# Worksheet 2: Movement

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| **Learning Intentions**: We are learning to be able to … |
| Move sprites using axis, steps and repetition. |
| *Why are we learning this?* |
| Animation or movement formulates the basis for nearly all types of graphical games. |
| **Success Criteria**: I will be successful if I can … |
| * Move sprites using:   + X-Y axis control   + steps (+ and -)   + repetition loops:     - repeat     - forever |

## Instructions:

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| Acquire and integrate knowledge: |
| *Assume the cat sprite is facing towards the ball in this picture. The cat is positioned in the bottom left of the stage (-240, -180), and the ball is 150 pixels to the right of the cat:*     1. Given the above description, what can you assume is the exact position of the ball on the:    1. X axis: Click here to enter text.    2. Y axis: Click here to enter text. 2. Now open Scratch and create the above picture (using the two sprites, **cat** and **ball**). Your tennis ball can be hand drawn. The cat does not have to be seated in the bottom left corner of the stage. *Make sure the cat is to the direct left of the ball, and at least 150 pixels away from it.* 3. Try predicting then running each of the following scripts **on the cat** and describe what happens to the *cat in relation to the tennis ball*. After you run each one, make sure you reset the cat to its original position:  |  |  | | --- | --- | | **Script on cat:**  (you can shrink the pictures on this side to make more room on the right to write answers) | **What was the outcome?** | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. | |  | Click here to enter text. |  1. Describe the difference in outcome between the following scripts when each one is run separately on the cat. Which is preferred? Why?  |  |  | | --- | --- | | Script | Outcome | |  | Click here to enter text. | |  | Click here to enter text. | |
| Extend and refine knowledge: |
| 1. The idea of two scripts running in **parallel** as they did in the second example of the last question mimics an idea in computer science called concurrency, or multiple computations being processed simultaneously.   Sometimes running scripts in parallel is necessary (as it was in the previous example). Other times it is a good idea to keep our code tidy and uncluttered.  Sometimes it can be a bad idea though, as it might stop our code from working altogether. Explain how the following examples might turn out:   |  |  | | --- | --- | | **Script (on cat)** | **Explain what will happen** | |  | Click here to enter text. | |  | Click here to enter text. | |
| Use knowledge meaningfully: |
| 1. Research the idea of concurrency in scratch here: <https://wiki.scratch.mit.edu/wiki/Concurrency>   Explain how Scratch only mimics concurrency:  Click here to enter text.   1. The previous example uses **comments**. Comments are used by professional coders (and top students) to explain things in-code to fellow developers. Why do you think they could be so useful? What else could they be used for?   Click here to enter text. |