# Worksheet 5: Sensors

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| **Learning Intentions**: We are learning to be able to … |
| Make sprites interact with other objects on the stage. |
| *Why are we learning this?* |
| Interaction between objects formulates the basis for collision triggers. |
| **Success Criteria**: I will be successful if I can … |
| Detect another sprites:   * Collision * Movement and direction * Current state |

## Instructions:

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| Acquire and integrate knowledge: |
| Zoom into the stage on a new sprite (with nothing drawn) to find the **rotation point** (aka *pivot point*, *origin*, or *costume centre point*):    Add a sprite that is a picture of a ball, with the *costume centre* in the middle centre of the ball:    Run the following script **on the cat**:     1. If I change the above *movement* block to “move 5 steps” (instead of 1) the script will likely never stop running. Why not?   Click here to enter text.   1. Here is the same script with a slightly different *condition* block. The previous *condition* block checked if “distance to ball > 1”, whereas the following *condition* block checks if “not touching ball”:     What are the two different results I get when I run each of these *condition* blocks separately (from question 1 and 2)?  Click here to enter text.   1. Now I want to move my cat to the ball and stop, but only when I’m pressing space bar:     The “key space pressed?” condition in this circumstance is also part of a “*nested” if-statement*. Why do you think it is called “**nested**”?  Click here to enter text.   1. Which condition would I change in the previous condition to make the cat move only when my mouse button was down? Also what would the new condition be?   Click here to enter text. |
| Extend and refine knowledge: |
| Draw a red line on the background of the stage that you do not want your cat to cross:    Add the following script. If your cat crosses the red line, it should bounce straight back:     1. Explain, in your own words, how the above script works.   Click here to enter text.   1. Why wouldn’t this work as the script in question 5 intended? What goes wrong?     Click here to enter text. |
| Use knowledge meaningfully: |
| Have a go at creating a **simple maze game** (the following excerpt taken from <http://scratched.gse.harvard.edu/guide/download.html>):   |  |  | | --- | --- | | **Algorithm for moving explorer** | **Code** | | when the flag is clicked  repeat forever  if right arrow key is pressed point right  move 5 steps  if left arrow key is pressed point left  move 5 steps  if up arrow key is pressed point up  move 5 steps  if down arrow key is pressed point down  move 5 steps  if explorer touches the same  colour as the maze wall  go back to starting position |  |  1. Can you add some on-going background music, as well as different costumes for the different directions faced?   Paste screen shot of your completed script here.   1. Can you add an enemy, that when I touch it, it sends me back to the start of the maze?   Paste screen shot of your completed script here.   1. Can you make it a two-player game?   Paste screen shot of your completed script here. |