

## Jumping Game Instructions

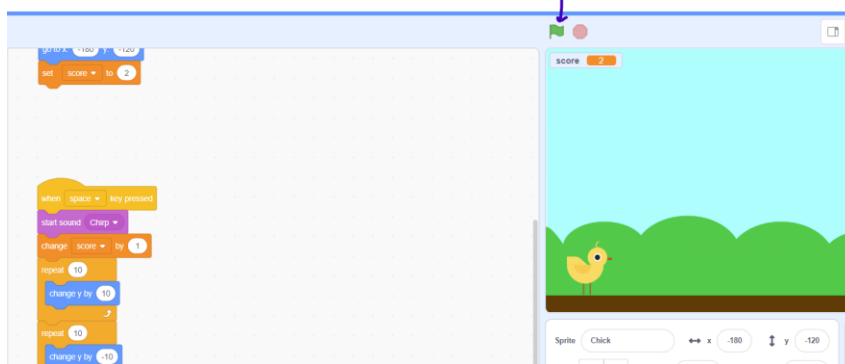
Access Scratch Through this link : <https://scratch.mit.edu/>

To start press create highlighted in the top left corner of your screen.



Beginners Tip With Coding: With each code change make sure to run the program to see how it acts. This will help with debugging. Debugging is a practice in computer programming where you identify an error and troubleshoot to fix it so the program runs smoothly. Running the program often to see how it acts makes troubleshooting an error way easier than waiting till all code changes are made. This is the only green box you are required to read the other green boxes with information on the concepts applied in this activity taken conceptually further.

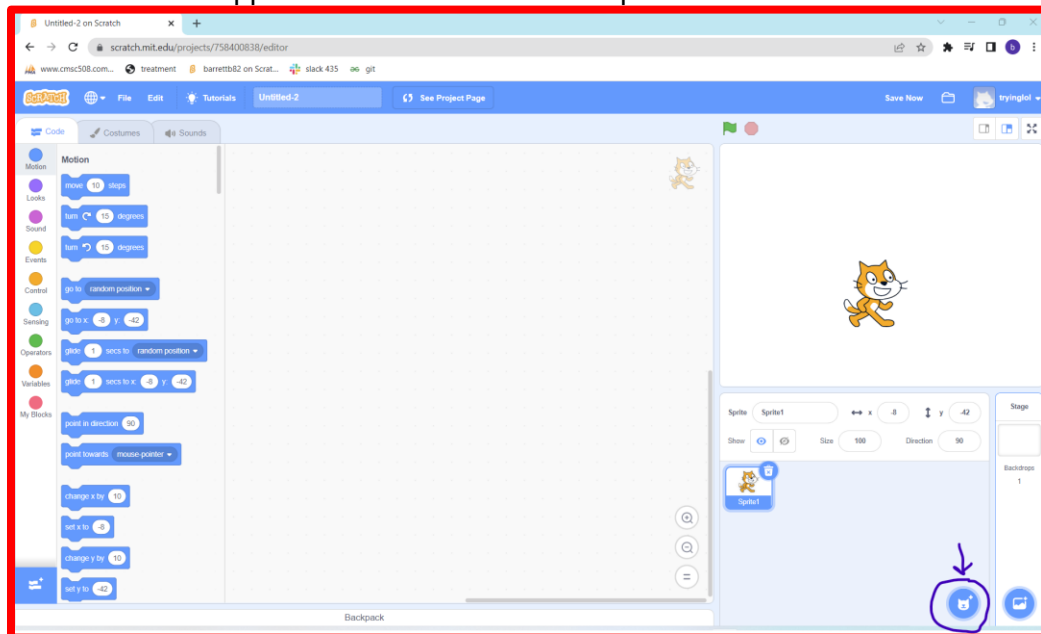
Click the green flag near the stop sign to run the program:



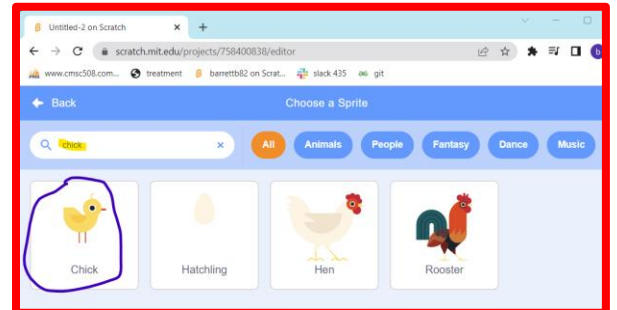
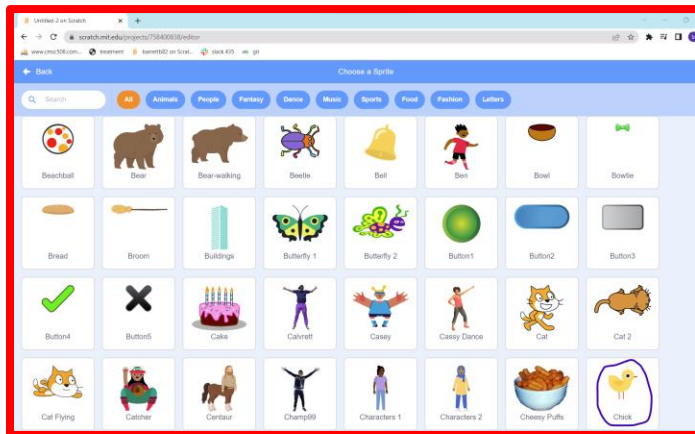
Link to final project : <https://scratch.mit.edu/projects/758495705>

Link to YouTube Explanation Video : <https://www.youtube.com/watch?v=1jHvXakt1qw>

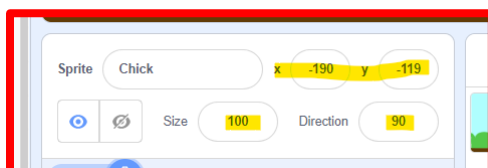
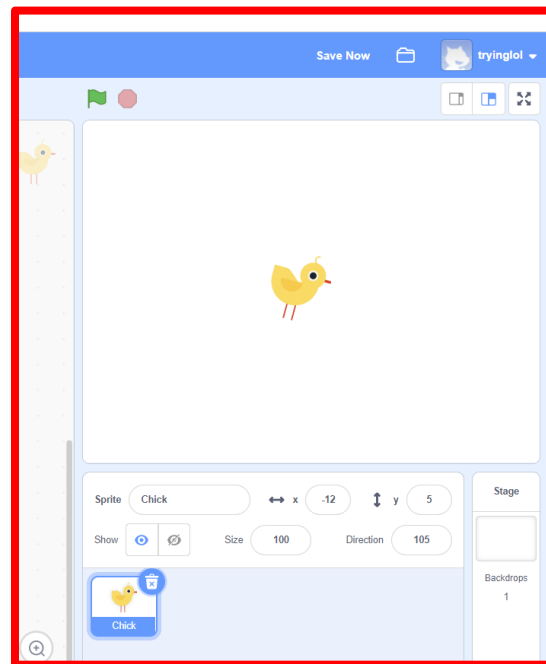
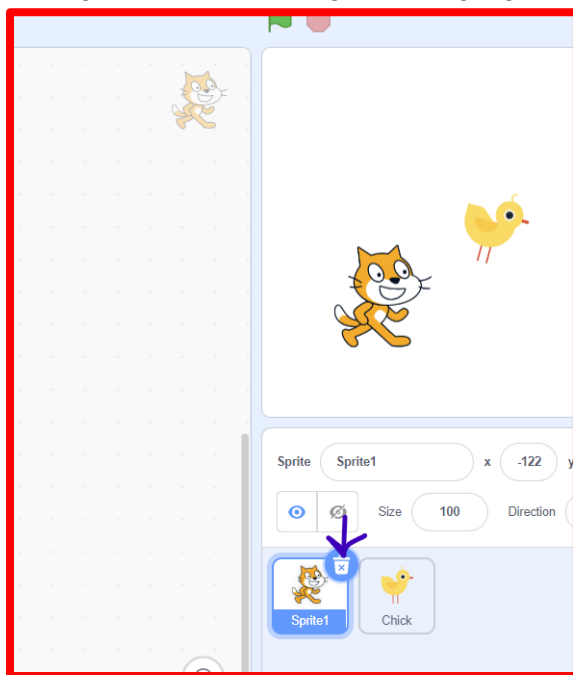
1. Press on the icon that appears as a cat in the bottom panel of the screen reference snippet below.



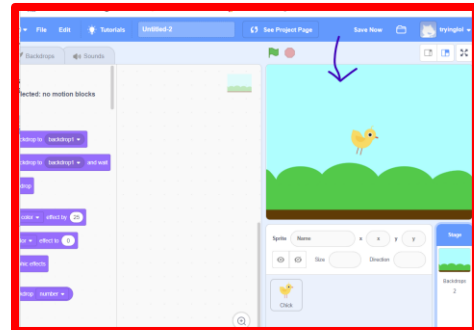
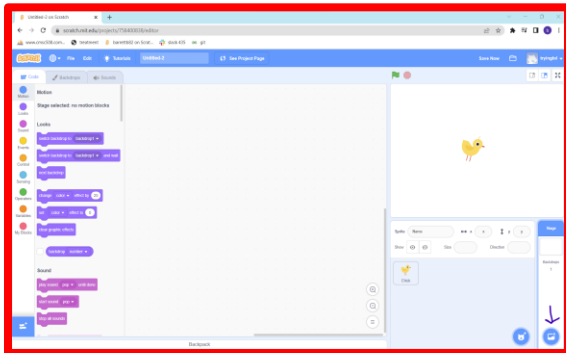
2. Once in a sprite window pick the sprite image that is a chick you may have to scroll down until you see it or in the search bar write chick.



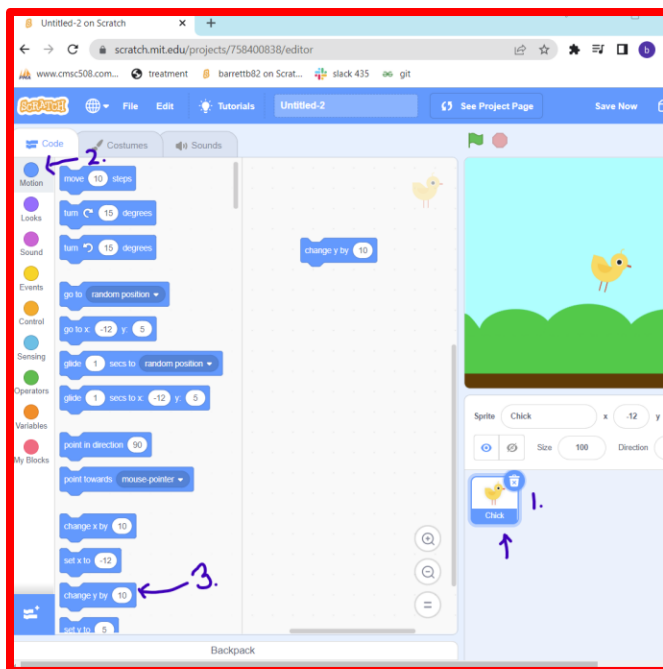
3. Then hover mouse over the default sprite1 and click the trash bucket on top right to discard. Once the trash icon is clicked only one sprite should remain. When the chick sprite is clicked change the chicks setting to the highlighted below.



4. Click on the landscape icon in the bottom right corner present in the snippet below. Select Blue Sky landscape within the backdrop category. Once clicked on the backdrop the Blue Sky should be set in the sprite window.



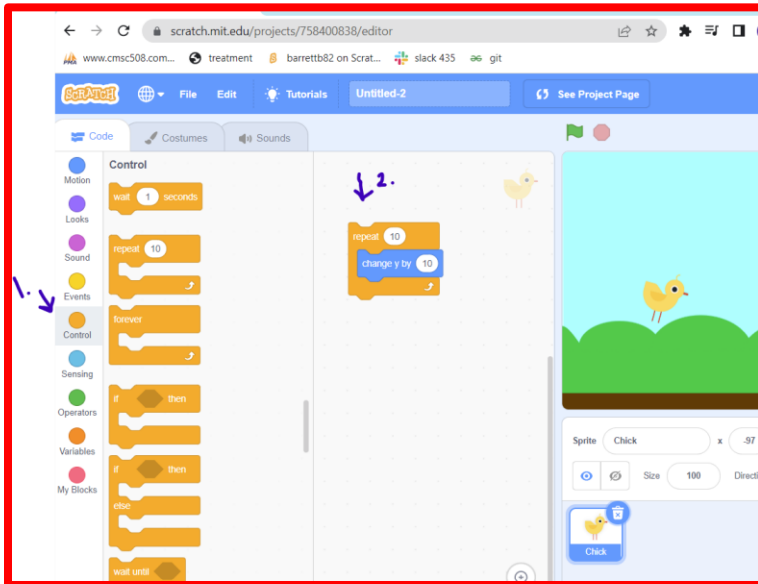
5. Make sure for this step and steps to follow that you click on chick sprite before clicking on the motion category. If the sprite is clicked then there will be a blue highlight around the sprite indicated with the first arrow. Then press on the motion category indicated by the 2nd. Lastly drag the "change y by 10" block indicated with the 3rd arrow and drag into the center panel as shown in the snippet below.



Picking your character : This is where you prompt the students to click on the chick sprite as all of this code is only going to go along with the chick.

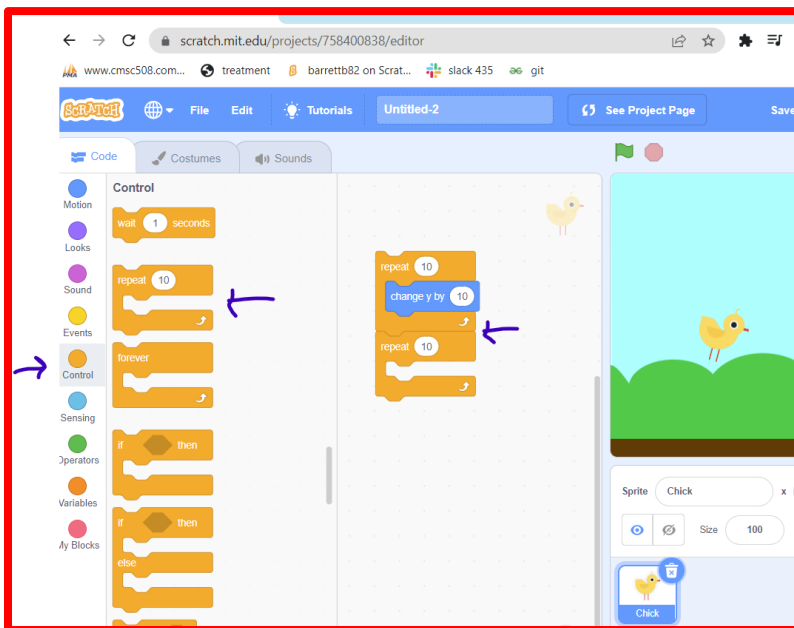
Step 5 : Make sure that all students have one sprite in their toolbar under the console window.

6. Click the control category indicated with the first arrow in the snippet below and drag the repeat 10 block placing it to wrap the change y by 10 indicated by the second arrow in the snippet below.

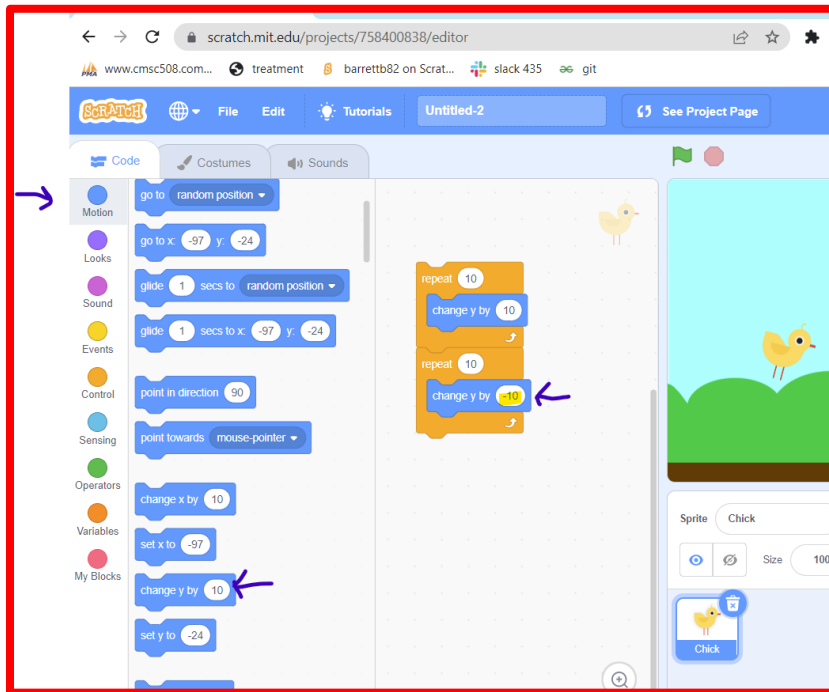


Steps 5-8: The reason why we select the block change y by 10 is because that is how high the chick will jump vertically up. In order for the sprite to return to the ground in the same place, we place a change y by -10 indicating downward motion.

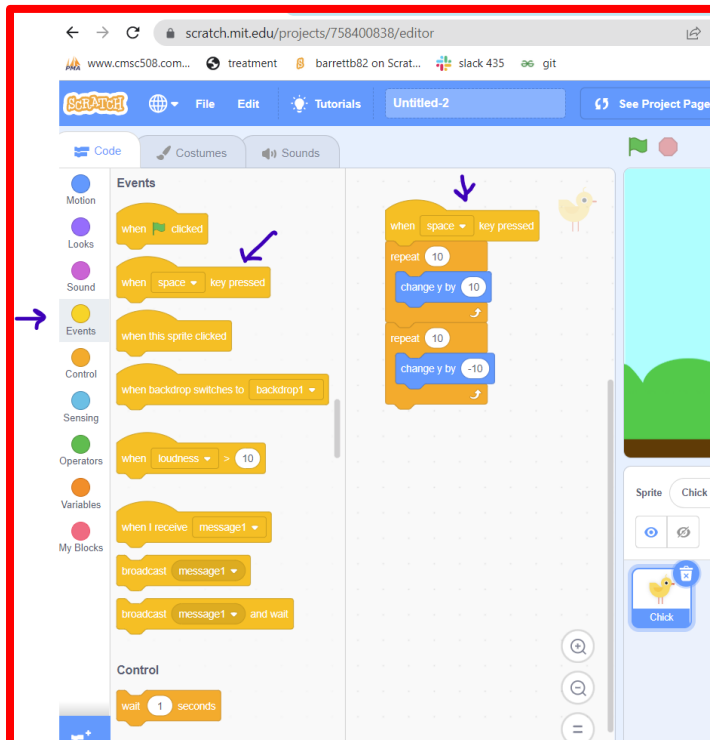
7. Within control select another repeat 10 block and pull it to attach to the last repeat 10 block.



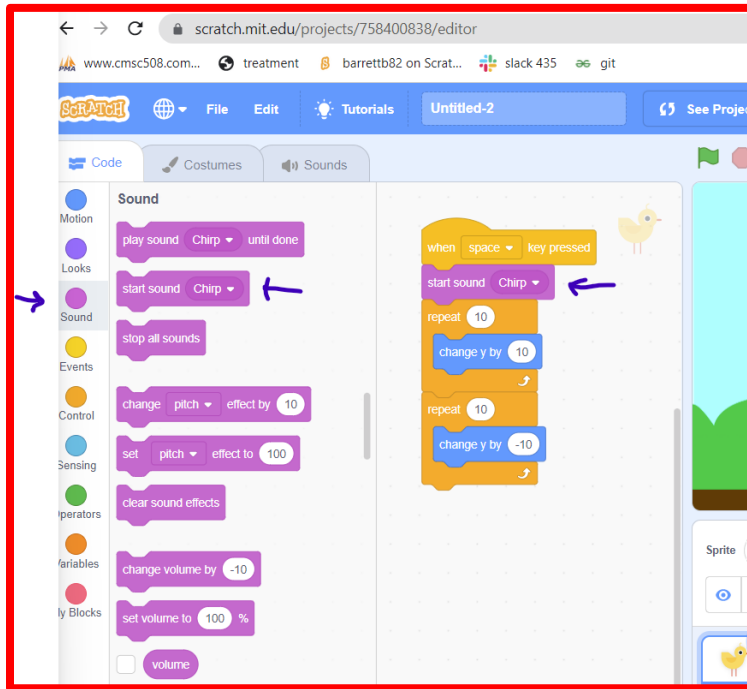
8. Then go into the motion category and drag the change by 10 into the center of the second repeat block. Once it is in the middle of the second repeat block change the 10 to -10.



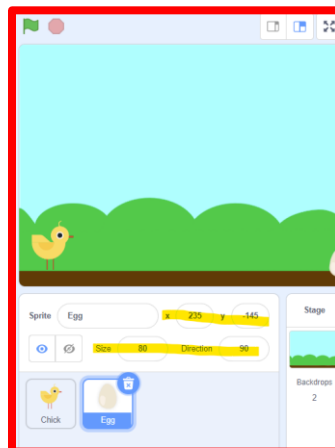
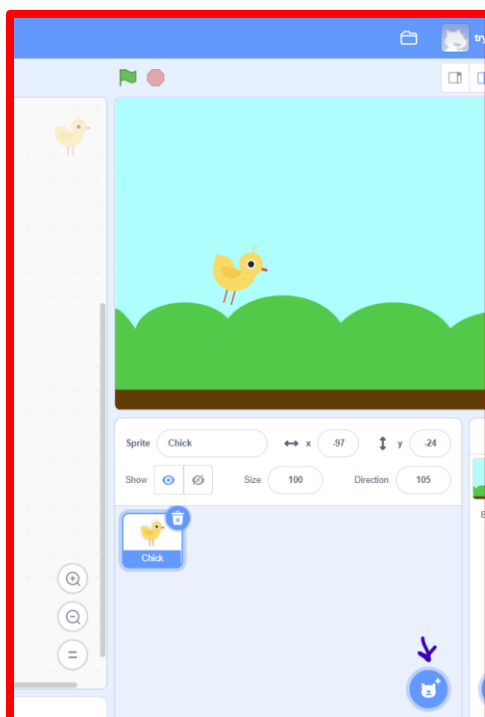
9. Then go into events and drag the space key pressed and place it on top of the first repeat block.



10. Then go into the sound category and select the start sound chirp. Drag the start sound chirp to before the first repeat block and also after the space key is pressed.



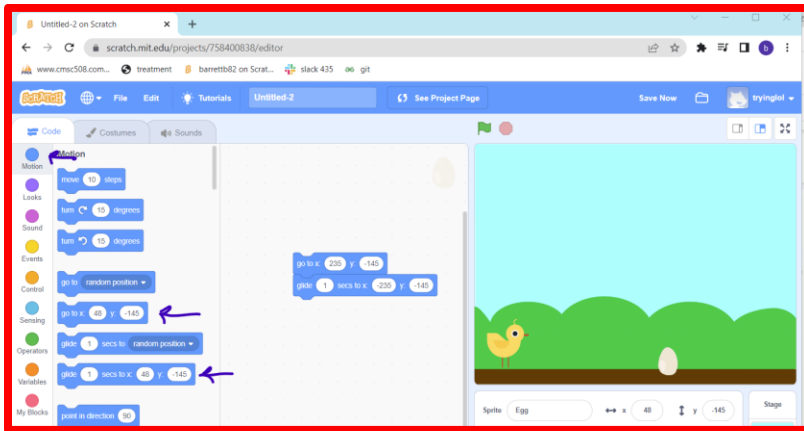
11. Then choose a sprite that will be an obstacle for the chick to jump. The way to do this is click on the cat icon in the bottom right panel. In this model program we will pick the egg sprite which can be found by searching for the egg in the search bar. Once clicked on the egg make sure the settings are set to below snippet.



Making Obstacle : This is where you prompt the students to click on the egg sprite as all of this code is only going to affect the variable of the egg.

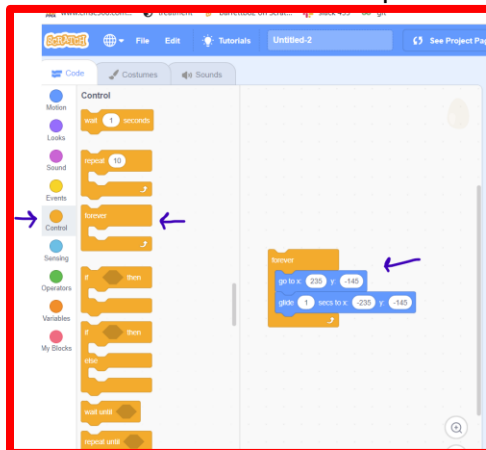
Step 11 : Ensure that the size of the obstacle is smaller than sprite in order for the character to jump over it.

12. Make sure for this step and steps to follow that you click on egg sprite before clicking on the motion category. Go to the motion section. Drag the go to x: value y: value. Then attach the go to x block to the block glide 1 secs to x: value y:value.



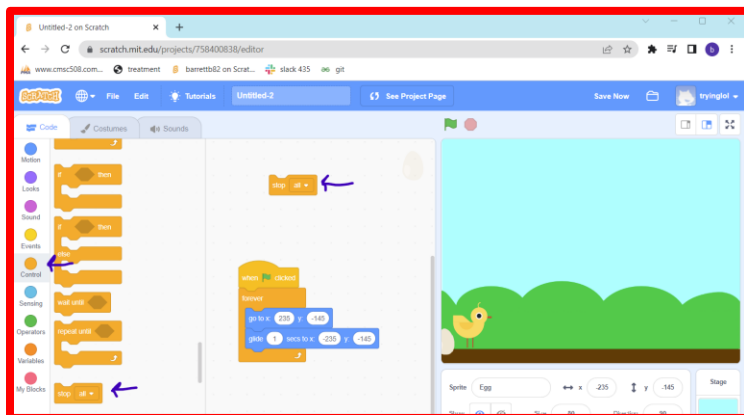
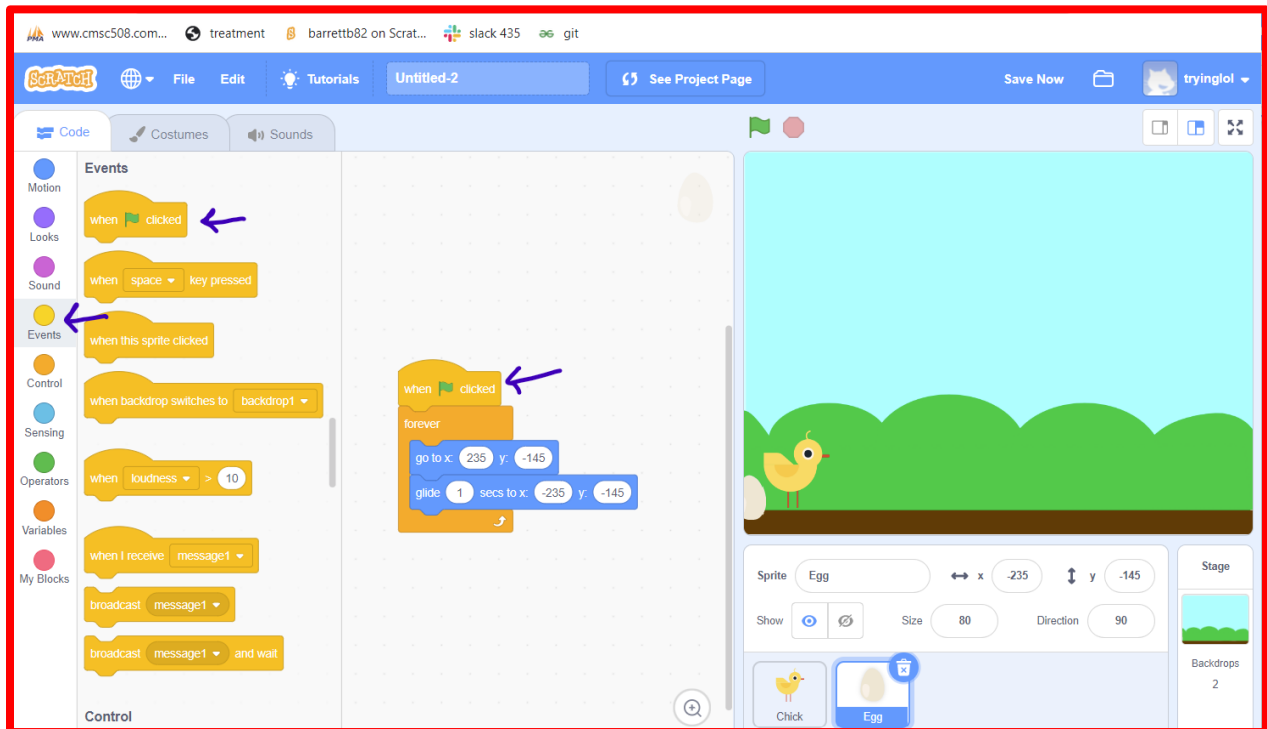
Step 12-13 : In order to tell the egg to start at a certain point, remind the students that every position on the stage has a certain x and y coordinate. X is how far your sprite is from the left to the right of the screen. Where Y is how far your sprite is up and down from the screen.

13. Go to the control category and drag the forever block to wrap the glide block and go to x blocks that are in the center panel.



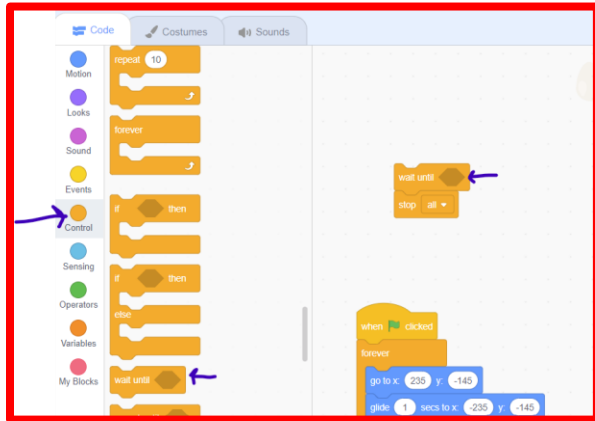
Step 14-15 : In order to create the egg to be an obstacle. The glide x and y coordinates will populate to the location needed if you drag the egg to the furthest most left spot on the screen. An increase in the default glide value which lays in the bubble on the right of the “glide” indicates a slower speed the egg will come at the chick.

14. Go into the events category and drag the when flag clicked to go on the top of the forever block. Go into the control category and drag the stop all. Into the panel at the top.

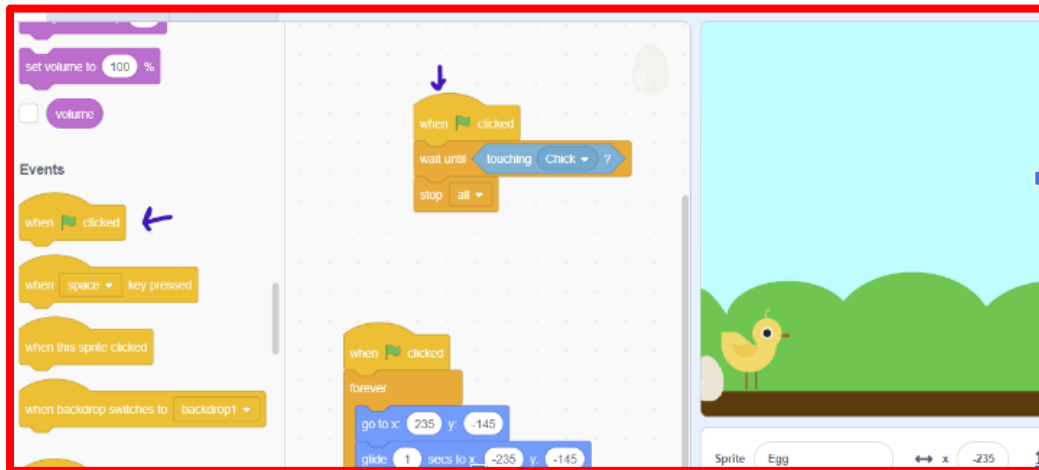




15. Drag the wait until block also in the control category into the middle panel and attach on top of the stop all block. Then go into sensing and drag the touching mouse pointer block into the hexagon in order to get it into the hexagon. When dropping hold the block over the right side of the hexagon. When the touching block is in the hexagon click your mouse on the “mouse-pointer” drop down and select chick.

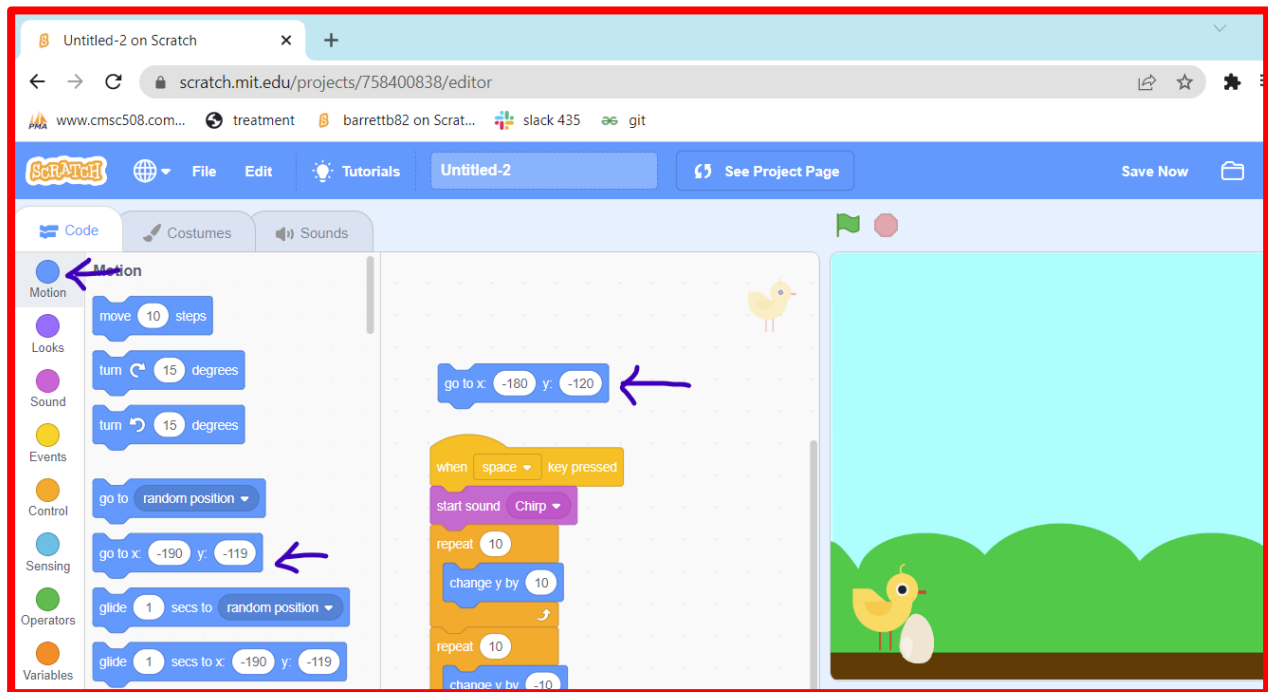


16. Then go to the events category and attach the when the green flag clicks to the top of the wait until block.

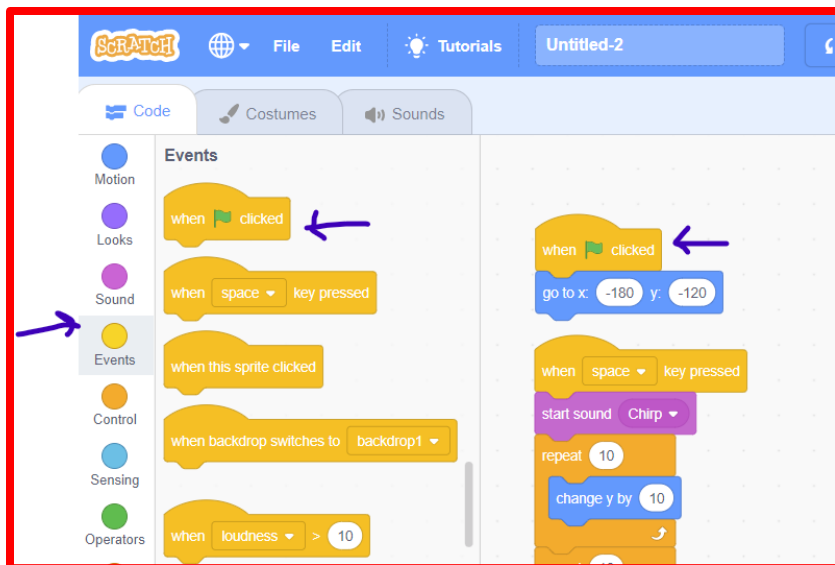


Chick in the air : This is where you prompt the students to click on the chick sprite as all of this code is only going to affect the variable of the egg. There comes a case where the chick may get stuck in the air. This is due to the code getting stopped when the chick runs into the egg but may not be finished with the run so it may be frozen there. We fix this by making the chick go to a starting position when the game starts.

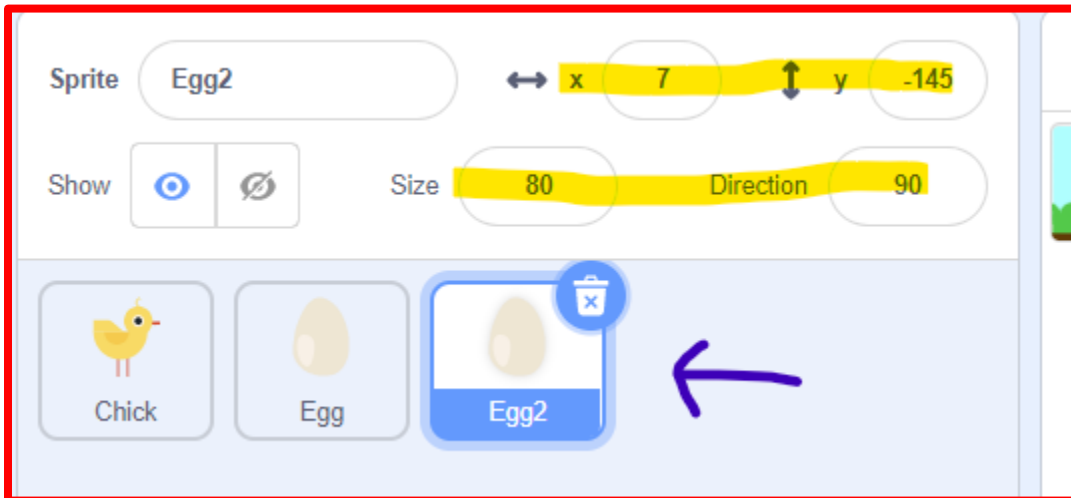
17. Press on the chick sprite and go into the motion category pull in the go to x: value y: value. Make sure the values in the x is -180 and the y is -120.



18. Then go to the events category and attach the when the green flag clicks to the top of the go to the x: block.

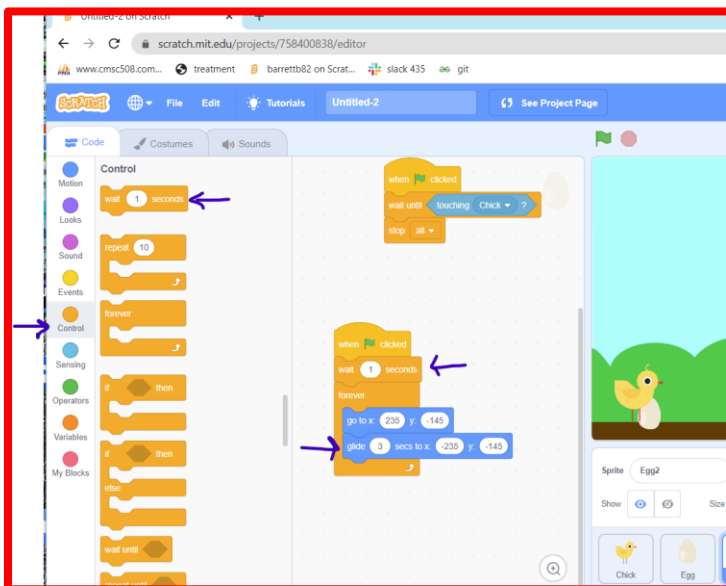


19. Add more obstacles in this case another egg by right clicking on the egg sprite and pressing duplicate. Make sure that the egg2 has the highlighted numbers.

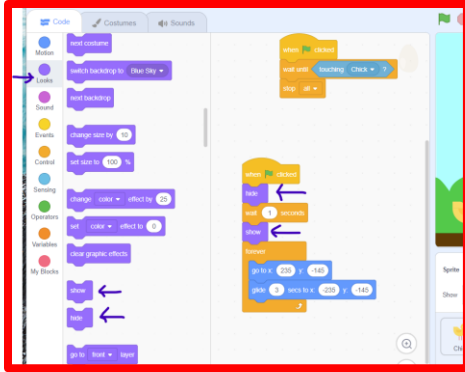


Add More Obstacles : Ensure that students go to previously created egg sprite and right click and select duplicate shown in (Step 19).

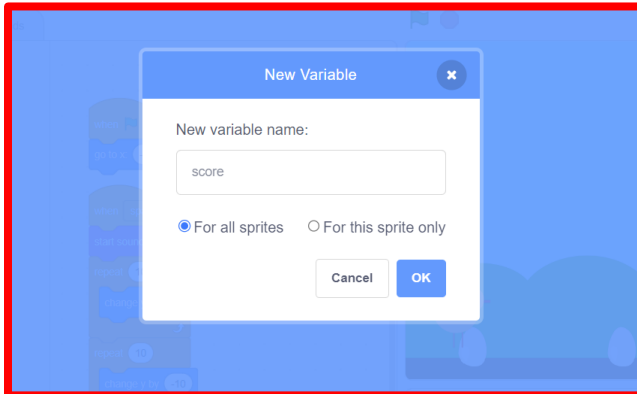
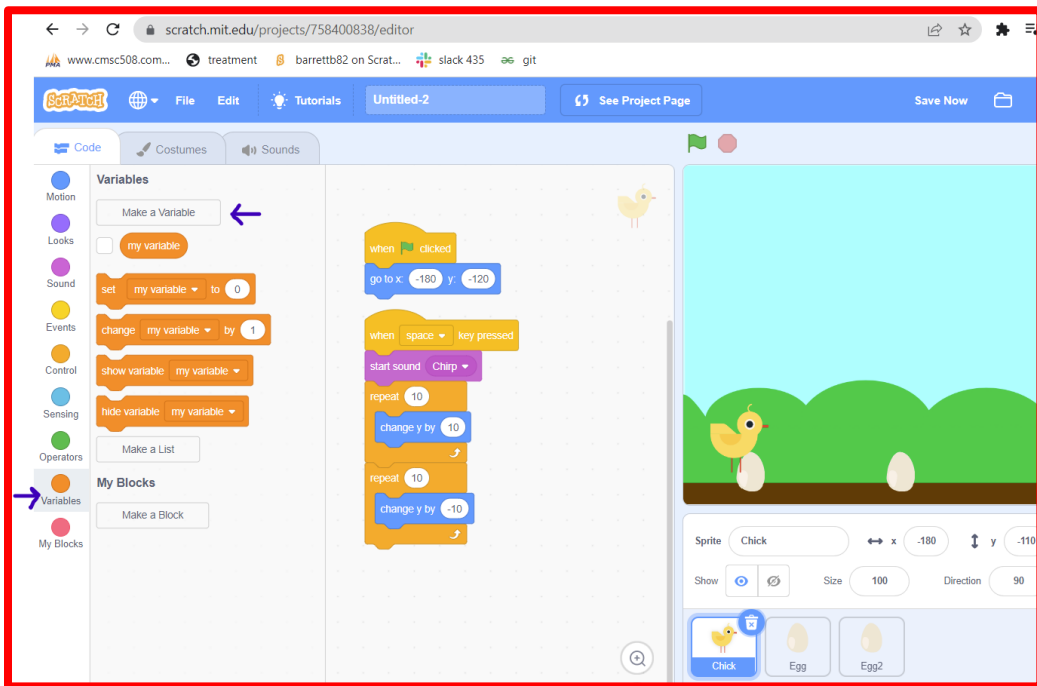
20. After ensuring the console is on the duplicate egg, go into the control section and add wait 1 second after the when green flag clicked and before the forever. Also change the value that follows after glide to 3. Make sure the value in glide is 3 for both of the eggs.



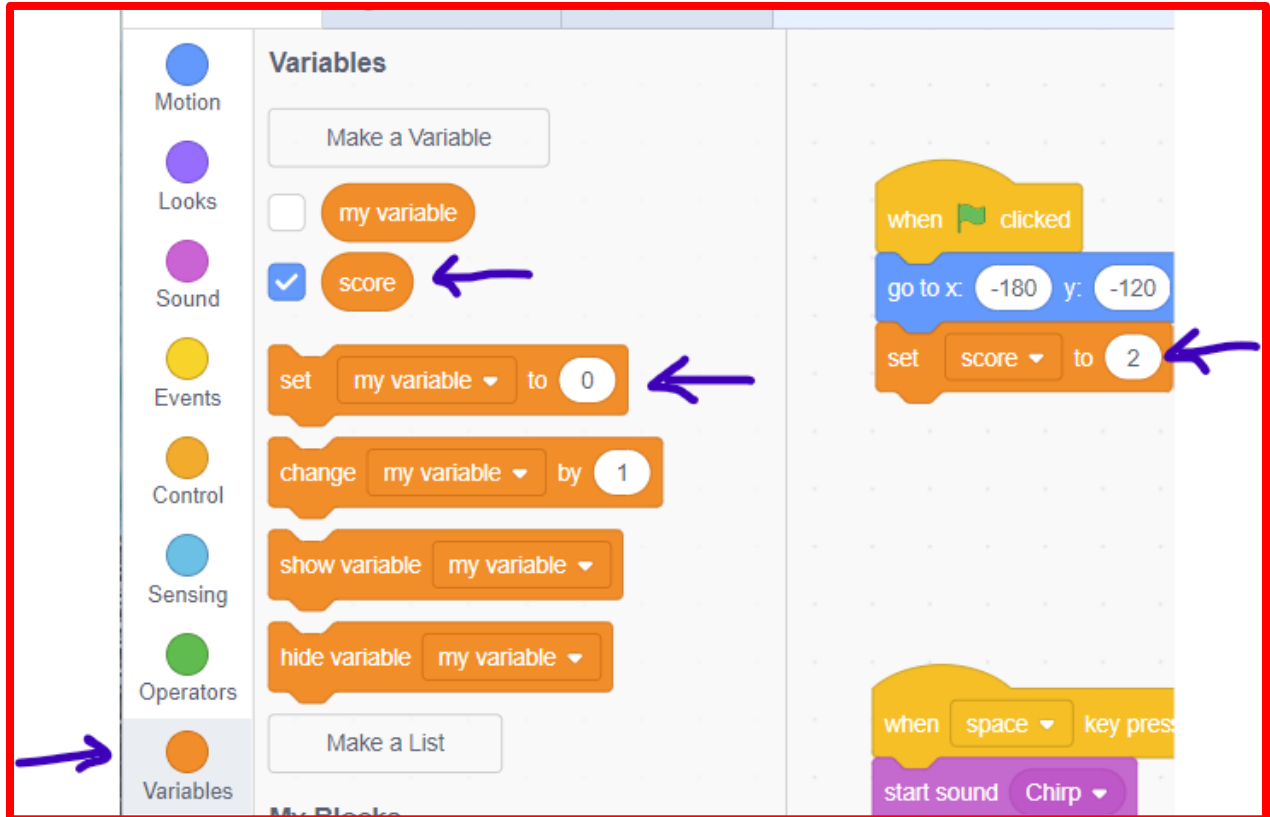
21. Go to the looks section and pull the hide block to have one after the when green flag click and before the wait 1 second. Then also place one show block connected to the wait 1 second.



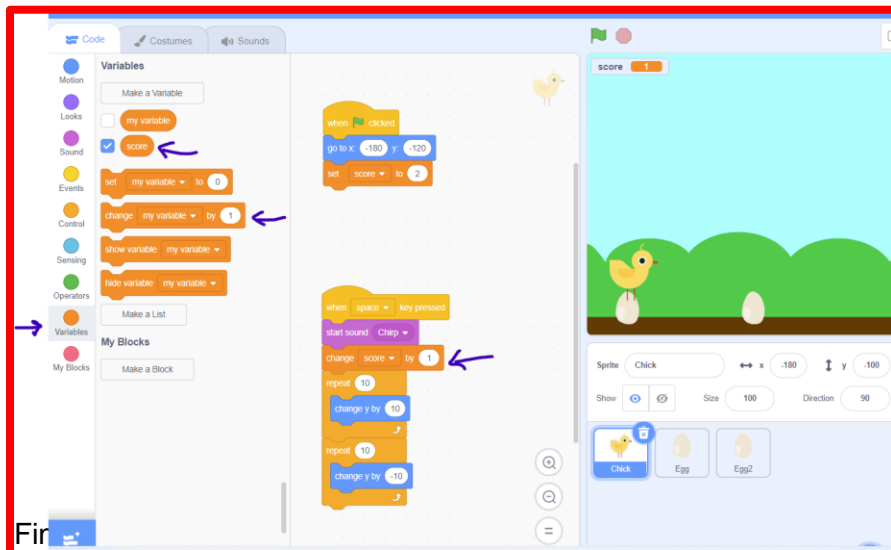
22. Click on the chick sprite. Go into the variable and click on make a variable name the variable score.



23. Then after the score variable is created connect a “set my variable to 0” after the “go to x” block”. Change the my variable drop down to score by clicking on the “my variable” drop down to score then enter the value 2 in the place where 0 is in the original block.



24. Then connect another “change my variable by 1” after the “start sound chirp” block. Change the my variable drop down to score by clicking on the “my variable” drop down.



```
when clicked
  go to x: -180 y: -120
  set score to 2

when space key pressed
  start sound Chirp
  change score by 1
  repeat 10
    change y by 10
  repeat 10
    change y by -10
```

The image shows a Scratch code editor with a red border. It contains two event-driven code blocks. The first block starts with a 'when clicked' event, followed by a 'go to x: -180 y: -120' block and a 'set score to 2' block. The second block starts with a 'when space key pressed' event, followed by a 'start sound Chirp' block, a 'change score by 1' block, and two 'repeat' loops. The first loop repeats 10 times with 'change y by 10'. The second loop repeats 10 times with 'change y by -10'. A small chick icon is visible in the top right corner of the editor.

Final snippet of code in Egg:

```
when clicked
  wait until touching Chick ?
  stop all

when clicked
  forever
    go to x: 235 y: -145
    glide 3 secs to x: -235 y: -145
```

The image shows a Scratch code editor with a red border. It contains two event-driven code blocks. The first block starts with a 'when clicked' event, followed by a 'wait until touching Chick ?' block and a 'stop all' block. The second block starts with a 'when clicked' event, followed by a 'forever' loop containing a 'go to x: 235 y: -145' block and a 'glide 3 secs to x: -235 y: -145' block. A small chick icon is visible in the top right corner of the editor.

Final snippet of code in Egg2:

The image shows two Scratch code scripts on a grid background. The top script is a simple interaction sequence: when clicked, wait until touching a 'Click' button, and then stop all. The bottom script is a more complex movement sequence: when clicked, the character hides, waits for 1 second, shows itself, and then enters a 'forever' loop. In each iteration of the loop, the character goes to the coordinates (235, -145) and then glides for 3 seconds to the coordinates (-235, -145). The entire scene is framed by a red border.

```
when clicked
  wait until touching Click
  stop all

when clicked
  hide
  wait 1 seconds
  show
  forever
    go to x: 235 y: -145
    glide 3 secs to x: -235 y: -145
```