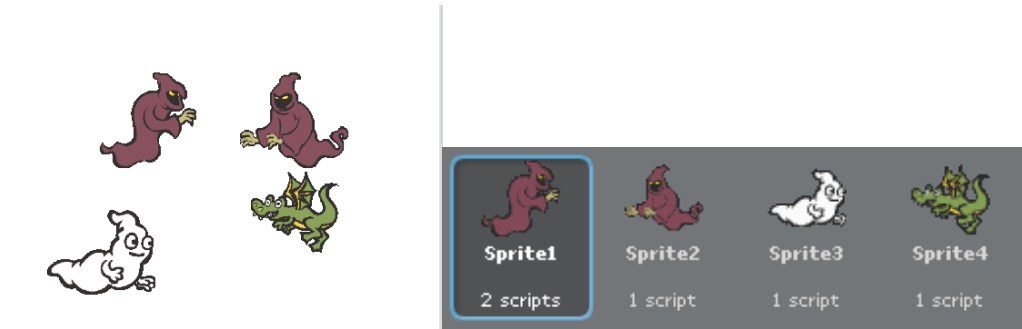


6. Here is a script with two Sprites one that says “Marco” the other one “Polo”. Modify it to a cat with a “meow” and a dog with a “bark” counting.



Scratch Activity #2 – Gliding Counting Ghosts and a Small Dragon

1. This script involves 4 Sprites



2. They take turns gliding towards the centre of the screen

3. This is how they do it.



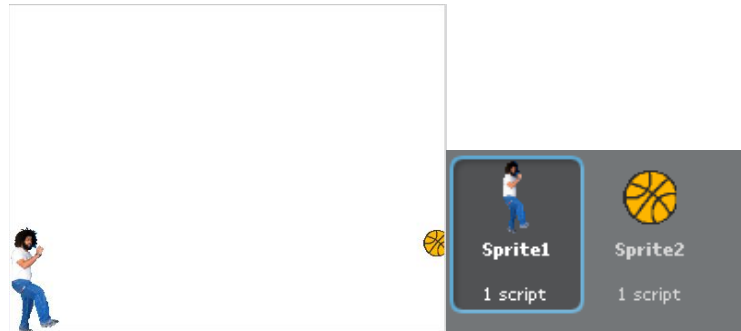
4. Modify the script so that each Sprite counts by 1 and says the new counter i.e. 1, 2, 3, 4 then 5, 6, 7, 8 and so on. Each Sprite plays a different sound after saying the number.

5. Modify the script so that each Sprite hides after doing its stuff and shows itself for the next round.

6. Change the script to 6 Sprites counting, making sounds and disappearing.

Scratch Activity #3 – Bouncing Basketballs

1. This script involves 2 Sprites

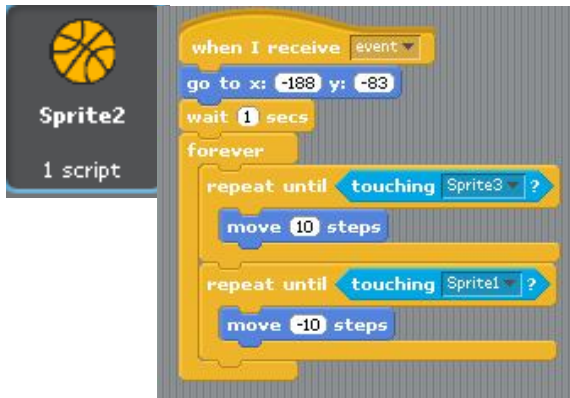


2. The ball flies from Sprite1 and stops when it gets to the edge of the screen
3. This is how they do it. I shrank both Sprites so your `go to x: [] y: []` will be different.

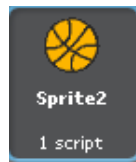
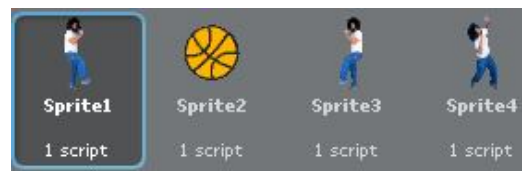


4. Modify the script so that Sprite2 makes a sound as it travels across the screen
5. Modify the script so that ball bounces off Sprite3 back to Sprite1 and plays a different sound when returning to Sprite1. Start with this. Script on next page.

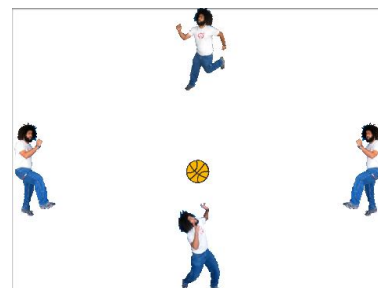




6. Modify the script so that Sprite4 is in between and the ball travels from Sprite1 to Sprite4 to Sprite3 and so on, in a loop. Use three different sounds.



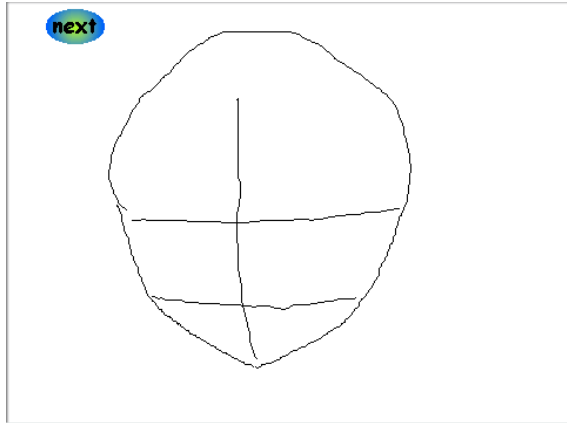
7. Now add another Sprite (Sprite5) and the ball sequence is Sprite1, Sprite4, Sprite3, Sprite5 and back to Sprite1. Put it in a loop.



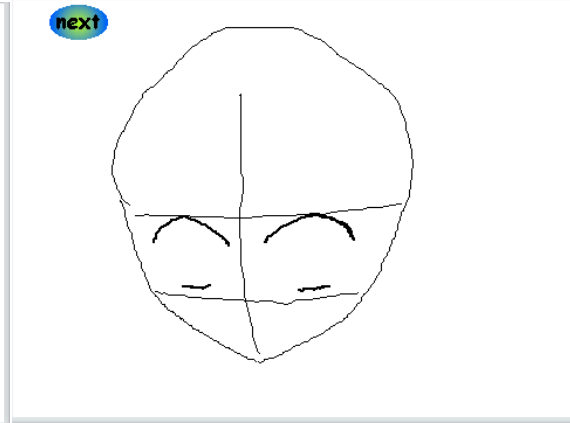
Scratch Activity #4 – How To Draw A Head

1. Create a Sprite with the following costumes.

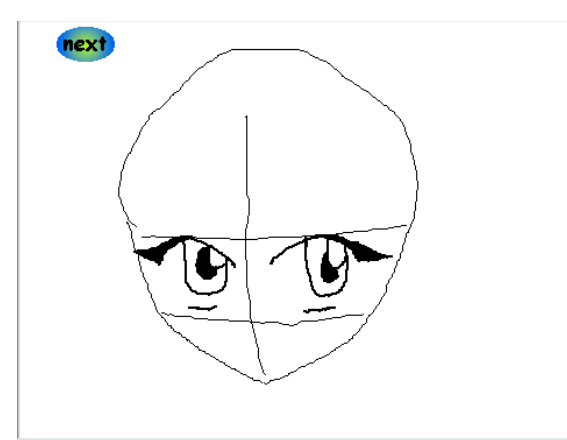
Costume 1



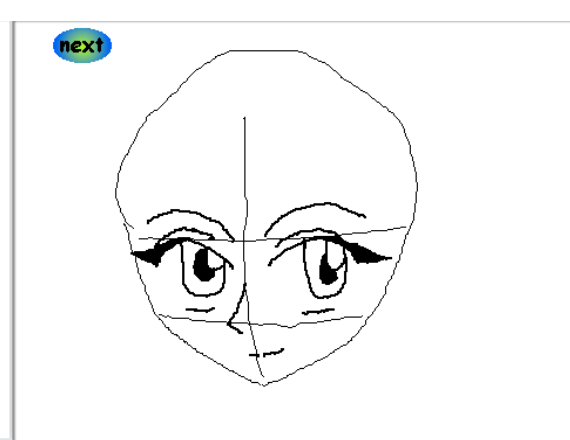
Costume 2



Costume 3



Costume 4



Costume 5



Costume 6



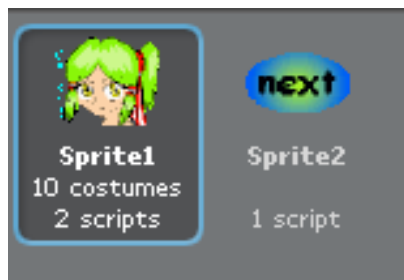
Costume 7



Costume 8



Costume 9



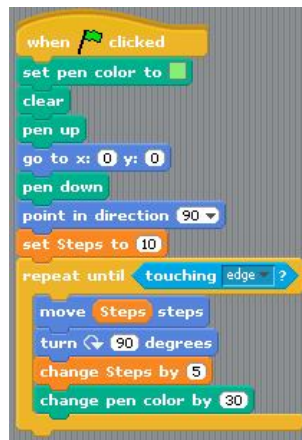
Scratch Activity #5 – Geometrical Patterns

1. This script involves 1 Sprite with a black background.



2. Let's make it more colourful by adding

`change pen color by 30`



3. Change the turn angle `turn 45 degrees`. Run the script.


4. Change the turn angle `turn 30 degrees`. Run the script.

5. Change the turn angle `turn 60 degrees`. Run the script.

6. Change the turn angle `turn 70 degrees`. Run the script.

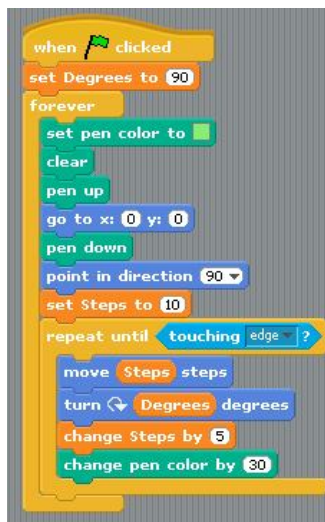
7. Change the turn angle `turn 80 degrees`. Run the script.

8. Into the last script let's add a  so the script looks like this



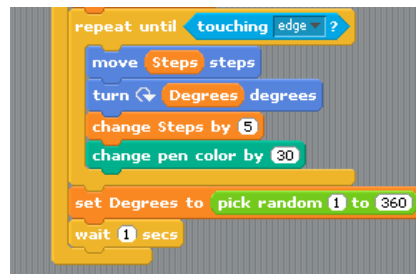
```
when clicked
  forever
    set pen color to green
    clear
    pen up
    go to x: 0 y: 0
    pen down
    point in direction 90
    set Steps to 10
    repeat until touching edge
      move Steps steps
      turn 80 degrees
      change Steps by 5
      change pen color by 30
```

9. Change things a bit by  and  so it looks like this



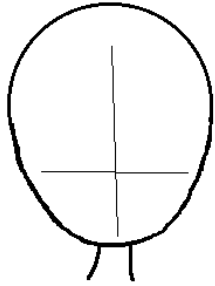
```
when clicked
  set Degrees to 90
  forever
    set pen color to green
    clear
    pen up
    go to x: 0 y: 0
    pen down
    point in direction 90
    set Steps to 10
    repeat until touching edge
      move Steps steps
      turn Degrees degrees
      change Steps by 5
      change pen color by 30
```

10. And finally let's be random replace the bottom bit with and include in the forever loop.

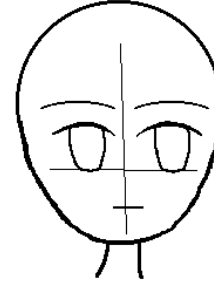


Scratch Activity #6 – How To Draw Another Head And Upper Body

Costume 1



Costume 2



Costume 3



Costume 4



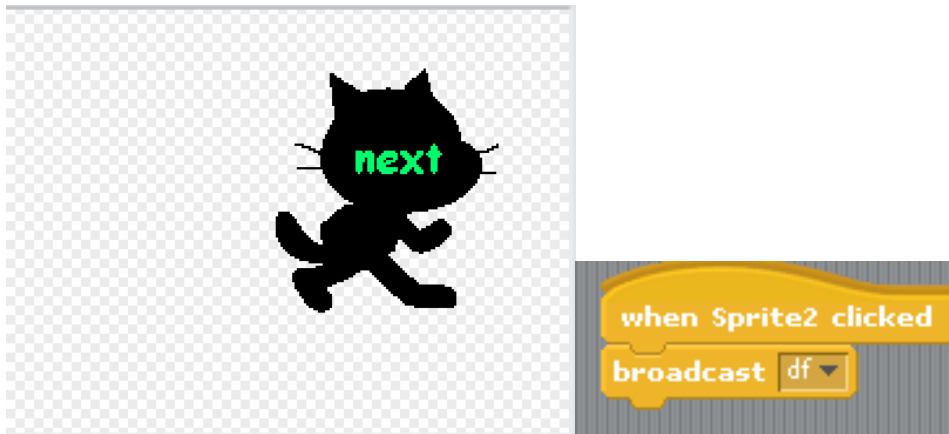
Costume 5



Costume 6



Next Sprite (Sprite2)

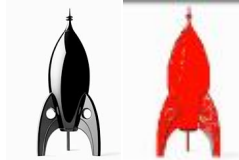


Sprite 1



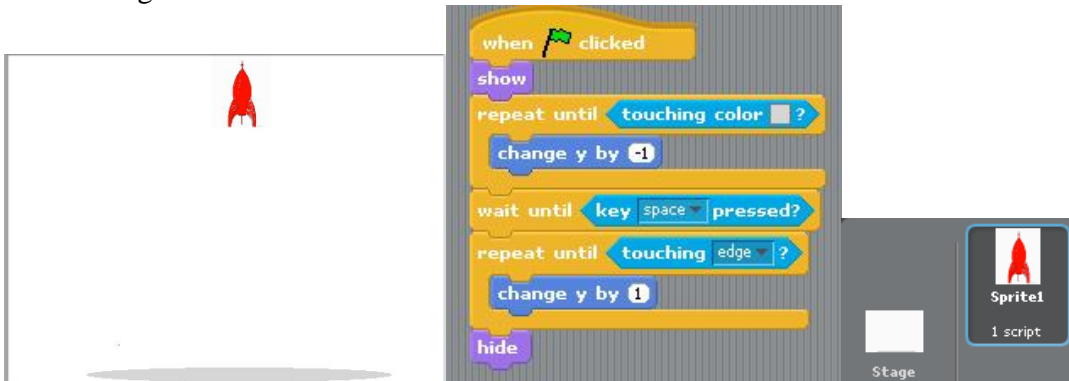
Scratch Activity #7 – Rockets In Space

1. This rocket image is located in Student Files/IST Folder. Import it, shrink it and colour it with a fancy pattern.

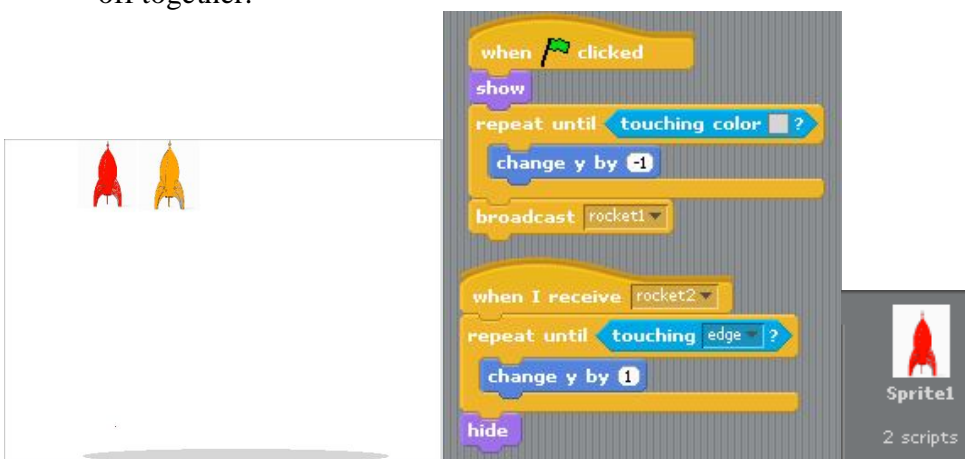


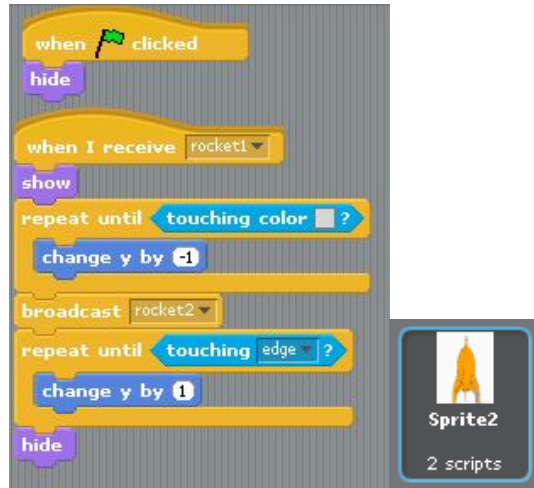
2. Here is a very simple script showing a rocket landing and after

 takes off again. First create a light grey launching pad in the Stage.



3. Add a costume of the rockets firing on descent and after take off.
4. Add different sounds for descent and take off.
5. Change it to two rockets, one lands waits for the second one and they both take off together.

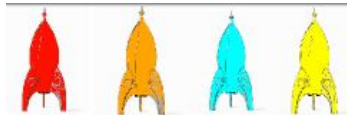




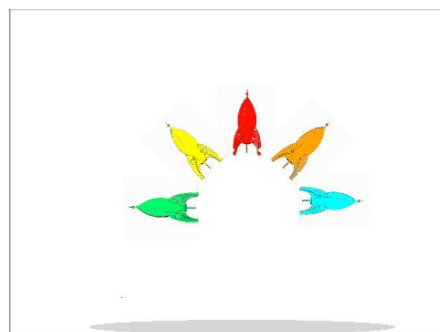
6. Change it to three rockets, one lands waits for the second, they both wait for the third one to land and they all take off together.



7. Change it to four rockets.

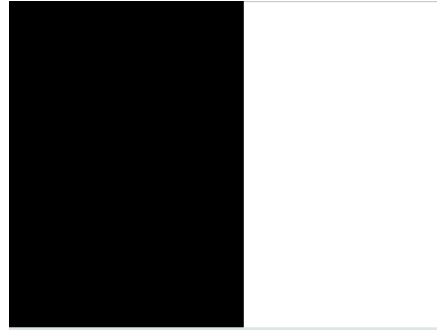


8. Change it to five rockets.



Scratch Activity #8 – Optical Illusion

1. Create a stage that is half black / half white



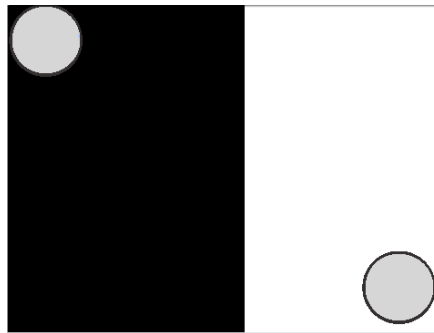
2. Import for Sprite1 and Sprite2



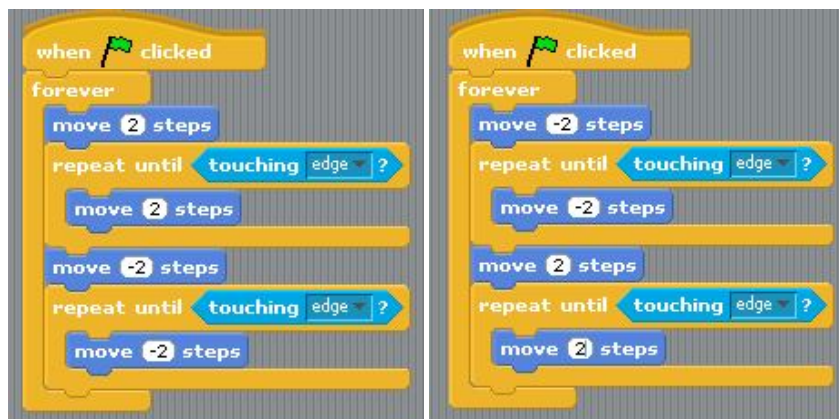
3. Colour both balls light grey



4. Place both Sprites



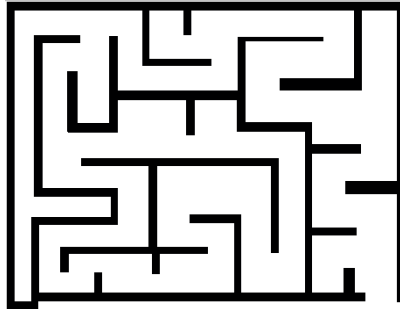
5. Here are the scripts





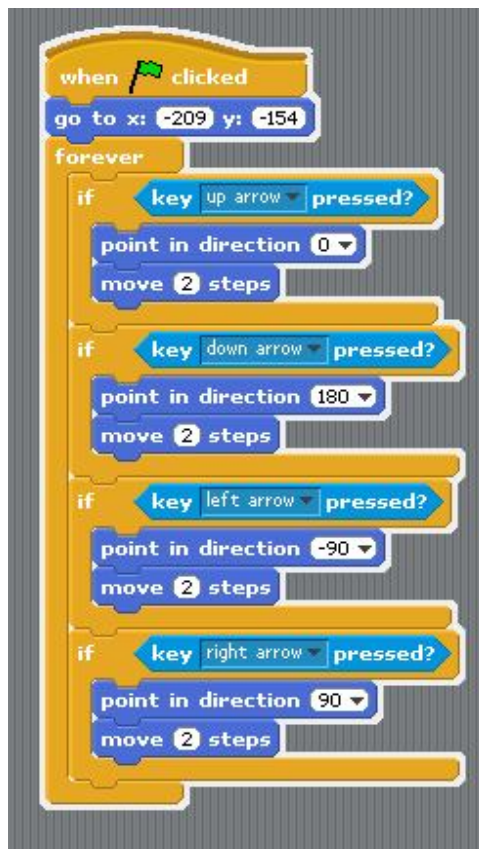
6. Do the balls seem to change colour as they move between black and white


Scratch Activity #9 – Maze Game

1. This **Maze** Sprite is located in the Student Files/IST Folder. Import it and change it to your choice of colour.



2. Import the  Sprite from the Student Files/IST Folder and change it to your favourite colour.
3. Here is a script that allows you to control the  Sprite




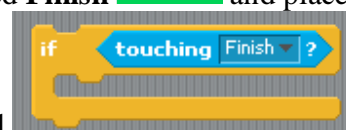
- When you place the  Sprite on your screen, look at the top of the screen, which will give you the x and y coordinates of the Sprite at the beginning of the script. Set your script to this value.


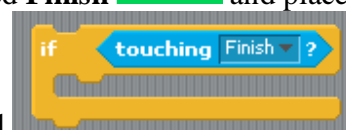
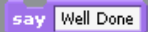



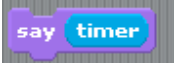
- The problem at the moment is that you can walk through walls. You need to stop when the Maze Sprite and the Dot Sprite touch.
- In the script below, the game will end when you touch an edge. This means it will also be a game of skill to avoid touching the edges. Modify the script as shown below.



- Change the script to leave a trail as it moves around the maze
- Create a small rectangular Sprite called **Finish**  and place it at the end of

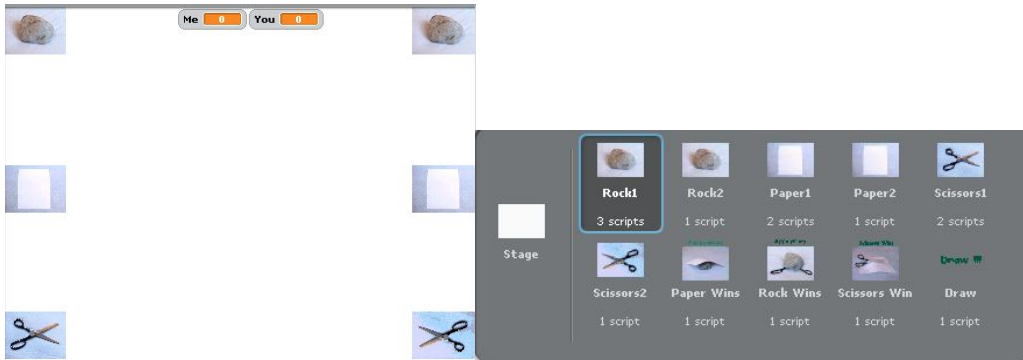


the maze. Inside the  add  to the script so that it gives you  when you complete the maze successfully (when the Dot Sprite touches the Finish Sprite).

9. Add sounds when it hits the maze and when it finishes
10. Add a timer and show the time it took to complete the maze once it is successfully completed. Use  at beginning and  at finish. Play some winning music.
11. Create you own maze for your friends to try.

Scratch Activity #10 – Rock, Paper and Scissors

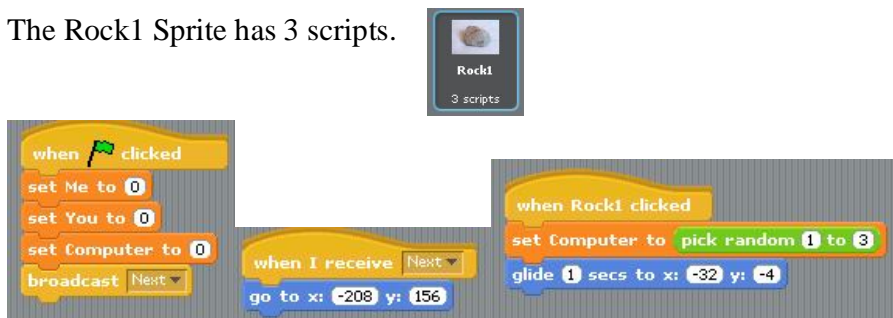
1. Rock, Paper and Scissors is a hand game where, Rock beats Scissors, Scissors beats Paper and Paper beats Rock. Scoring only happens on winning moves.



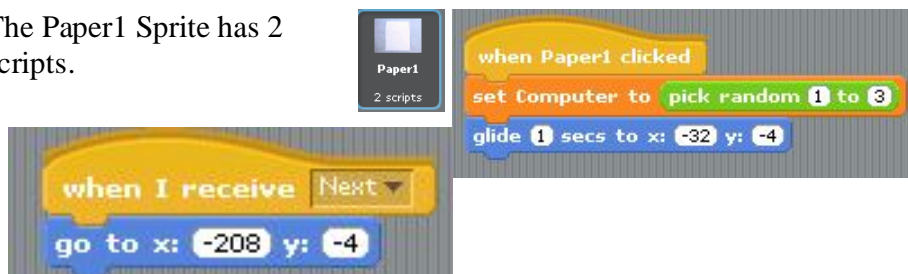
2. Import the Paper, Rock and Scissors Sprites from the Student Files/IST Folder.
3. Import the Paper Wins, Rock Wins and Scissors Wins Sprites from the Student Files/IST Folder. Add the text **Scissors Wins** | **ROCK WINS** | **PAPER WINS** to each of the required Sprites

4. Create a **Draw !!!** Sprite
5. Rename all your Sprites with the appropriate names from the grey picture at the top of the page.

6. The Rock1 Sprite has 3 scripts.



7. The Paper1 Sprite has 2 scripts.

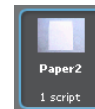


8. Write the two scripts for Scissors1 to go in the bottom corner when clicked generates a random number and glides into the centre.

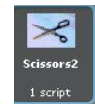
9. This is the script for



10. Write the script for Paper2, which only reacts when the random number is 2. The broadcasts are different because it's Paper this time.



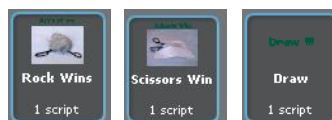
11. Write the script for Scissors2, which only reacts when the random number is 3. The broadcast are different because it's Scissors this time.



12. This is the script for Paper Wins



13. Write the scripts for



14. Add some sounds