# SCRATCH **Jumping Beans**
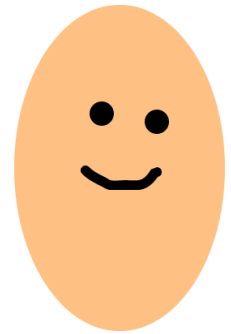*Make a sprite jump.*

Register/login at https://scratch.mit.edu

1) Make a new '**bean**' sprite with the drawing tool.

2) Make it smaller by adjusting its **Size**.

3) Drag the bean to a starting point at the bottom lefthand corner. Add code that moves it to this position when you click the **green flag**.

4) Create two variables **dx** and **dy** and turn them into **sliders**. These are *differences* to be added to **x** and **y**.

5) Add code to **change** x and y **repeatedly** until it **touches the edge**. The values of **dx** & **dy** have to be scaled down using multiply.
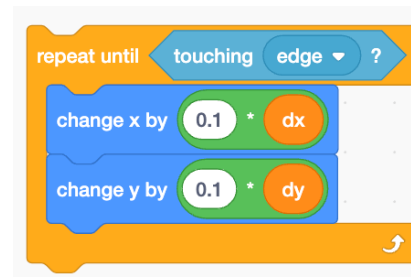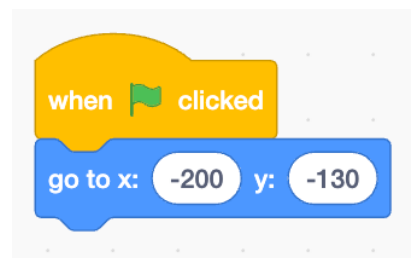
*Try it. Click on the code to run it with **dx** & **dy** inputs. How do you sense a click on the background?*

6) Select the stage and add code that broadcasts a message when it's clicked.

7) Add code to the bean that runs when it gets the message.
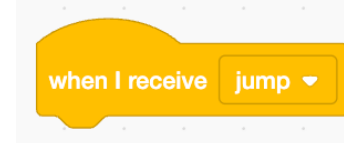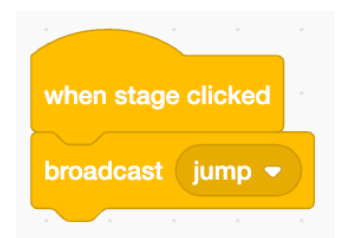
*Press the **flag** and click on the background*

*It moves in a straight line. Now add gravity!*

8) Add gravity by subtracting a small value from **dy** *every time it goes round the loop*.
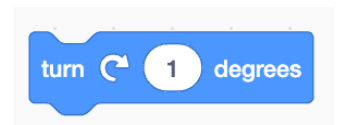
`change dy by -2`
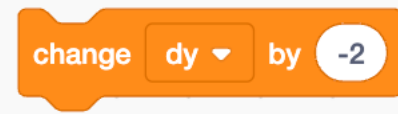
*Use the mouse position to input the direction and speed of the jump, instead of the sliders.*

9) Insert code after the **receive message** to **set dx** and **dy** to the position of the mouse relative to the bean.
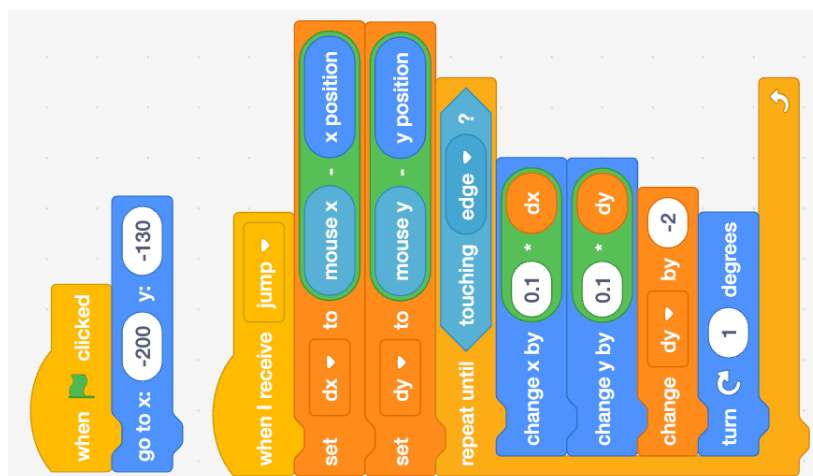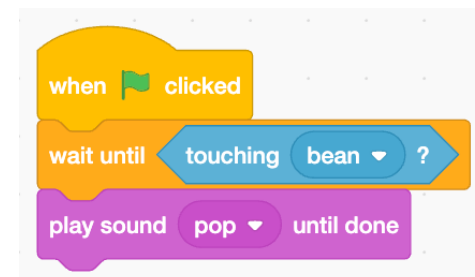
```
when I receive jump
set dx to (mouse x - x position)
set dy to (mouse y - y position)
```
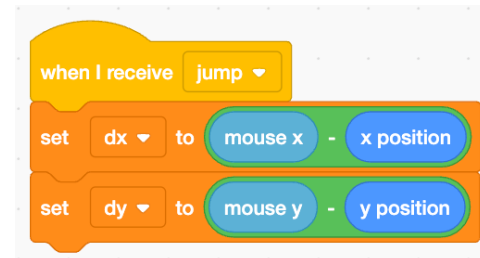
10) Make the bean tumble in mid-air by **turning** it 1 degree each time it moves.

`turn ↻ 1 degrees`

*Add a target for the bean to hit.*

11) Choose a new sprite with a good sound effect.

12) Add code to the new sprite that **waits** until it **touches** the bean and then **plays** a sound.

```
when [flag] clicked
wait until < touching bean ? >
play sound pop until done
```

*The complete code for the bean is shown here. Can you improve the gameplay?*

```
when [flag] clicked
go to x: -200 y: -130

when I receive jump
set dx to (mouse x - x position)
set dy to (mouse y - y position)
repeat until < touching edge ? >
  change x by (0.1 * dx)
  change y by (0.1 * dy)
  change dy by -2
  turn ↻ 1 degrees
```

***Save** your code with a good name. **File > Save now***