

# CoderDojo Athenry

## "Above all, be cool"



### Every week:

- ✓ Sign in at the door

### If you are new:

- ✓ Fill in Registration Form
- ✓ Ask a Mentor how to get started

Make sure you are on the Athenry  
Parents/Kids Google Group: email  
[coderdojoathenry@gmail.com](mailto:coderdojoathenry@gmail.com)

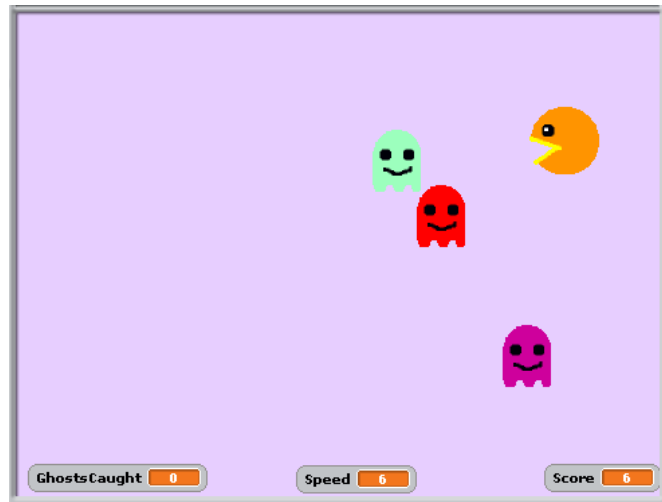
# CoderDojo Athenry

## Scratch Beginners



Code and notes by Martha Madden and Michael Madden, 2012

## Today's Ninja Challenge: Create a **GhostBuster** Game Like This



## Today's Big Ideas

Designing  
your game

Loops &  
Decisions

Ideas from  
last time ...

Variables

## How to Get Started

### Plan the Design

- Think first!
- Start simple: add more later

### Create First Character

- Design it: appearance & behaviours
- Write script (Code) to control its behaviours

### Test It

- Any bugs? (Not working as expected)
- Debug and Improve

### Extend It

- More Characters, More Behaviours, More Testing!

*Reminder  
from Week 1*

## How to Make Progress

Our Creative Coding Rule:  
**There's More Than One Way to Do It!**

Try things out and iterate

Save copies: go back if it doesn't work

Talk to others, share ideas, learn from  
their ideas, improve on their ideas!

Examine other people's code on the  
Scratch website & upload your code

*Reminder  
from Week 1*

## Steps To Make This Game

Create your **Ghost Catcher**: appearance?  
Code to control it with mouse

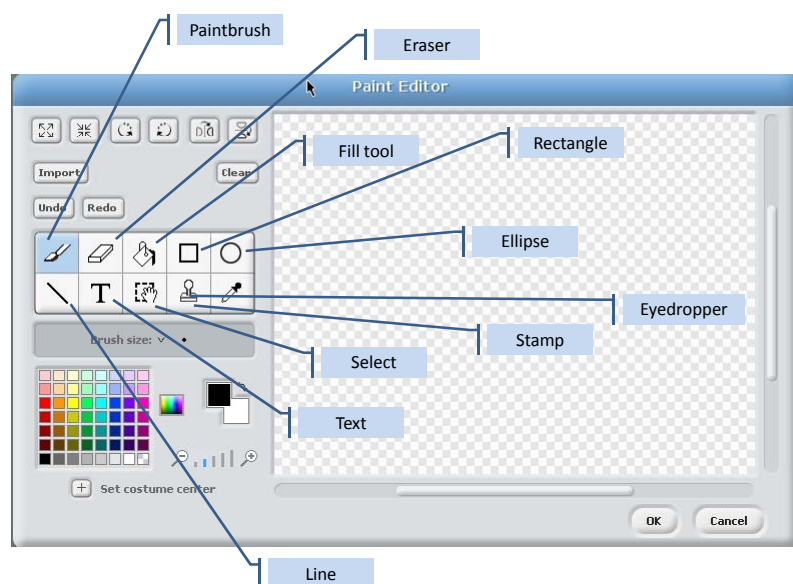
Change the **Stage**:  
Plain coloured background?

Create first **Ghost**: appearance & code  
Duplicate it when it is working

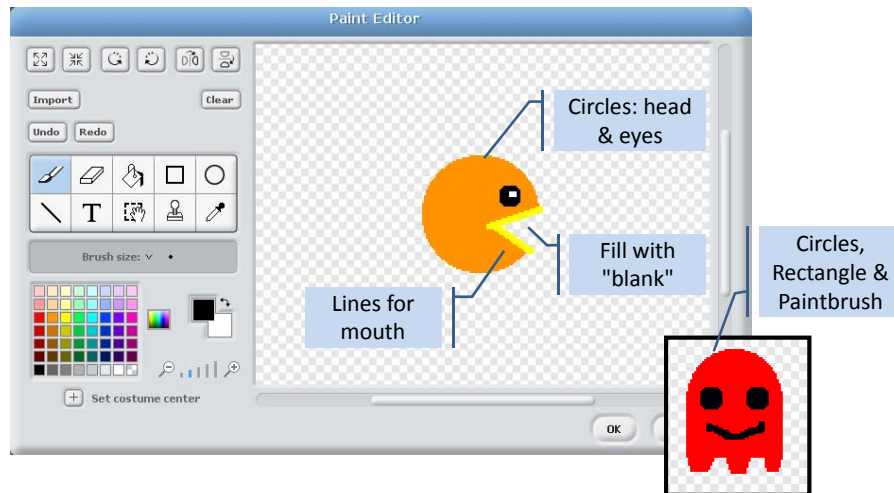
Make things happen when  
a Ghost is caught

Add variable for **Score**  
Optional: New level when all caught

## Paint Editor in Scratch



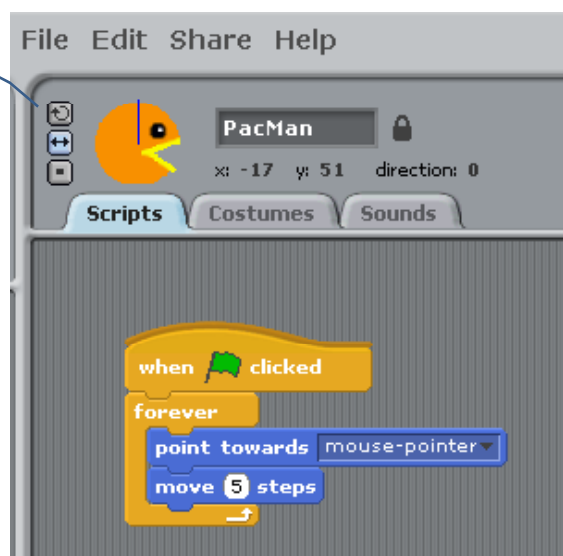
## Design PacMan and a Ghost



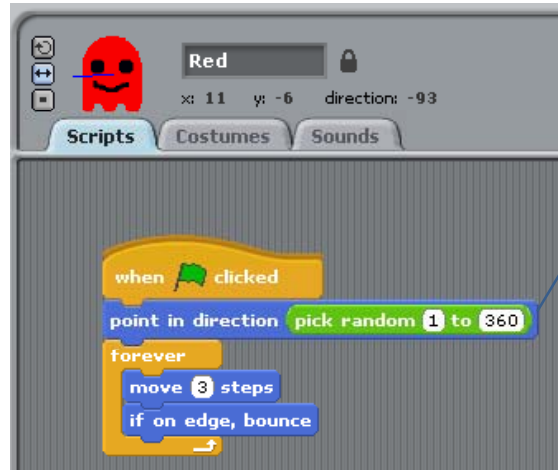
**TIP:** Use distinctive colour (e.g. yellow) at front/mouth: will use this when detecting if ghost is eaten

## Make PacMan Follow the Mouse

**Buttons:**  
Rotate any direction  
Face left/right  
Don't rotate



## Make Ghost Move Around



What is significance of 1-360?

**TIP:** Get one ghost working fully – you can duplicate it later.  
Right-click on a sprite to duplicate it.

## Loops and Decisions

Key programming concepts

### Loop:

Repeat code multiple times

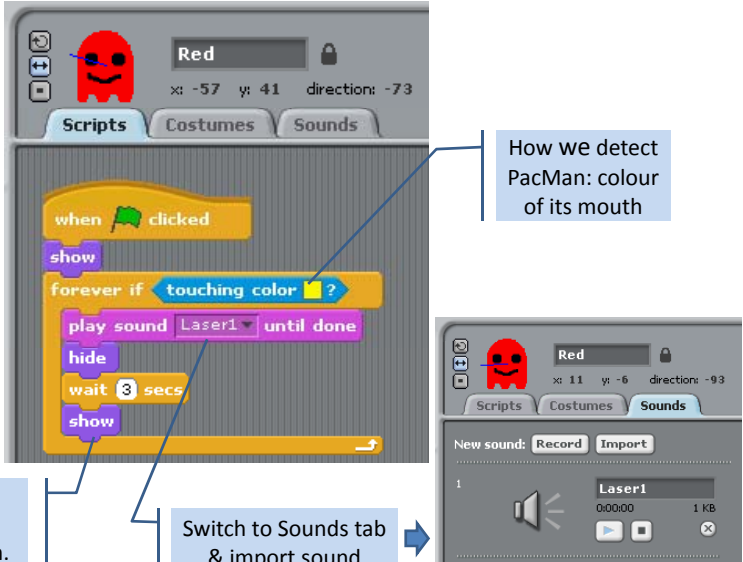


### Decision:

Decide whether or not to do something



## When PacMan Gets Ghost ...



The image shows the Scratch interface for a Red ghost. The main script area contains the following code:

```

when green flag clicked
  show
  forever loop
    if touching color yellow?
      play sound Laser1 until done
      hide
      wait 3 secs
      show
  
```

Annotations explain the code:

- How we detect PacMan: colour of its mouth** points to the "touching color yellow?" block.
- Show at start. Hide when eaten. Wait & show again.** points to the "show" blocks at the beginning and end of the loop.
- Switch to Sounds tab & import sound** points to the "Sounds" tab and the "Laser1" sound block.

The "Sounds" tab is shown on the right, displaying the "Laser1" sound with a duration of 0:00:00 and a size of 1 KB.

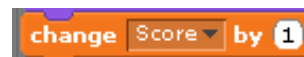
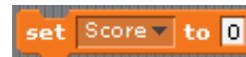
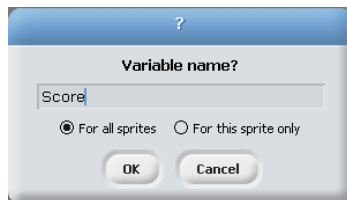
## Duplicate Ghost, Make Each One Look Different



## Variables

To keep score, need a **Variable**:

- A key programming concept
- Stores a **Value** (number/text data):  
this can vary
- Has a **Name** – this is fixed:  
use this in the code to compare/change values



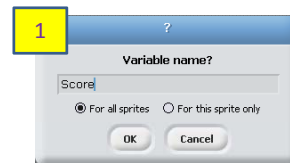
## Variable to Keep Score

Variables can be:

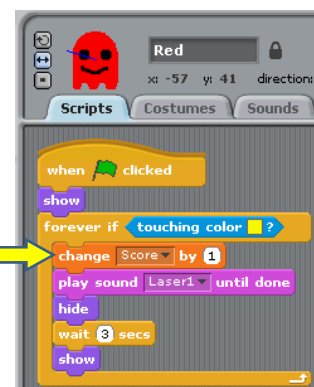
- **Global** (for all sprites): what we will use
- **Local** (one sprite only)

To do:

1. Make variable
2. Set it to 0 at start
3. Add 1 each time a ghost is killed



3  
Add this to  
every ghost





## If You Want to Do More ...

Add Levels:

When you have caught 6 ghosts,  
make the ghosts go faster

You will need:

Variable for **Speed**, initially 2

Variable for **GhostsCaught**

Code: when **GhostsCaught** = 6,  
set it back to 0 and increase Speed by 2

## If You Want to Do More ...

Make a variable **Speed**

Set it to 2 at start

Change ghosts to move at that speed

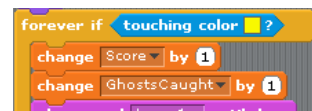


Make variable **GhostsCaught**

When ghost is caught,

Change by GhostsCaught by 1

(beside where you change Score by 1)



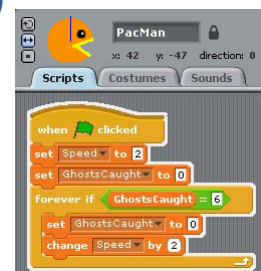
Add code to PacMan:

Set **GhostsCaught** to 0 at start

If **GhostsCaught** is 6

– Change back to 0

– Increase **Speed** by 2



## At the End ...

Upload your project to the Scratch Website

user: **cdathenry** password: \_\_\_\_\_

Access it  
from home

Improve it

Show your  
friends!

