

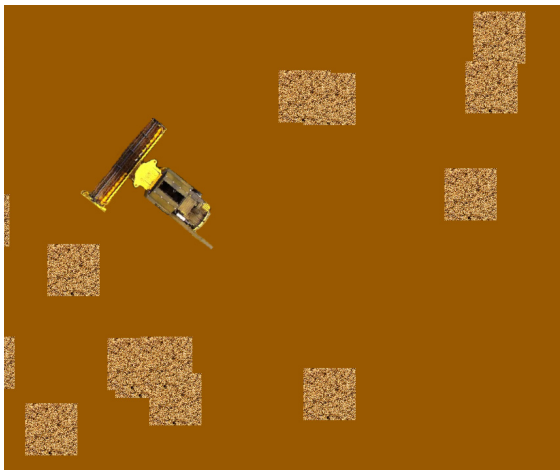
Getting cereal about coding!

Wheat is Australia's most widely grown crop. In this project, we'll make a wheat harvest simulator in Scratch!

INTRODUCTION

What you will make

You will make a game where you control a combine harvester to harvest wheat.



What you will learn

- You'll learn how to create clones in random positions.
- You'll learn how to move the sprite using the keyboard.

Code Club Australia recognises the Traditional Custodians of the land across Australia and their continuing connection to land, cultures, and communities. Australia's traditional owners are the world's first innovators.

What you will need

HARDWARE

A computer capable of running Scratch 3

SOFTWARE

Scratch 3:
either online
<http://rpf.io/scratchon>
or offline
<http://rpf.io/scratchoff>

DOWNLOADS

Offline starter project
bit.ly/ccawheat

Additional notes for educators

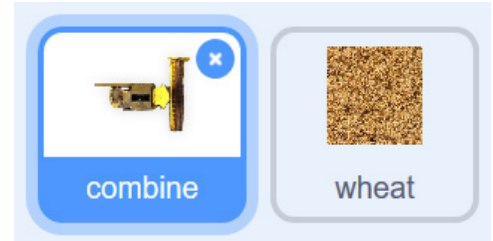
Here is a link to the completed project
<https://scratch.mit.edu/projects/407268934/>

1. MAKE THE HARVESTER MOVE

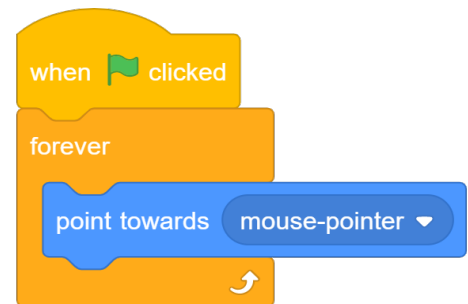
If we want to harvest wheat, first we need a harvester that can move.



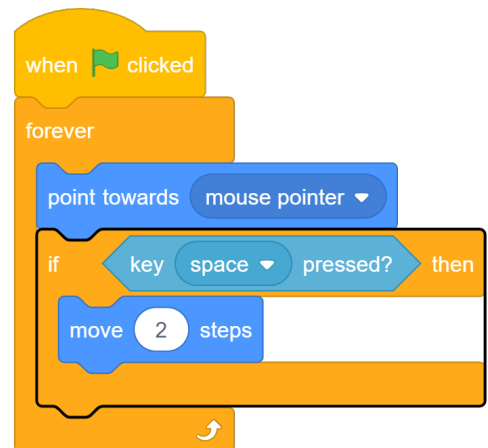
- Open the Starter Code project bit.ly/ccawheat
- Be sure to select the **combine** sprite. A combine harvester harvests grain crops.



- First, we need to make the harvester **point towards the mouse-pointer**:



- Next, we want to **move** the combine towards the mouse pointer when the **spacebar is pressed**.

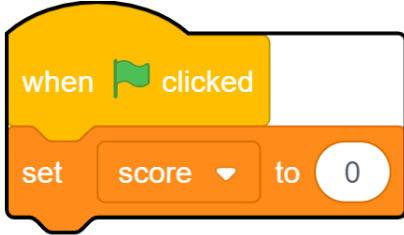


- Make sure you test your project by clicking the **green flag** and pressing the space bar!

2. HARVEST THE WHEAT

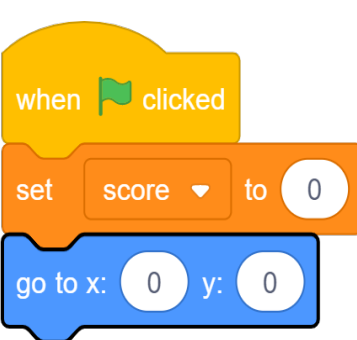
Let's get to the harvesting!

- Click on the **wheat sprite**.
- Set up your **score** with these two blocks.



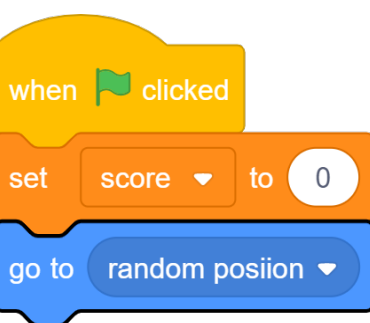
```
when green flag clicked
  set score to 0
```

- Set the location for the starting point of the wheat using the **go to x: y: block**. These coordinates are right in the middle of the screen.



```
when green flag clicked
  set score to 0
  go to x: 0 y: 0
```

- Hmm, let's make it a little harder.
- We want our wheat to appear in **random** places.
- Change your **go to x: y:** block to a **go to random position** block.



```
when green flag clicked
  set score to 0
  go to random position
```

- Next, we want to increase the score if the combine harvester touches the wheat.



```
go to random position
forever
  if touching harvester ? then
    change score by 1
```

- It would be great if we could harvest unlimited wheat, but we can't!
- Let's **hide** the wheat sprite after we harvest it.

```

forever
  if touching harvester ? then
    change score by 1
    hide
  
```

- But now our wheat sprite doesn't appear when we restart the game!
- Add the **show** block to make it reappear.

```

set score to 0
go to random position
show
forever
  if touching harvester ? then
    change score by 1
  
```

3. MORE WHEAT!

We made one square of wheat, but we want to harvest more!

- We need to use the code we have, but separate it into two separate strands like this:

```

when clicked
  set score to 0
  go to random position
  show
  forever
    if touching harvester ? then
      change score by 1
      hide
    
```



- Add the following code to the main script to make **clones** of the wheat sprite:



```
when green flag clicked
  set score to 0
  repeat 20
    create clone of myself
```



- Now we'll add a new block to the remaining code, so it will run for all of the clones:



```
when I start as a clone
  go to random position
  show
  forever
```



- Finally, we'll replace the hide block with a **delete this clone** block to ensure that we're cleaning up after ourselves.



```
go to random position
show
forever
  if touching harvester then
    change score by 1
    delete this clone
```

CONGRATULATIONS

You've finished this project! Try one of the challenges below, or maybe add your own?

Challenges:

Even more wheat?

Currently, we only have 20 squares of wheat. Can you make 100 squares of wheat?

End game

Can you let the player know that they've finished the harvest?

Fix the harvester?

When the harvester gets too close to the mouse pointer it doesn't know which way to point and gets confused. Can you solve this problem?

Find out more...

Wheat is one of the most popular Australian crops. Farmers grow wheat on their farms and then it is turned into flour at a flour mill. Flour is used in all sorts of food; like bread, pizza and cake!

Farmers use big tractors, called combine harvesters to harvest their crops, including wheat, barley and other grains. It has a big comb that travels along the rows of wheat. A cutter bar inside cuts the ends off the wheat and then a sifter separates the grain. The stalks are left behind on the ground.

We've written a blog post, all about wheat and how it is farmed. Head to our blog for more info - medium.com/code-club-australia

And don't miss the other coding resources available on our website. There are videos, interview and more lessons all about Agriculture and other topics!
codeclubau.org/projects/topics/agriculture/

