Catch a Falling Start Instructions

In this activity, you will create a game in which you will catch falling objects with a mouse driven sprite. You will create several sprites that fall from the top of the stage that are to be caught by a sprite that slides across the bottom of the stage.

1. Start a new Scratch session.
2. Delete the cat sprite.
   a. Delete cat sprite by right clicking on cat sprite and selecting the delete option.
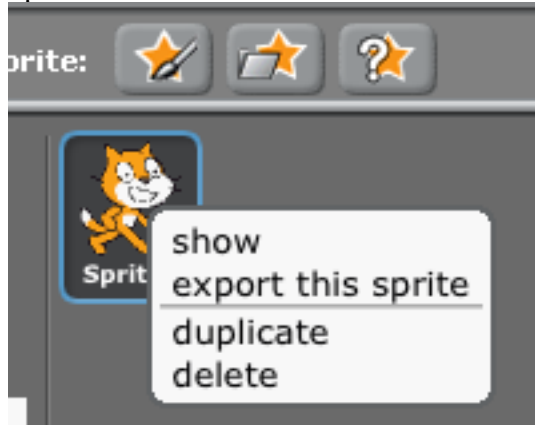
   b. You will now select a sprite that will be your falling object sprite. Import a sprite by clicking on the "Choose a sprite from a file" button. (It is the icon with the folder.)

   c. Choose a sprite from one of the folders.
   d. Verify that sprite that you selected appears in the sprite window.
   ☐ Test successful.
3. You will now work with the sprite that you selected. First you will need to resize your sprite.
   a. Click on the sprite image to select it.
   b. Right click the sprite in the white stage and choose "resize this sprite".
   c. Make the sprite smaller.
4. Now you will position the sprite to start the game.
   a. Go to the Scripts window in the middle of the Scratch work area.

   b. Drag a "When (green flag) clicked" instruction block from Control into

   the Scripts window.
   c. Drag in the Go to x: <> y:<> instruction from Motion and attach it to the

   when clicked instruction.

d. Set the starting location of the sprite by setting x: to 0 and y: to 163.
e. Drag in the "point in direction" action from Motion and choose the down direction.

point in direction -90 ▼

f. Test this script by clicking on the green flag in top right corner. Make sure your sprite goes to the location that you want (at the top of the screen).

☐ Test successful.

5. Now you will move the falling sprite 5 steps at a time until the sprite hits the bottom edge of the white stage.
a. You will start by dragging in a "repeat until" instruction from Control.
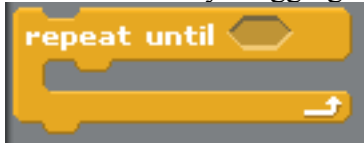
repeat until ⬡

b. Drag in the "touching" instruction from Sensing and insert it into the test area of "repeat unit". Select "edge" from the pulldown.

repeat until touching edge ▼ ?

c. Insert the "move 10 Steps" instruction from Motion into the "repeat until" loop instruction.
d. From the Looks group, drag in "say for secs" below the "repeat until" loop. Insert "Hit bottom" in the text area. Let the text appear for 0.5 seconds.

say Hello! for 2 secs

e. Test this block to verify that the falling sprite falls to the bottom of the stage and displays the "Hit bottom!" message.

☐ Test successful.

6. Make 10 balls drop using the "repeat" instruction.
a. Drag in the "repeat" instruction from Control and inset this instruction below the "when green flag clicked" instruction. Include your code within the "repeat" instruction.
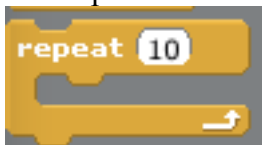
repeat 10

b. Make sure that the "repeat instruction has 10.
c. Ensure that each falling sprite starts in a random location. Modify the "go to x: y: instruction that is already in your code block. Change the x: value by deleting the 0 and dragging in the "pick random to" instruction to x:

d. Set the range of the "pick random -200 to 200"

e. Add a short delay between each falling sprite by adding a "wait secs" instruction from Control after the "point in direction" instruction.

f. Set the wait to 0.5 seconds.
g. Test your code to verify that 10 falling sprites start at various locations and fall to the bottom of the stage. You can change the time between each falling sprite by modifying the time value in the "wait sec" instruction. If you make a change, be sure to test your code again.

☐ Test successful.

7. Make the falling sprite hide when they hit the bottom of the stage.
   a. Below and outside the "repeat until touching edge" instruction loop, add "hide" from Looks. Place it above the "say Hit bottom! Roe 0.5 secs" instruction.
   b. Near the top of the "repeat 10" loop, under the go to x: y: instruction add a "show" instruction from Looks.
   c. Test your code again to make sure that 10 falling sprites appear, fall, and disappear when they hit the bottom of the stage.

8. Now you will create a paddle sprite that will be used to catch the falling sprite.
   a. Click on the Paint new sprite icon (the star with paint brush)

   b. Use the "Paint Editor" to create a horizontal line at the very bottom of the stage. The line should be approximately1 block high and 6 blocks long. The new sprite will appear in the sprite window below the white stage.
   c. Verify the new sprite appears in the sprite window.

☐ Test successful.

9. In the Scratch sprite window select your new sprite and click on the name at the top to change the name to paddle.
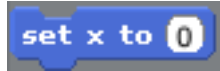   a. In the new sprite's "Scripts" window, drag in the "when green flag clicked" instruction.

   b. Drag in a forever loop into the paddle sprite scripts.

   c. Now you will instruct he sprite to move horizontally along the X axis (to move right and left) when the mouse is moved right and left. Drag in the

"set x to" instruction from Motion and insert it in the "forever" loop.

set x to 0

    d. Drag in the "set y to" instruction into the forever look and set the value to -175.

    e. From Sensing, drag in "mouse x" and insert it into the value in the "set x to" instruction.

set x to mouse x

    f. Test your paddle by clicking on the green flag to start the game. Your paddle should appear at the bottom of the stage and should move right and left when you move your mouse. Click on the red circle to stop your test.

☐ Test successful.

10. Now you will create a set of actions that will be executed when your falling sprite touches the paddle. Select the falling sprite in the sprite window.

    a. Under the "move steps" instruction drag in an "if" instruction from Control.

    b. Drag the "touching?" test from Sensing into the "if" statement's test and select the Paddle sprite from the pulldown.

forever if touching Paddle ▼ ?

    c. Drag a "say for secs" instruction from Looks inside the "if" statement.

    d. In the text section of the "say for secs" instruction, enter "Got it". Change the duration to 0.5 seconds.

    e. Attach a "hide" instruction under the "say for secs statement.

    f. Test this code by clicking the green flag. Use the mouse to move the paddle left and right to catch the falling sprite. When the paddle "catches" a falling sprite, the "Got it!" statement should appear. If the paddle does not catch the falling sprite, the Miss" statement should be displayed.

☐ Test successful.
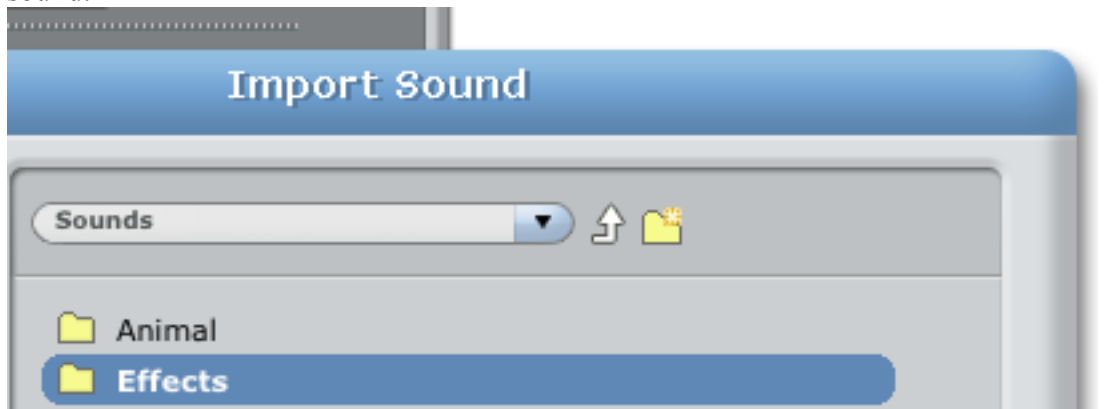
11. Add a sound when the paddle catches a falling sprite.

    a. Click on Sounds in the falling sprite window.

b. Click on import to get a sound.

FallingBall 🔒

x: 195 y: -78 direction: 114

Scripts Costumes **Sounds**

New sound: Record Import

c. Double click on effects and choose a sound and hit OK to choose the sound.

Import Sound

Sounds ▼

📁 Animal
📁 **Effects**

d. Drag in the play sound instruction from Sound and to the "if touching Paddle" block above the "Say Got it! For 0.5 sec" statement.

play sound Pop ▼

e. In the play sound instruction, choose the sound that you selected.
f. Play the game to test the sound.

☐ Test successful.

12. You will create 2 variables. One variable will track the number of falling sprites that have been dropped and the other variable will track the number of times that paddle catches a falling sprite.

a. Click on Variable and make a new variable named "total' and another named "score'.

Motion Control
Looks Sensing
Sound Operators
Pen **Variables**

Make a variable

b. In the falling sprite's "Scripts" window, drag "Set to 0" from the Variable group. Place this instruction directly under the "when green flag clicked"

statement. Use the pulldown to select the "total" variable. Repeat this procedure to set the "score" variable to 0. Each time the game starts these variables will be set to 0.

c. From the Variables group, drag in "change by 1" into the "if touching Paddle" block. Attach it under the "play sound" statement. From this statement's pulldown, select the "score" variable. Now each time your paddle catches a falling sprite the "score" variable will be incremented.
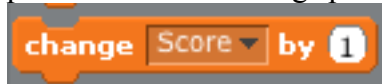

d. Drag in another "change by 1" statement and locate it under the "say Miss for 0.5 secs" statement. This statement will track the number of times the paddle misses the falling sprite and the falling sprite hits the bottom edge.
e. Test your code, to verify that the variables are displayed on the white stage and that the variable increases in value appropriately.
f. Verify that your statement is displayed.

☐ Test successful.

13. Now you will duplicate you falling star to make the game more challenging.
a. Right click on the falling star icon in the area below the white stage and select "duplicate".
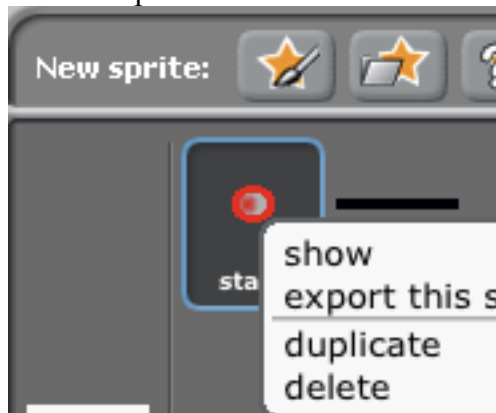
b. Click on the new sprite so you can edit its instructions.
c. Delete the 2 "set to 0" statements from your new sprite's instruction set. (You don't need these instructions because the variable are already set to zero in the original sprite's instructions).
d. Between the "when green flag clicked" and "repeat 10" instructions add a "wait 1 secs" instruction. What is the reason for doing this?
e. Test your game. You now should have 2 sets of falling sprites.

☐ Test successful.