

Start Scratching Session 6

Description

The goal of this class is to introduce two new features, 'if' blocks that allow conditional control, and sensing blocks that allow the sprite to react to various events. Initially a basic sensing block is constructed for a single sprite, with emphasis placed on the need to sense 'forever'. Next a second sprite is introduced and the first sprite senses it, and finally the sense color function is suggested as an extra task. These building blocks allow the concept of conditionality to be used in programs, which has significant utility.

How is it tailored for 5-7 year olds?

- Incremental approach, very simple example first and students given time to absorb the concept
- No backgrounds used until the last example, these can be distracting

What is covered

- Conditional control (if -> then)
- Sensing (touching)

Steps

1. Open a new project, get rid of the cat and choose a new sprite

Make sure that the students only choose a single sprite, and do not use a background. Now that they know how to import multiple sprites and backgrounds, a key goal is to keep their development environment appropriately simple. Make sure that the new sprite is given a sensible name.

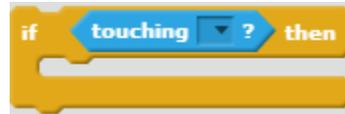
2. Find the 'if -> then block'

Introduce the if -> then block. Explain that it is a C shaped control block, similar to the 'forever' block that we have already seen. Point out that there is an additional feature here though, as it allows us to drop another block after the word 'if'. Show also that the space for the block has pointy ends.



3. Introduce Sensing blocks

Ask the students to look at the different tabs in their scripting area. Remind them that we have used Motion, Looks, Events and Control blocks so far. Explain that today we will be looking at a new category of blocks, called Sensing blocks. Point out that many of the sensing blocks do not have the 'notches' that other blocks have, but instead have pointy ends. Ask the students to take the first sensing block (touching?), and add it to their program as shown below.



Explain that whatever we put inside this block will only happen if the condition at the top is met. Click on the arrow beside the touching block, and select the mouse pointer option. Then go to the looks category and put a change color block inside the loop. Explain that this will make the sprite change color when it is touching the mouse pointer.



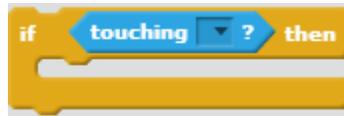
4. Explain the need for the forever block

Ask one of the students to come to the front of the room, and have them face the front. Then ask one of the instructors to stand at the back. Say to the student at the front that they need to say the word 'hand' if the instructor raises his/her hand in the air, but they are only allowed to look around once very quickly. Explain that it is impossible for the student to know if the instructor raises his/her hand if they only turn around once. But if they turn around forever (i.e. face the instructor), then the task is simple. Explain that the 'if - then' block we have used is checking once, if we want to react every time the sprite touches the mouse we need a forever block to check all of the time. Finish the program off with a top hat block and run.



5. Demonstrate the touching other sprite feature

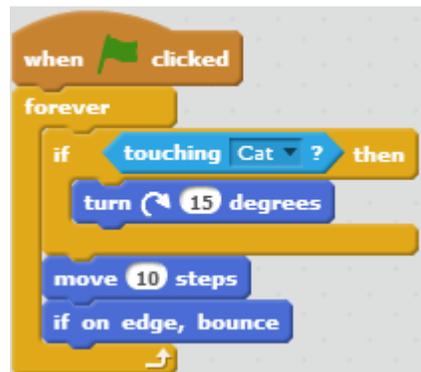
Now ask the students to get another sprite from the library, and again create a simple 'if - touching' block.



This time instead of the mouse pointer, choose the name of the first sprite as the 'touching' option. Also, instead of using a 'change color' block, this time use a 'turn 15 degrees' block.



Now add a forever block as before, but this time also include a 'move' and 'if on edge bounce' in the forever block.



Extra Challenge (to be done after task 6):

Try to use the 'touching color' block, this can be found in the Sensing blocks. When you click on the little color box, the mouse turns into a hand, and lets you pick what color the sprite should react to.

