

Introduction to Scratch

Scratch – Parallelism





What is Scratch

- Application to allow you to create your own
 - Programs
 - Games
 - Stories
 - Animations
- You build programs by snapping blocks together – a bit like Lego
- Teaches you Creative Computing
- Start Here: <http://scratch.mit.edu>



Reflection

- What did you learn last week?
- Did you try anything out at home?
- Is there anything that you are struggling with and would like a mentor to explain?
- Keep notes each week of what you learned, what you found difficult and discuss with the mentor at your table



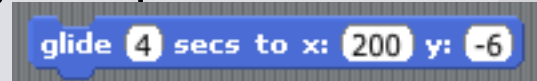
What will you do today?

- Today we will learn about two important programming concepts
 - **Parallelism:** Making two or more things happen at the same time
 - **Events:** Making something happen only when another event happens
- We will also learn about the concept of **resetting** in Scratch
- After we have all understood these concepts we will spend the second hour getting us started on making a simple game – consider it a reward for listening to the boring but important stuff 😊😊😊



What is a reset?

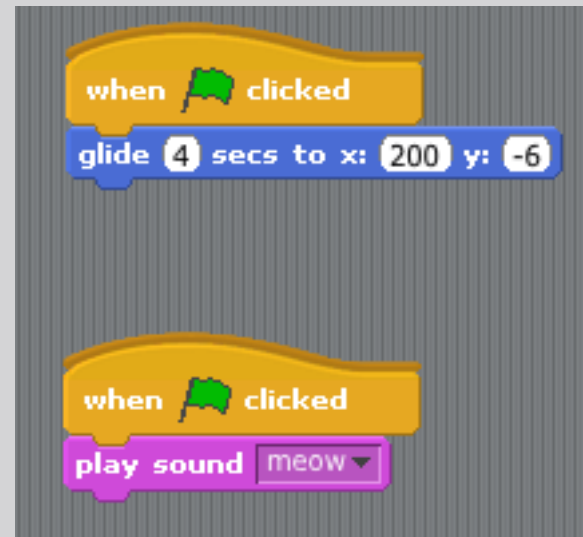
- First of all let's understand the concept of a **reset** in Scratch
- We won't worry about backgrounds or base projects this week as we will be focused on what our sprites are doing
- Step 1 – Select a single sprite and position the sprite at the left edge of the stage
- Step 2 – Move your mouse to a position on the right edge of the stage and record the x and y coordinates
- Step 3 – Add the following motion command to your sprite and enter the x and y coordinates you recorded
- Step 4 – Select a control command to start your program
- Step 5 – Click the green flag to start your program
- Step 6 – After execution click the red stop button
- Step 7 – Click the green flag again – **What happens? Why?**





Parallelism – One Sprite

- **Parallelism** involves getting two or more things happening at the same time
- Start with a fresh program for your single sprite
- What changes when you split a simple sequence into two programs executing in parallel?





Parallelism – Two Sprites

- **Parallelism** involves getting two or more things happening at the same time
- Add another sprite to your stage
- Create some code to make your second sprite do something
- Make sure you execute the code for the second sprite using the same control as the first sprite

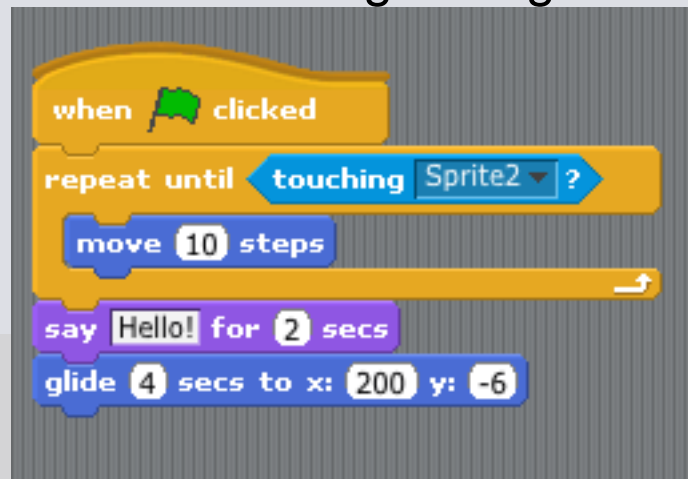


- You can keep adding sprites and putting code into each one, as long as they have the same control to start their activities the code executes in parallel



Events – 2 Sprites

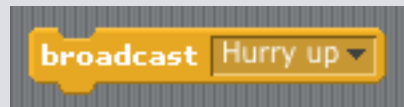
- **Events** allow you to create a program that only executes when the pre defined event happens
- Start with fresh programs for both of your sprites
- Step 1 – Move your sprites to the same side of the screen, one at the top and one on the bottom
- Step 2 – Rotate your sprites a little so that if they move they will touch somewhere in the middle of the screen
- Step 3 – Add code to each sprite to get them to stop when they meet each other and say hello before moving on together in the same direction





Events – Broadcast

- Try out a **broadcast** command
- Add a broadcast command to the code for one of your current sprites – use the message ‘Hurry up’



- Step 2 – Add a third sprite and add a receive command with ‘Hurry up’ as the message



- Step 3 – Get sprite 3 to say ‘Wait for me’ and chase after the other two sprites



Things to think about

- Programming is about getting a computer to do many things at the same time or getting it to do something when an event happens
- Parallel programs and event driven programs are a key element of any video game
- **NOW LETS HAVE SOME FUN!**



For next week

- Post your Project to the Scratch Website
- See you next week!