



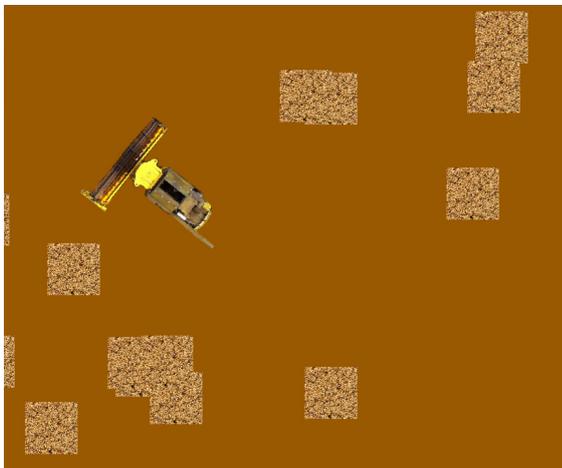
# Getting cereal about coding!

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](http://bit.ly/ccawheat)

### Additional notes for educators

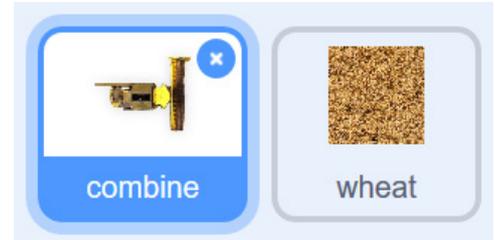
Here is a link to the completed project  
<https://scratch.mit.edu/projects/407268934/>

# 1. MAKE THE HARVESTER MOVE

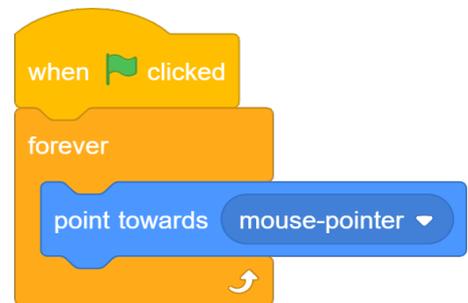
If we want to harvest wheat, first we need a harvester that can move.



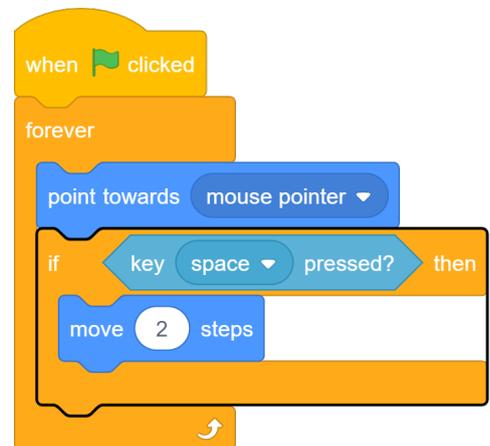
- Open the Starter Code project [bit.ly/ccawheat](https://bit.ly/ccawheat)
- Be sure to select the **combine** sprite. A combine harvester harvests grain crops.



- 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
  if touching harvester then
    change score by 1
    delete this clone
```



- 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](https://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/](https://codeclubau.org/projects/topics/agriculture/)

