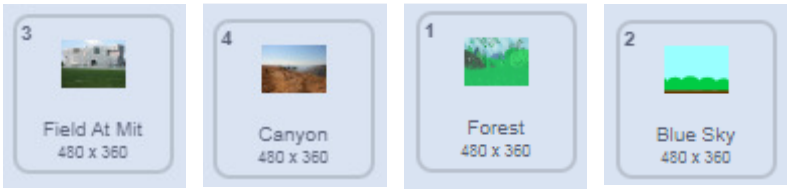
Grow a tree!

Full instructions at https://projects.raspberrypi.org/en/projects/grow-a-tree.

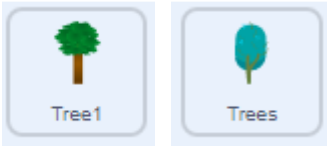
This project challenges you to keep still, then the tree will grow. See the finished project at https://scratch.mit.edu/projects/1041192052/. We will use the laptop camera, but images are not saved.

Step 1: Get started

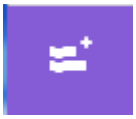
- Choose an outdoors backdrop:



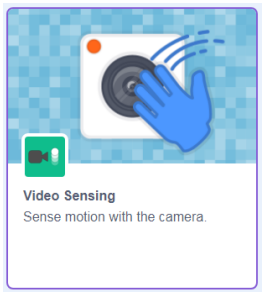
- Choose a tree sprite, or draw your own:



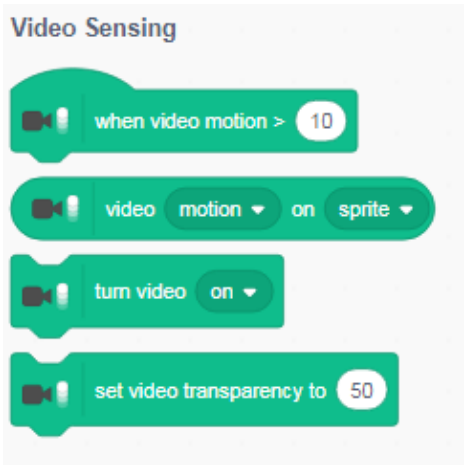
- To use the laptop camera, you need to click on the purple block in the bottom left corner to add an extension:



- Choose the Video Sensing extension:



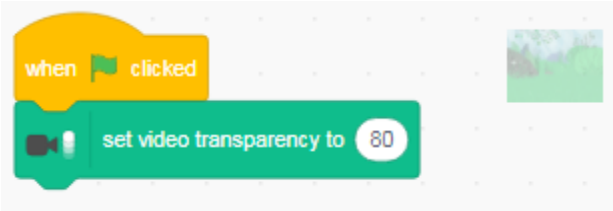
- And this will give you some new blocks to code with! (You may need to click on a message to allow the camera to be used.)



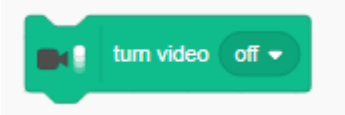
Save your project

Step 2: Add some code

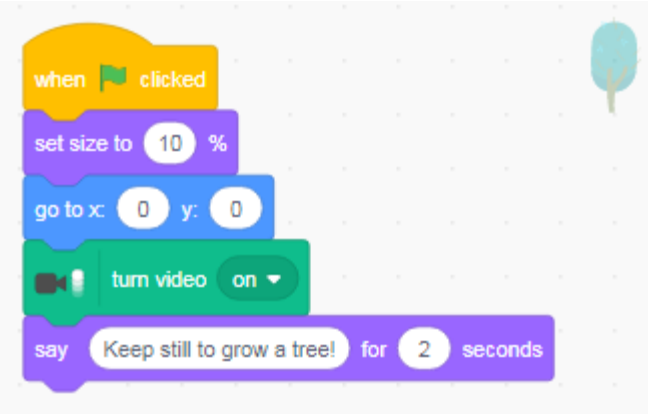
- Add this code to the backdrop. When you click the green flag, you should just be able to see yourself behind the backdrop.



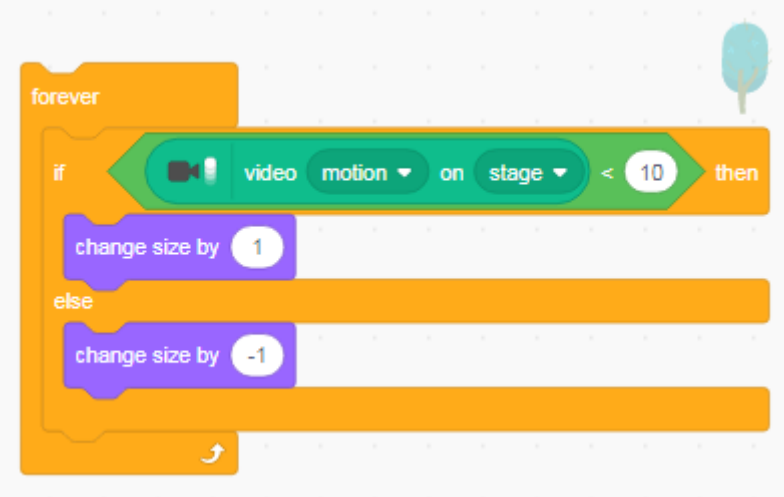
- If you don't like being on the screen all the time, keep this block handy, and click it to turn the camera off:



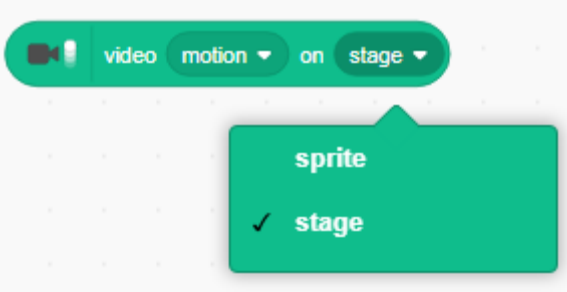
- Now add the code below to your tree sprite:



- Test it out – your tree will be tiny!
- But it isn't growing yet, we need to add more code in a 'forever' loop that keeps checking for motion. Join this on to the code above:



- Doublecheck the video motion block, make sure it is set to 'stage' and not 'sprite':

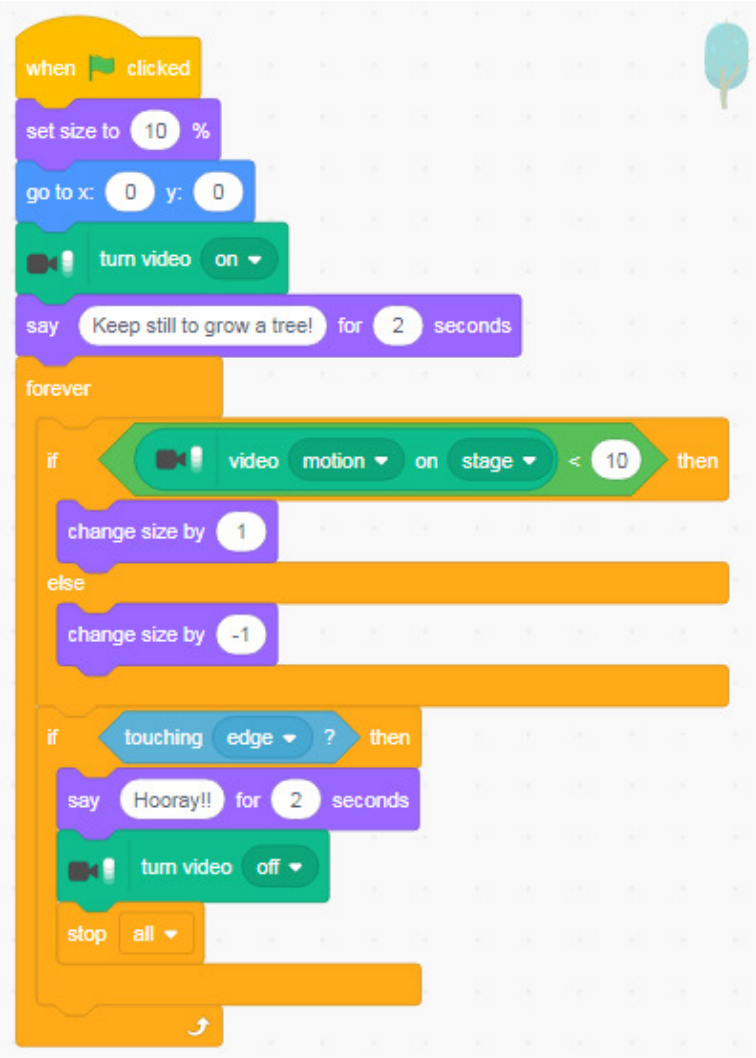


- Test it out, does your tree get bigger if you sit very still?

Save your project

Step 3: Winning the challenge!

- Finally, we need to check when the tree has grown so big it touches the edge of the screen – this is how you win! Here is the complete code for the tree:



- Test your project! You can make it easier or harder by changing the numbers in the 'change size' blocks.
- If you don't want to see yourself on the screen, set the video transparency on the backdrop to 100 instead of 80:

Save your project