

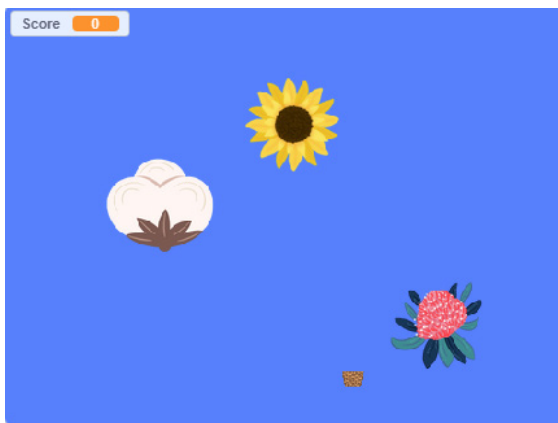
CODE OF ORIGIN



NSW produce

Create a catch game that teaches people about what is produced in New South Wales.

INTRODUCTION



What you will need

HARDWARE

A computer capable of running Scratch 3

SOFTWARE

Scratch 3:
either online
[rpf.io/scratchon](https://scratch.mit.edu/projects/754161713/)
or offline
[rpf.io/scratchoff](https://scratch.mit.edu/projects/754161713/)

What you will learn

- How to create falling objects
- How to add a score
- How to increase size and speed based on variables

Starter Project

<https://scratch.mit.edu/projects/783143782/>

Additional notes for educators

Here is a link to the completed project
<https://scratch.mit.edu/projects/754161713/>

Read this [blog post](#) for information about the Code of Origin project by Code Club Australia.

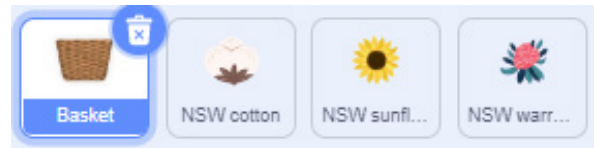


STEP 1 - BASKET

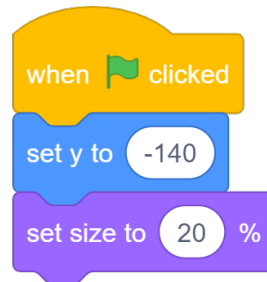
Open the starter project -<https://scratch.mit.edu/projects/783143782/>



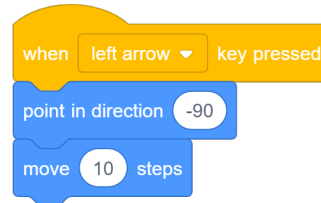
Select the basket sprite



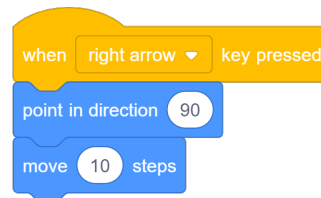
Start with the event **when the flag is clicked**. **Set y to -140** so that it will always travel along the bottom. **Set size to 20%.**



Let's code how the player controls the basket. Start with the event **when left arrow is pressed**. Add blocks to **point in direction -90** and **move 10 steps**.



Now for the opposite direction. Start with the event **when right arrow is pressed**. Add blocks to **point in direction 90** and **move 10 steps**.

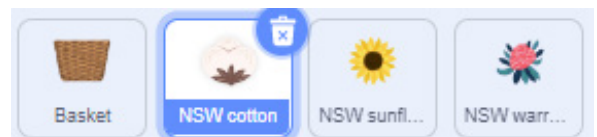


Test your code. Your basket should move from left to right, controlled by the arrow keys.

STEP 2 - FALLING PRODUCE



Select the cotton sprite

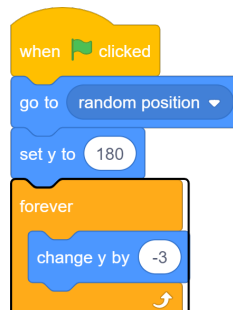




First we need to add code for the cotton to start somewhere along the top. Start with the event **when the green flag is clicked**. Add blocks to **go to random position** and to **set y to 180**.



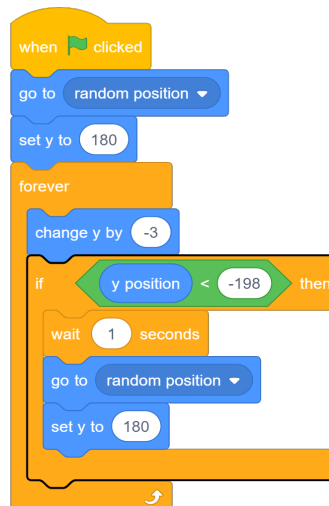
Add a **forever** block that will **change y by -3**. This will make the cotton constantly fall.



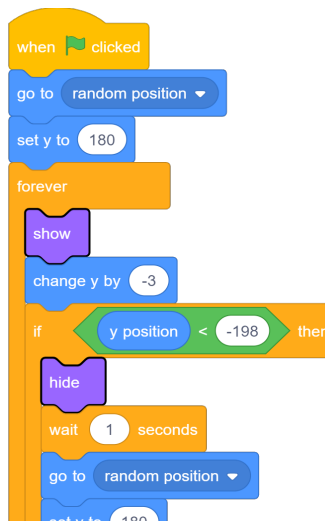
Test your code. The cotton should 'fall' to the bottom of the screen.



When the cotton reaches the bottom, we need it to look like another one falls from the top. Inside the forever block and an **if then block**, and code it if **y position is less than -195**. If the cotton goes below this it needs to **wait 1 second**, go to a **random position** and **set y to 180**.



Test your code. Can you still see the top of the cotton when it is 'waiting'? Lets add show and hide buttons so that when it reaches the bottom it **hides**, and when it starts at the top it **shows**.



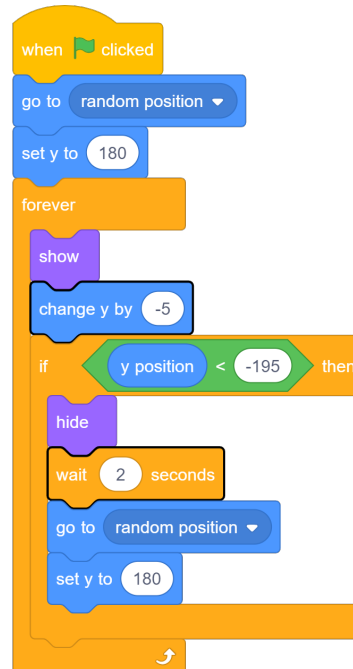


Test your code. The cotton should fall to the bottom, disappear, and then reappear at the top of the screen.



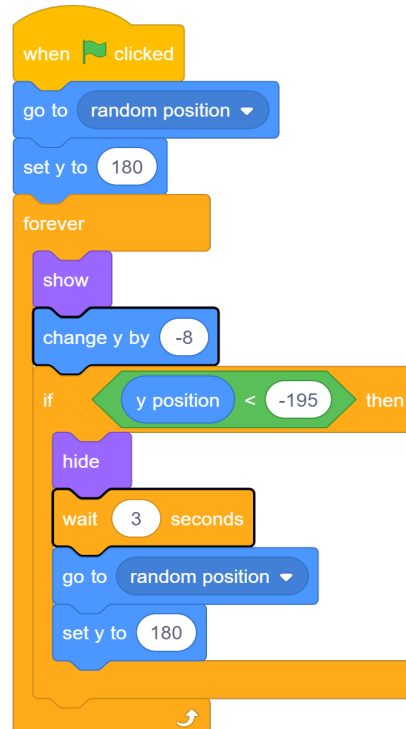
Copy the code onto the sunflower and warratah. (Drag the code until it hovers over the sprite you are copying to)
On the sunflower make these changes

- **change y by -5** this changes the speed that it falls
- **wait 2 seconds**



On the warratah make these changes

- **change y by -8**
- **wait 3 seconds**

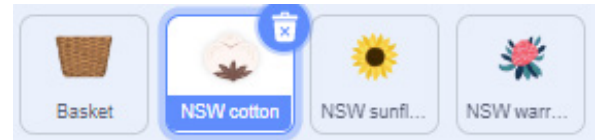


Test your code. All 3 sprites should be falling at different speeds and different times.





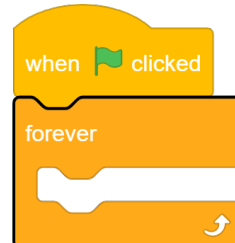
Select the cotton sprite



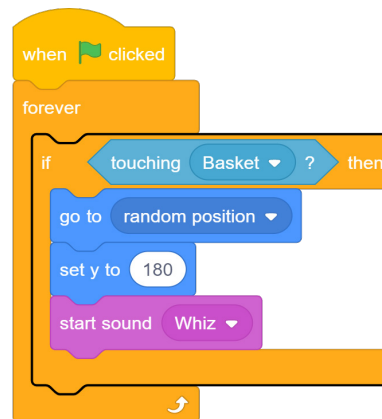
Let's code how the basket will catch the produce.



Start with the event **when the green flag is clicked** and then add a **forever** block.



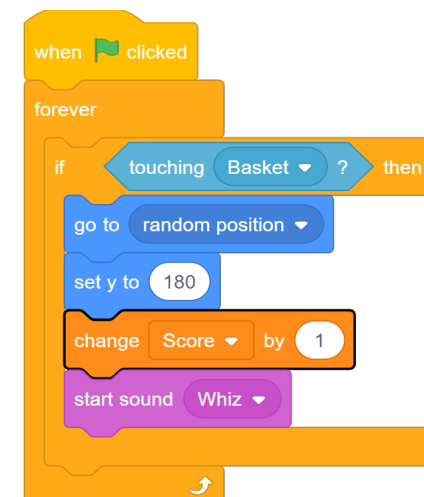
When the cotton touches the basket we need it to look like it has been caught. Inside the forever block and an **if then block**, and code it if **touching the basket** then it **goes to a random position** with **y set to 180**. Go into the sound tab and choose a sound. Add a block to **play the sound**.



Test your code. The cotton should disappear as soon as it touches the basket.



Let's add in a scoring system. Make a new variable called score. Add a block the **change score by 1**.





Copy the code onto the sunflower and warratah. (Drag the code until it hovers over the sprite you are copying to)
On the sunflower make these changes

- choose a new sound
- change score by 2



```

when green flag clicked
  forever loop
    if touching Basket then
      go to random position
      set y to 180
      change Score by 2
      start sound High Whoosh
  
```



On the warratah make these changes

- choose a new sound
- change score by 3



```

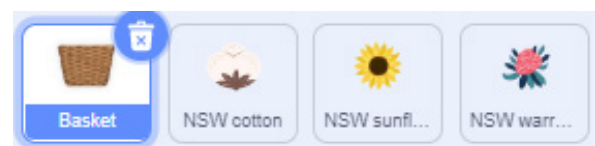
when green flag clicked
  forever loop
    if touching Basket then
      go to random position
      set y to 180
      change Score by 3
      start sound Collect
  
```



Test your code. You have added a score element. Let's make sure we set the score to 0 when the green flag is clicked.



Select the basket sprite



Add a block onto your algorithm that sets the score to 0



```

when green flag clicked
  set y to -140
  set size to 20 %
  set score to 0
  
```





Next we will add some blocks to slowly make the basket move faster. Start by making a new **variable** called speed. Add a block that **sets the speed** to 0.



```

when green flag clicked
  set y to -140
  set size to 20 %
  set score to 0
  set speed to 0
  
```



Add a control block of **repeat until**. We want the **speed** to slowly increase until it **equals** 10. Inside add a **wait 5 seconds** block so it will slowly increase. Then add a **change speed by 1** block.

Let's slowly make the basket grow bigger too by adding a **change size by 10** block.



```

when green flag clicked
  set y to -140
  set size to 20 %
  set score to 0
  set speed to 0
  repeat until Speed = 10
    wait 5 seconds
    change speed by 1
    change size by 10
  
```



Test your code. The game should play and this time you will notice the increase in speed and size of the basket as the game progresses. Finally lets create the end of the game when the player reaches a score of 100.



Add a **forever** block to the end of the algorithm. Inside add an **if then** block that runs until the **score is larger than** 100. Inside the if then block add a block to **switch the backdrop** to Win and a block that will **stop all**.



```

wait 5 seconds
change Speed by 1
change size by 10
forever
  if Score > 100 then
    switch backdrop to Win
    stop all
  
```





Now that we have changed the background at the end of the game, we need to make sure when the green flag is clicked we start with the game background. Add a block to the top of the algorithm to **switch backdrop to start**.



```

when green flag clicked
  set y to -140
  set size to 20 %
  switch backdrop to Start
  set Speed to 2
  set Score to 0
  repeat until Speed = 10
    wait 5 seconds
    change Speed by 1
    change size by 10
  forever
    if Score > 100 then
      switch backdrop to Win
      stop all
  
```



Test your code. Your game is complete. Your task now is to add hide and show buttons to each sprite so that they **hide** when the backdrop is switched to Win, and they **show** when the green flag is clicked. Some hints are below.



The new event will need to be placed on every sprite.

The basket and produce will need the show button added in to an algorithm at the beginning.

```

when backdrop switches to Win
  hide
  
```

```

when green flag clicked
  show
  forever
    if touching Basket ? then
  
```

```

when green flag clicked
  show
  set y to -140
  set size to 20 %
  
```



Challenges:

Create backdrops with more detail

The backdrop is quite simple at the moment. Can you add detail to it? Be careful your detail or changes don't make it too hard for the player to see the produce falling.

Produce

Can you increase the difficulty of catching the produce. Perhaps your game will start with large produce that are easy to catch and they will slowly get smaller as the basket gets bigger.

Multi-level game

Can you add in a second level to the game? New South Wales is famous for many other things that could be added into a second level.

- wheat
- grapes
- potatoes

Congratulations!

You have created a game that will help others learn about New South Wales.

Which state or territory will win the Code of Origin?

