Intro to Programming with Scratch

Lesson 3

-Presented By: Sean Li

Quick Review

- Costume drawing

Quick Review

- Costume drawing
  - Do your own painting
  - Upload a file

Quick Review

- Costume drawing
  - Do your own painting
    - Idea of layers: simple shapes, complex figure
  - Upload a file/image

How was your father's day project?

Quick Review

Variables:

A variable is a changeable value recorded in Scratch's memory

It can be used to store an attribute of the sprite

Has set & change attribute

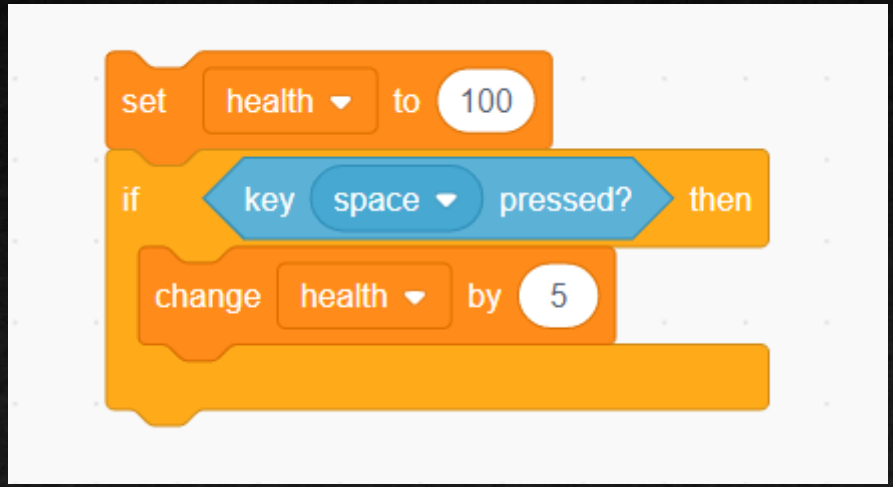
Example

Health Point

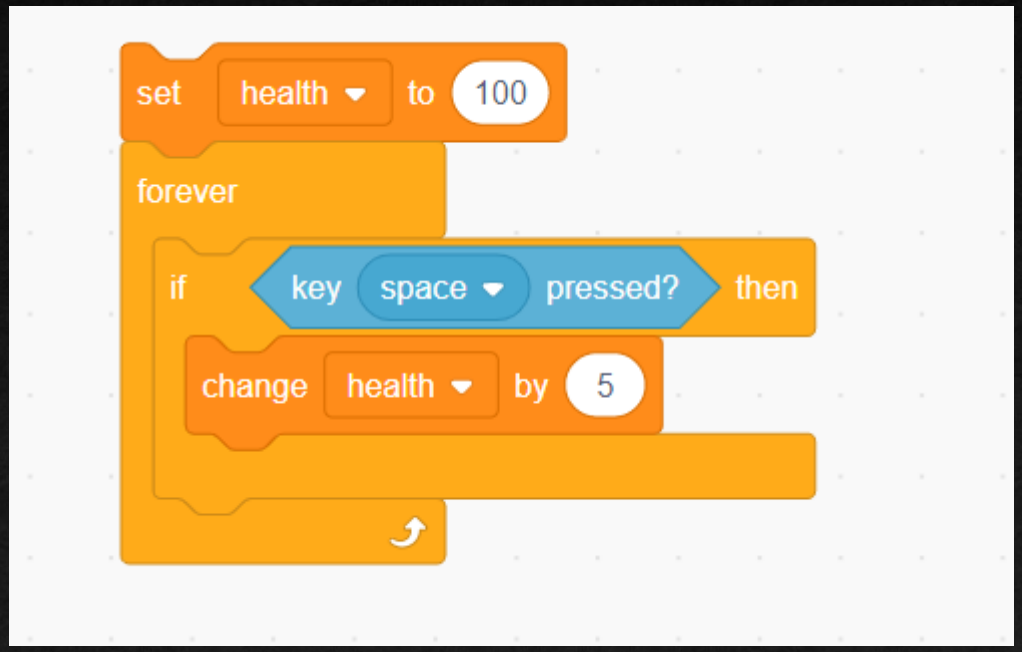
Exercise

Create a health system: Set the initial health point as 100 for your sprite. If "a" is pressed, drop it by 10, if "b" is pressed, drop it by 50. If health gets below 0, hide the sprite.

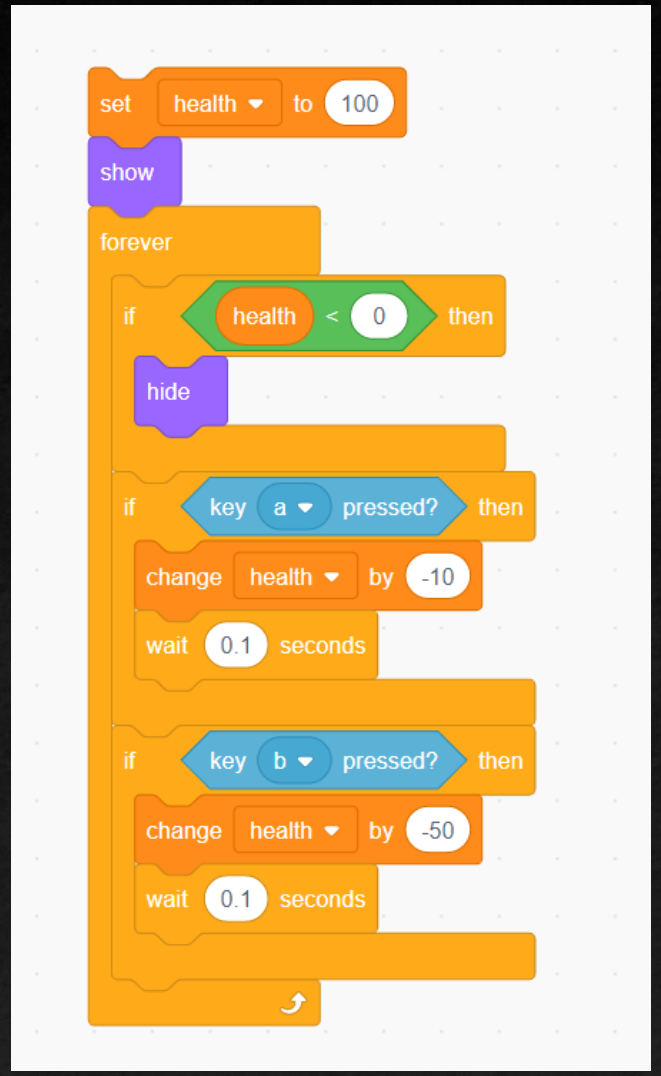
Does this work? Why or why not



Does this work? Why or why not

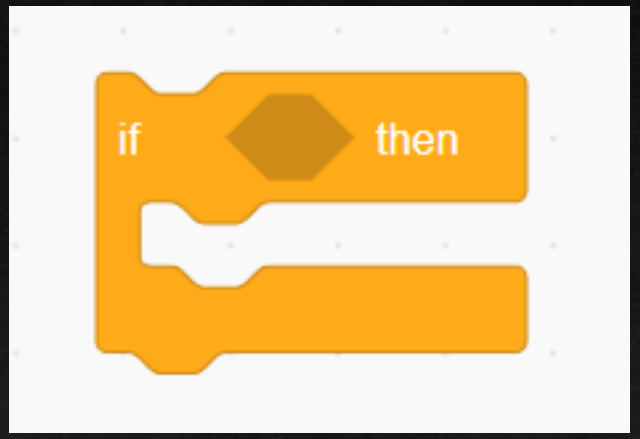


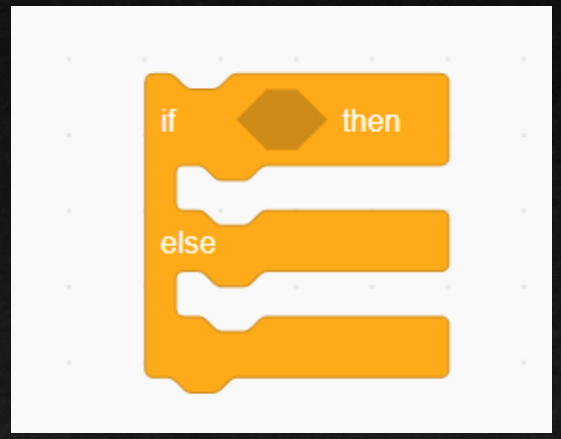
My Approach


set health to 100
show
forever
if health < 0 then
hide
if key a pressed? then
change health by -10
wait 0.1 seconds
if key b pressed? then
change health by -50
wait 0.1 seconds

Conditionals

An "if" statement





Example:

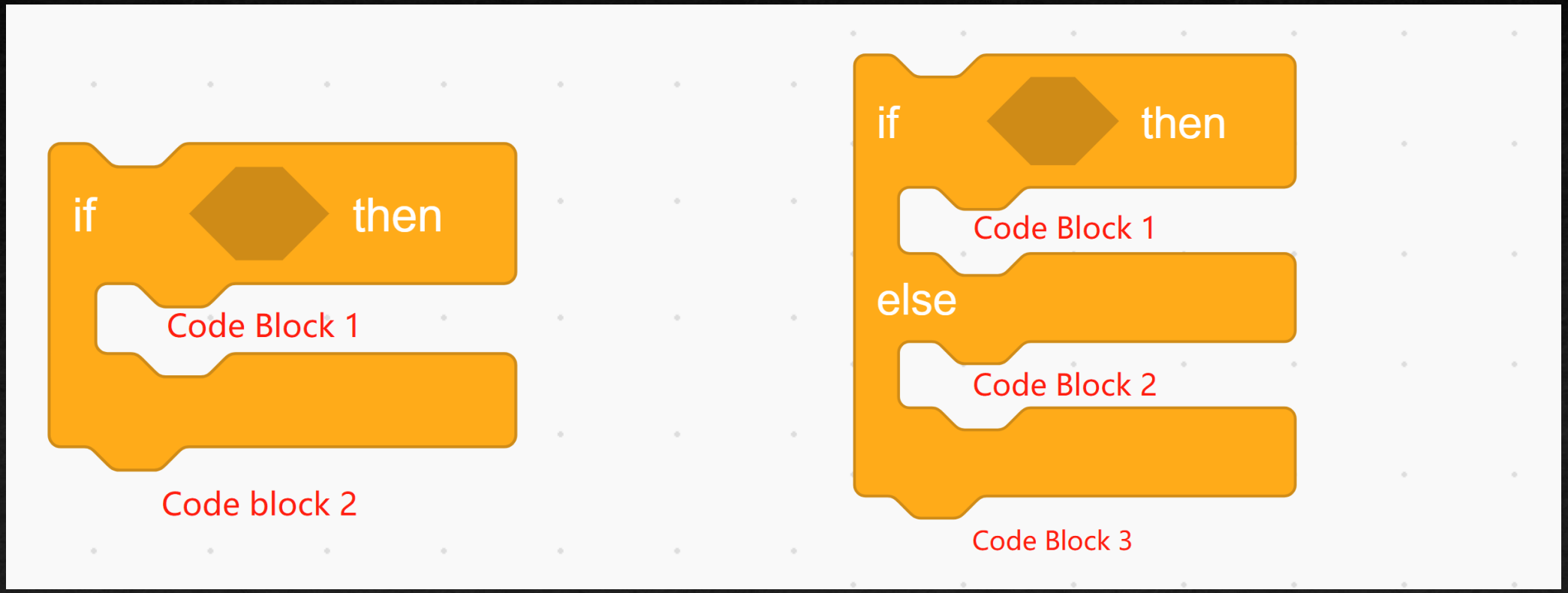
Remember the time when your mom tells you: If you get an A on this exam, you will get a new toy; otherwise, you get one more hour of study per day.

Keys to form a conditional statement:

- One predicate.
- It can either happen or not happen.
- If it happens, then something will get executed, if not, something else will get executed. They WILL NOT both be executed.

Conditionals

Difference?



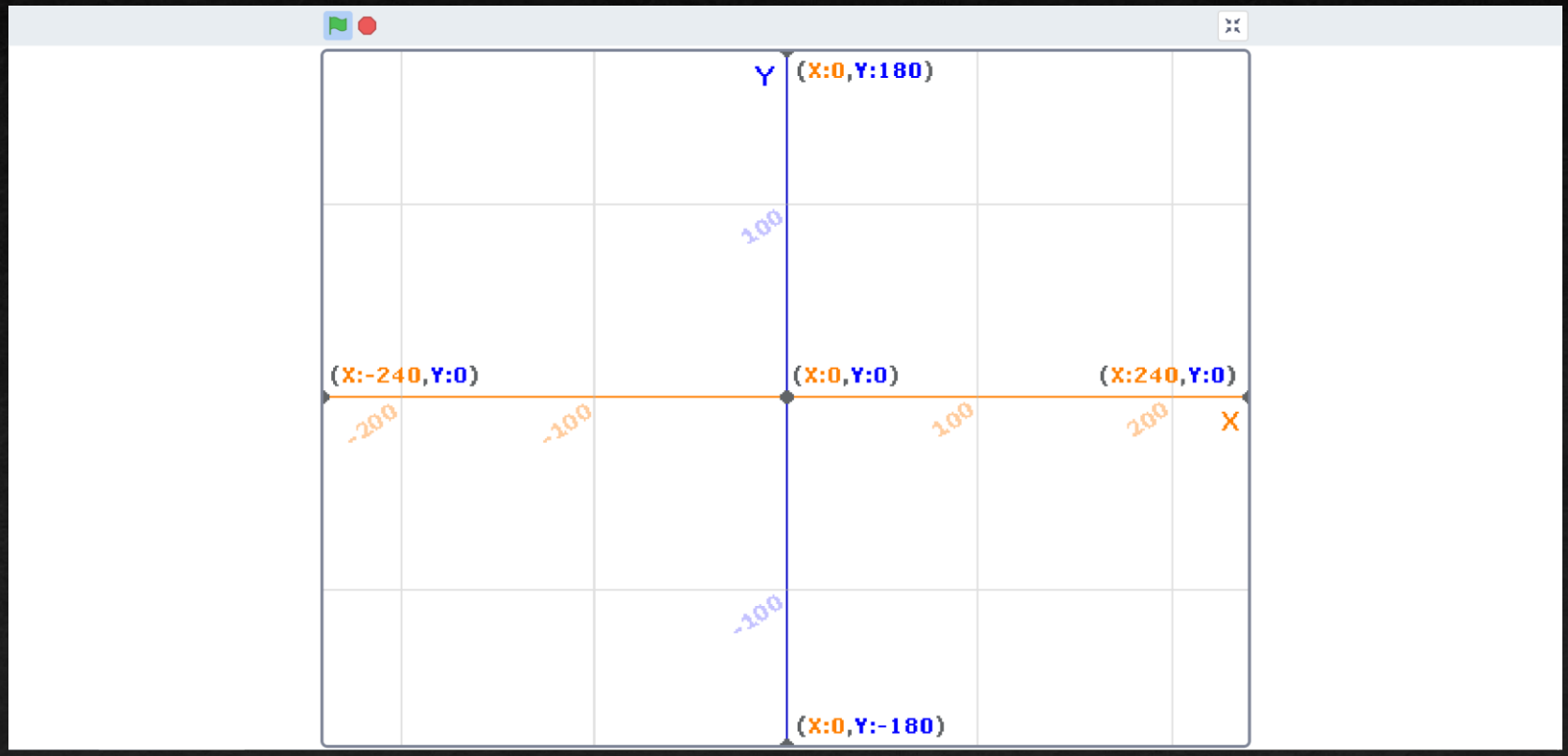
Exercise:

1. If I press "c", change costume, otherwise, say hello
2. If I press "c", change costume, stay for two seconds, and hide the sprite. Otherwise, hide the sprite in two seconds.

Note: Make sure that you use the two different conditional statements for each exercise

Coordinates:

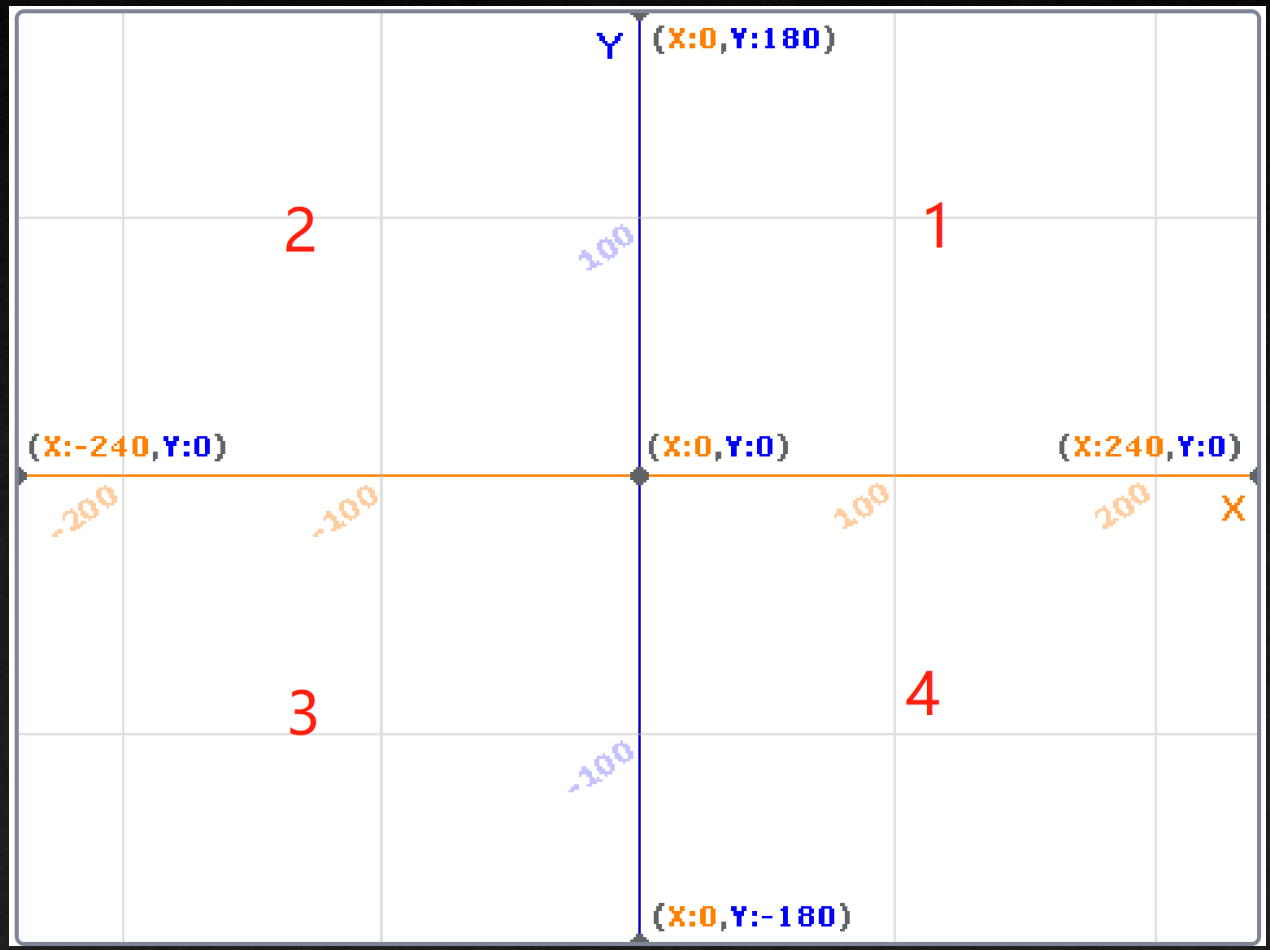
X-Y axis



Coordinates:

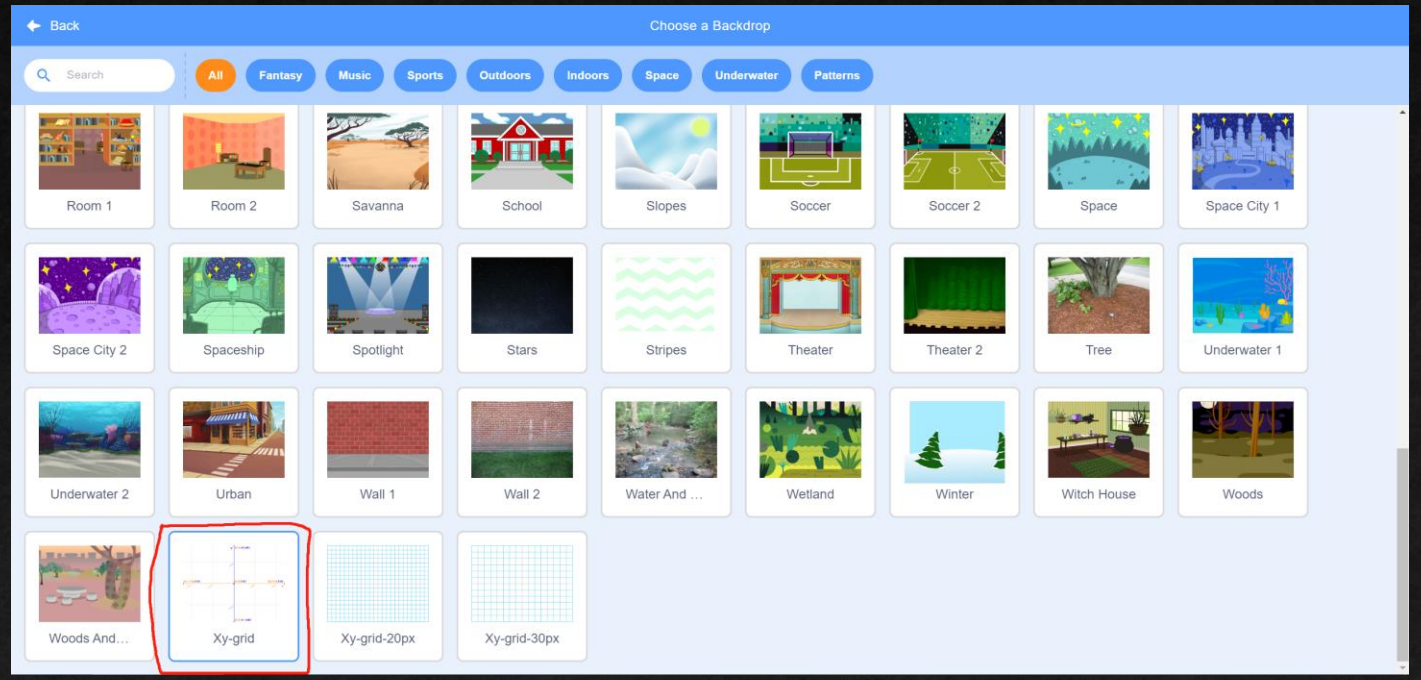
X-Y axis:

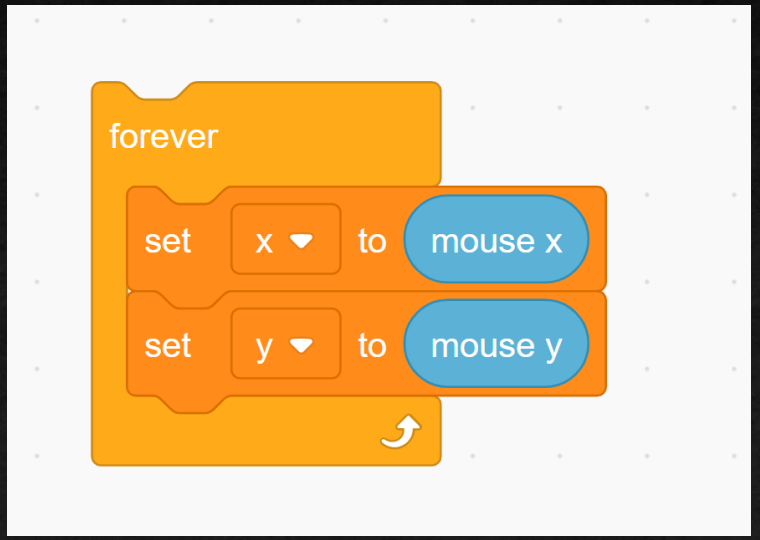
- 4 Quadrants
  - What's the difference?



Coordinates:

To check the coordinate of your mouse





Exercise

1. If I press "g", go to (100, 50), otherwise, say hello
2. If I press "c", go to (-100, -50), stay for two seconds, and come back to the origin(0, 0). Otherwise, go to (-50, 0) for two seconds and come back to the origin.

Challenge

Create two new sprites: walls. Place one of them at x = 200 line, place the other one at x = -200 line.

Use the sprite basketball. Starting from the origin (0, 0), Let it fly to the right. As it hits the wall, bounce back at a certain angle that you wish. When it hits the top and bottom edge, bounce back. Theoretically, the ball should fly forever.

Challenge Hints