

# Play Fetch – Scratch Programming

Create a game of dog fetch with mazes. The object of the game is to guide the red dog toy through the maze. Get points for bouncing the toy off the cat and for getting the toy to the dog. Lose points for running off course and touching the green edges.

Programming Difficulty = Medium  
Grade Level = 4<sup>th</sup> and up

Tutorial by:



<http://oakdome.com>

This is a learn by doing coding lesson using Scratch at <https://scratch.mit.edu/>. Students will learn basic programming concepts by building and coding their own interactive game.



**TIP:** When coding, it is good practice to test your code often such as when adding new bits of code or making any changes to code.

Testing your code often helps you to learn to read and understand code. It also helps you catch and correct coding errors sooner.

# First Things First:

## 1) Sign up or Sign in to Scratch

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

## 2) Upload Game Template to Scratch:

<play-fetch-scratch-game-template-for-kids.sb2>

This template has all the graphics, sounds, and backgrounds you need for this project. [Download the template](#) and put it on your computer desktop or other convenient place, then upload it to Scratch as shown in the picture.

## 3) Begin Coding:

Follow each step of the tutorial and add the code for each sprite (graphic). See the **TIPS** at the end of this tutorial for help with positioning the cat and for drawing the mazes.



# Play Fetch – Scratch Programming

1) Create these 3 variables.

**Points** = For keeping score

**Level** = For changing backgrounds at each level

**Shoot** = To throw only when mouse is inside circle

The image shows the Scratch programming environment for a project titled "Play Fetch" by signacio (unshared). The stage displays a green field with a white path, a pink cat, a blue robot-like character (thrower) inside a yellow circle, a brown dog (alfie), and a red dog toy. The interface includes a top menu bar (Scratch, File, Edit, Tips, About), a toolbar, and a sidebar with categories: Motion, Looks, Sound, Pen, Data, Events, Control, Sensing, Operators, and More Blocks. The "Data" category is selected, showing the "Make a Variable" dialog. This dialog lists three variables: "Points" (checked), "level" (checked), and "shoot" (unchecked). Below the list are buttons for "set", "change", "show variable", and "hide variable". A "New Variable" dialog is also open, showing the "Variable name" field with "Points" entered and the "For all sprites" radio button selected. Red arrows and boxes provide step-by-step instructions: 1) Click "Data", 2) Click "Make a Variable", 3) Type the variable name, and 4) Create all 3 variables: Points - Level - Shoot. The bottom of the interface shows the "Sprites" area with a "New sprite" button and a list of available sprites: Stage (10 backdrops), thrower, circle, you-win, alfie, and red-dog-toy.

1) Click "Data"

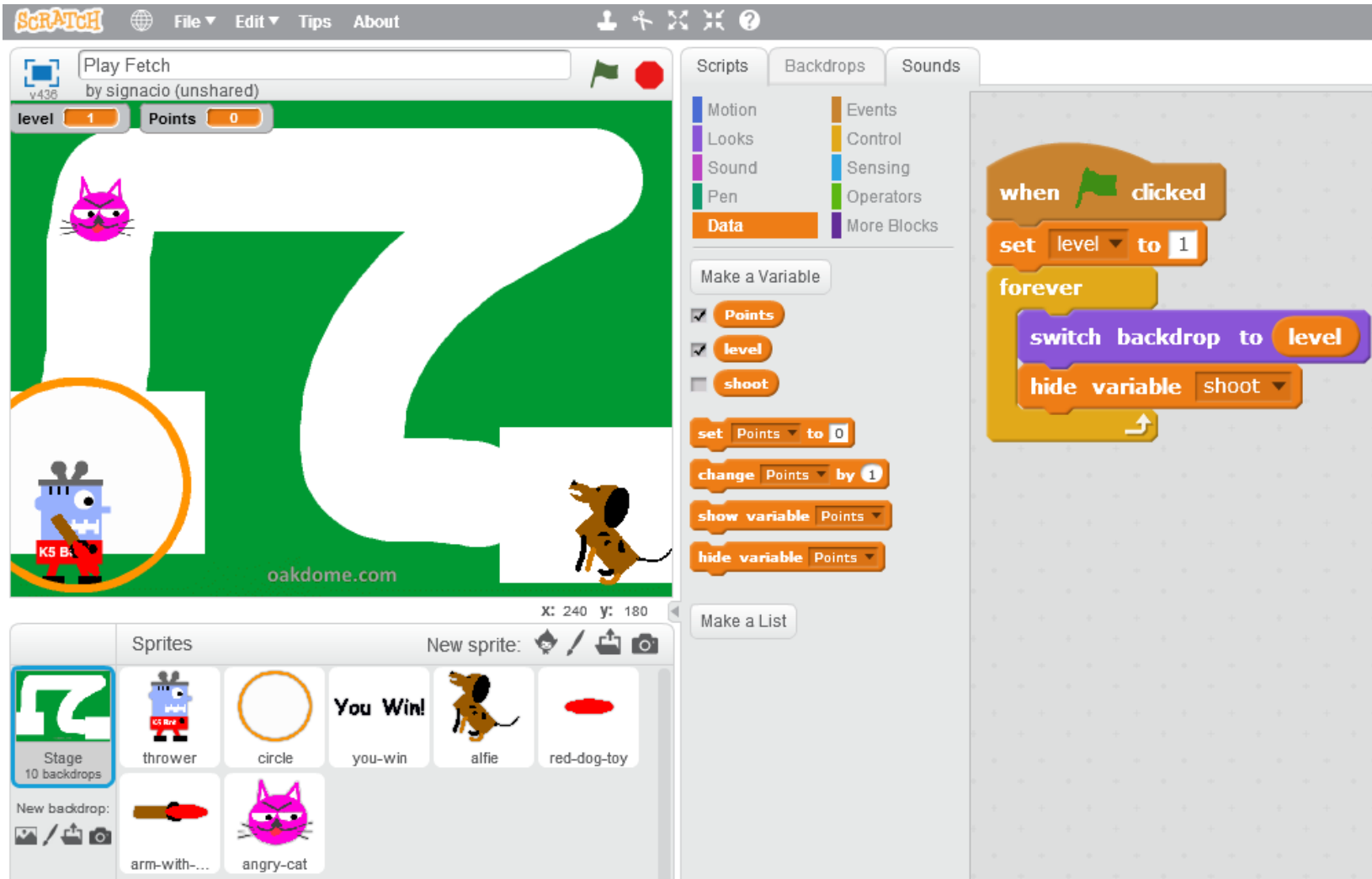
2) Click "Make a Variable"

3) Type the variable name

4) Create all 3 variables:  
Points - Level - Shoot

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## 2) Backdrop Code:



Scratch programming environment showing the 'Play Fetch' project. The stage features a green backdrop with a large white 'Z' shape. A pink cat sprite is in the top left, a blue robot sprite is in the bottom left, and a brown dog sprite is in the bottom right. The 'Scripts' panel on the right shows a 'when clicked' event block followed by a 'set level to 1' block, a 'forever' loop containing a 'switch backdrop to level' block and a 'hide variable shoot' block. The 'Sprites' panel at the bottom shows various sprites including 'thrower', 'circle', 'you-win', 'alfie', 'red-dog-toy', 'arm-with...', and 'angry-cat'.

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## 3) Thrower Code:



Scratch interface showing the "Play Fetch" project by signacio (unshared). The stage displays a green field with a white path, a pink cat, a dog, and a K5 Bot character. The K5 Bot is highlighted with an orange circle.

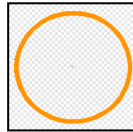
The Scripts area shows the following code for the K5 Bot:

```
when green flag clicked
  go to x: -205 y: -124
  show
  move 10 steps
  turn 15 degrees
  turn 15 degrees
  point in direction 90
  point towards
  go to x: -205 y: -124
  go to mouse-pointer
  glide 1 secs to x: -205 y: -124
  change x by 10
  set x to 0
  change y by 10
```

The Sprites area shows the "thrower" sprite selected, along with other sprites like "You Win!", "alfie", and "red-dog-toy".

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## 4) Circle Code:



Scratch v436

Play Fetch by signacio (unshared)

level 1 Points 0

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X: 240 Y: 180

New sprite: [circle] [you-win] [alfie] [red-dog-toy]

New backdrop: [arm-with-...] [angry-cat]

Scripts

when I receive show ring

go to x: -192 y: -98

set ghost effect to 0

repeat 50

change ghost effect by 2

when I receive shoot

hide

wait 1.1 secs

show

Data

Make a Variable

Points

level

shoot

set Points to 0

change Points by 1

show variable Points

hide variable Points

Make a List

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# Play Fetch – Scratch Programming

5) You Win! Code:

**You Win!**

The image shows a Scratch project titled "Play Fetch" by signacio (unshared). The project is at level 1 with 0 points. The stage features a green background with a large white question mark. A pink cat sprite is in the top left, a blue robot sprite (K5 Bot) is in the bottom left, and a brown dog sprite (alfie) is in the bottom right. The K5 Bot is circled in orange. The project is set to "You Win!" mode.

The code for the "You Win!" mode is as follows:

```
when green flag clicked
  hide
  switch costume to costume1
  wait 2 secs
  wait until level = 11
  show
  wait 2 secs
  play sound explbomb
  repeat 5
    next costume
    wait 0.09 secs
  hide
  wait 1 secs
  stop all
```

The project also includes a "Make a Variable" section with the following variables:

- Points (checked)
- level (checked)
- shoot (unchecked)

The "set Points to 0" block is present. The "change Points by 1" block is also present. The "show variable Points" and "hide variable Points" blocks are present.

The "Make a List" section is empty.

The "Sprites" section shows the following sprites:

- thrower
- circle
- you-win
- alfie
- red-dog-toy
- arm-with-...
- angry-cat

The "Stage" section shows the following backdrops:

- 10 backdrops
- New backdrop: arm-with-...

The "Scripts" section shows the following blocks:

- when green flag clicked
- hide
- switch costume to costume1
- wait 2 secs
- wait until level = 11
- show
- wait 2 secs
- play sound explbomb
- repeat 5
- next costume
- wait 0.09 secs
- hide
- wait 1 secs
- stop all

The "Costumes" section shows the following costumes:

- 10 costumes
- New costume: arm-with-...

The "Sounds" section shows the following sounds:

- 10 sounds
- New sound: arm-with-...

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## 6) Alfie - Dog Code:



Scratch v436

File Edit Tips About

Play Fetch by signacio (unshared)

level 1 Points 0

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XC: 240 Y: 180

Sprites

New sprite:

Stage 10 backdrops

New backdrop:

arm-with-... angry-cat

thrower circle you-win alfie red-dog-toy

Scripts

Costumes

Sounds

Motion

Looks

Sound

Pen

Data

Events

Control

Sensing

Operators

More Blocks

when green flag clicked

forever

switch costume to costume1

wait until touching red-dog-toy ?

wait 0.2 secs

switch costume to costume2

play sound dog1

broadcast change-to-toy-arm

broadcast shot

wait 1 secs

change level by 1

change Points by 1

when I receive Lose Points

broadcast Lose Points

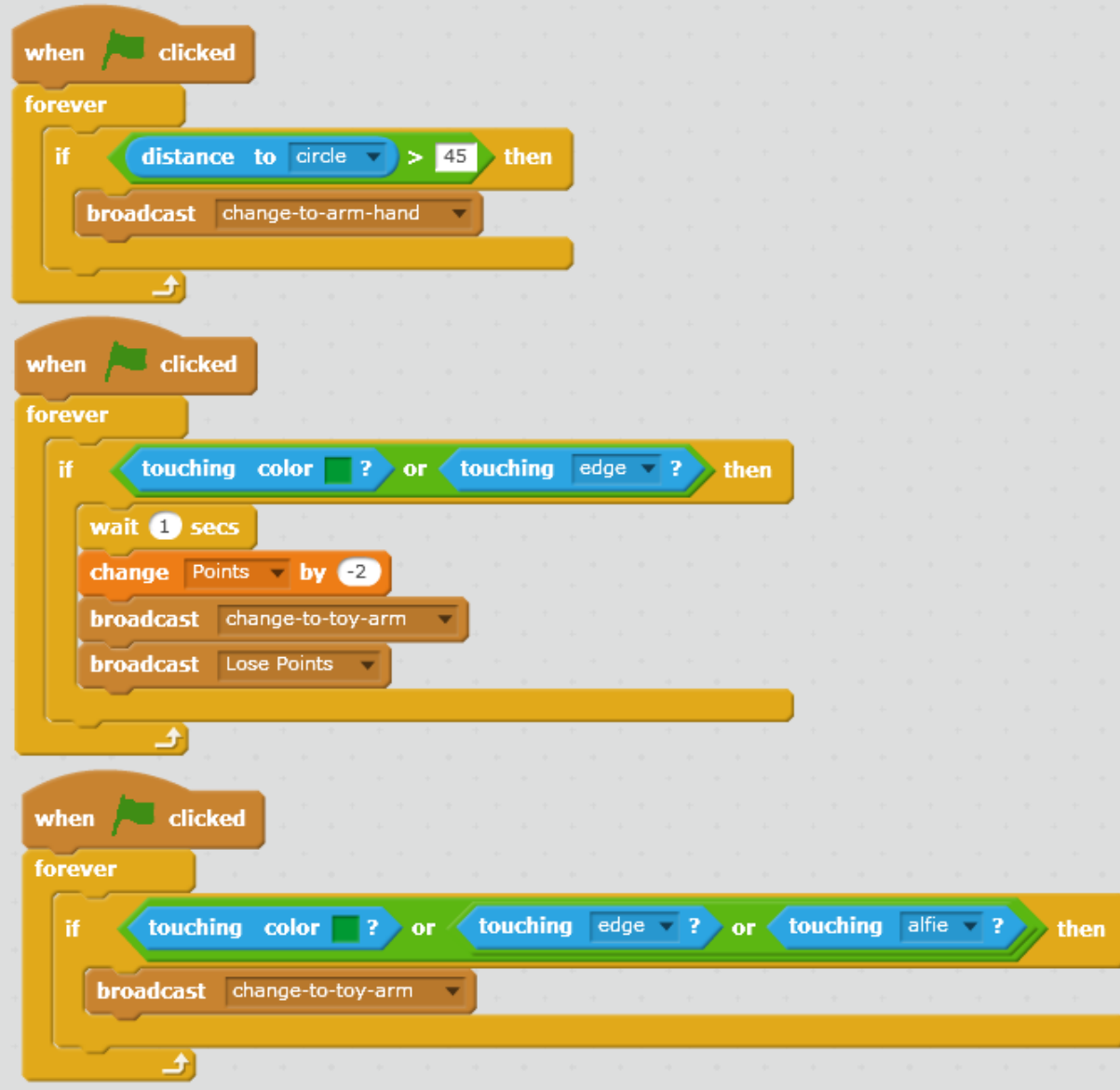
broadcast Lose Points and wait

when I receive Lose Points

say Terrible Throw! Lose 2 Points! for 2 secs

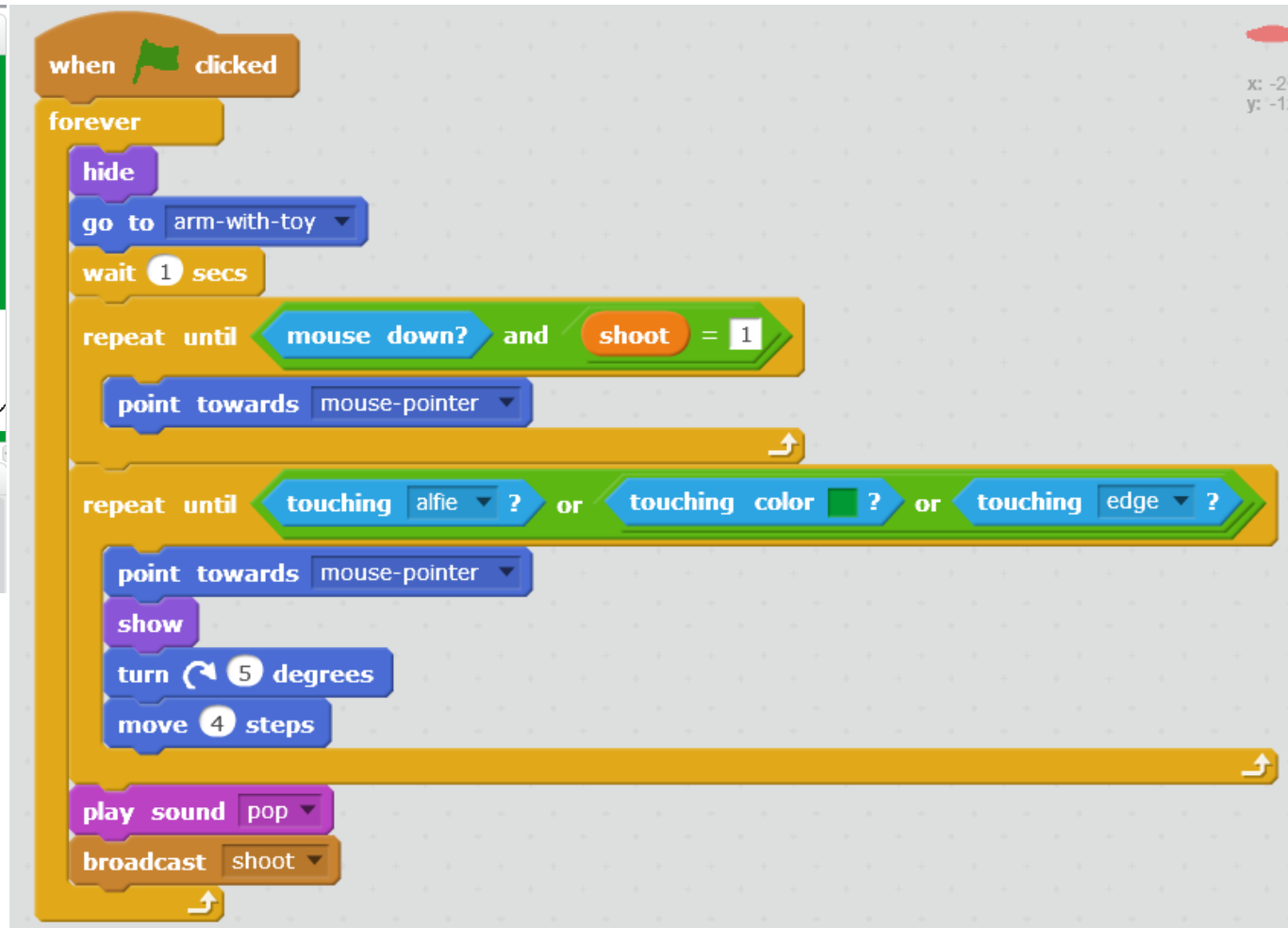


## 7) Red Dog Toy – Code:



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## 8) - More Red Dog Toy – Code:



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## 9) Arm-with-toy – Code:



Scratch v435.1 by signacio (unshared)

level 1 Points -1

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X: 240 Y: 188

Sprites: thrower, circle, Sprite7, alfie, red-dog-toy, arm-with-..., angry-cat

New backdrop: arm-with-..., angry-cat

Code:

```
when clicked
  forever
    go to thrower

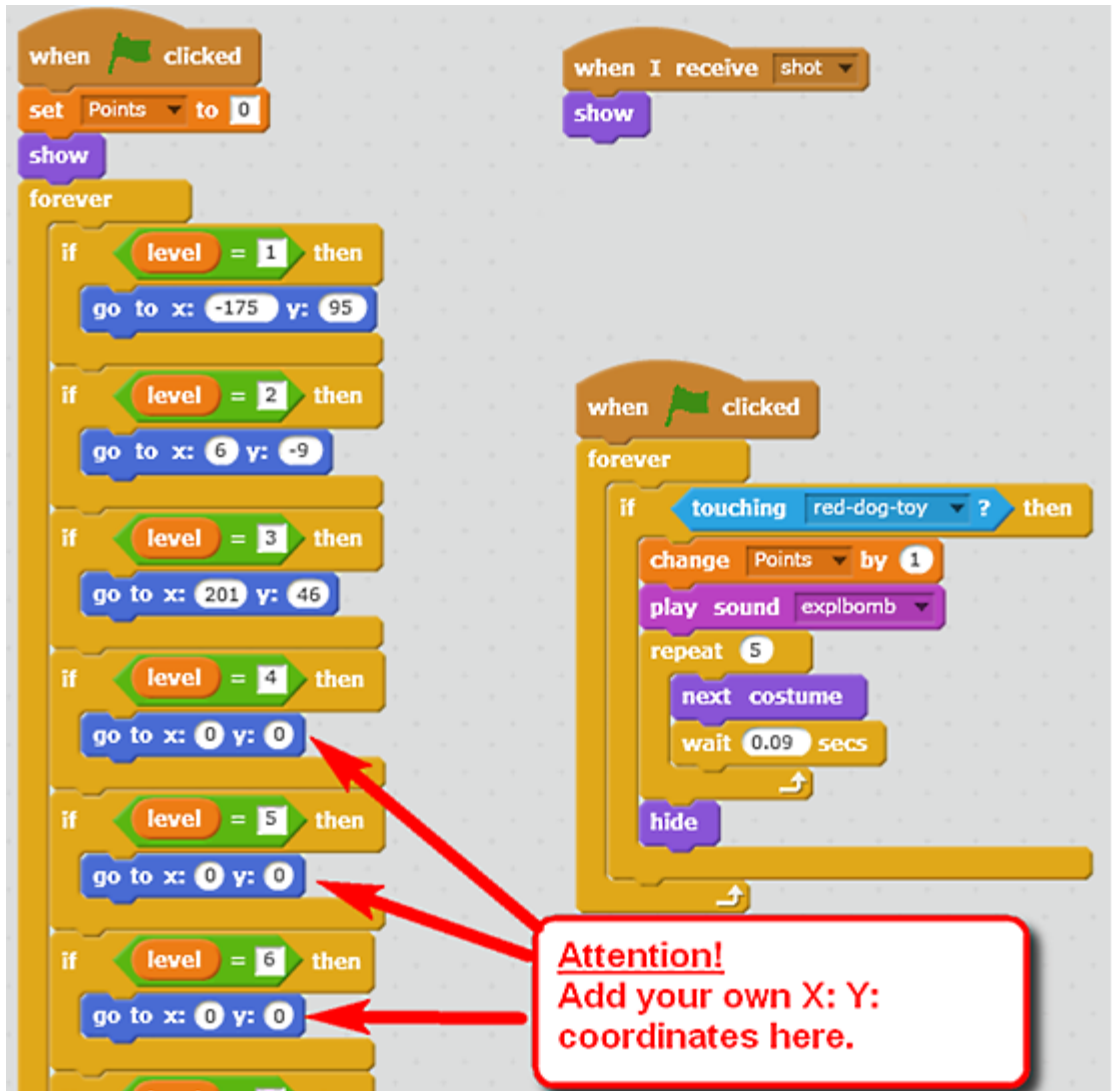
when I receive change-to-toy-arm
  switch costume to costume2

when I receive change-to-arm-hand
  switch costume to costume3

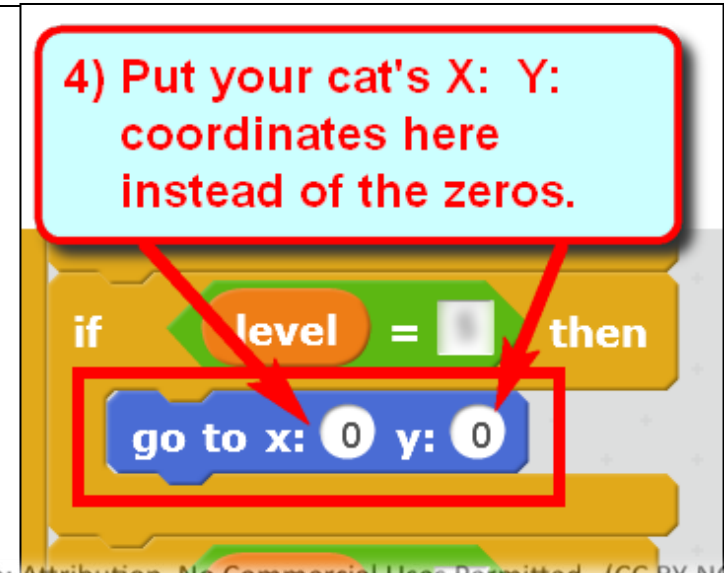
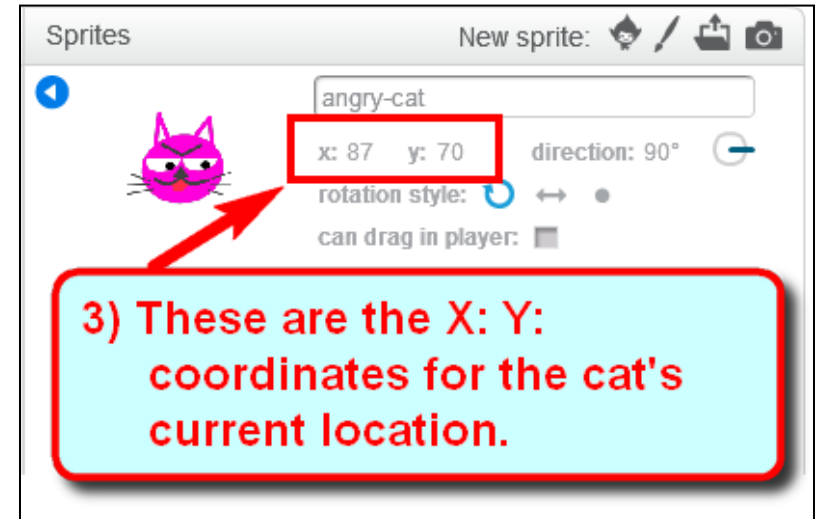
when clicked
  switch costume to costume2
  forever
    if distance to mouse-pointer < 95 and not level = 11 then
      point towards mouse-pointer
      set shoot to 1
    else
      set shoot to 0
      broadcast show ring
```

# Play Fetch – Scratch Programming

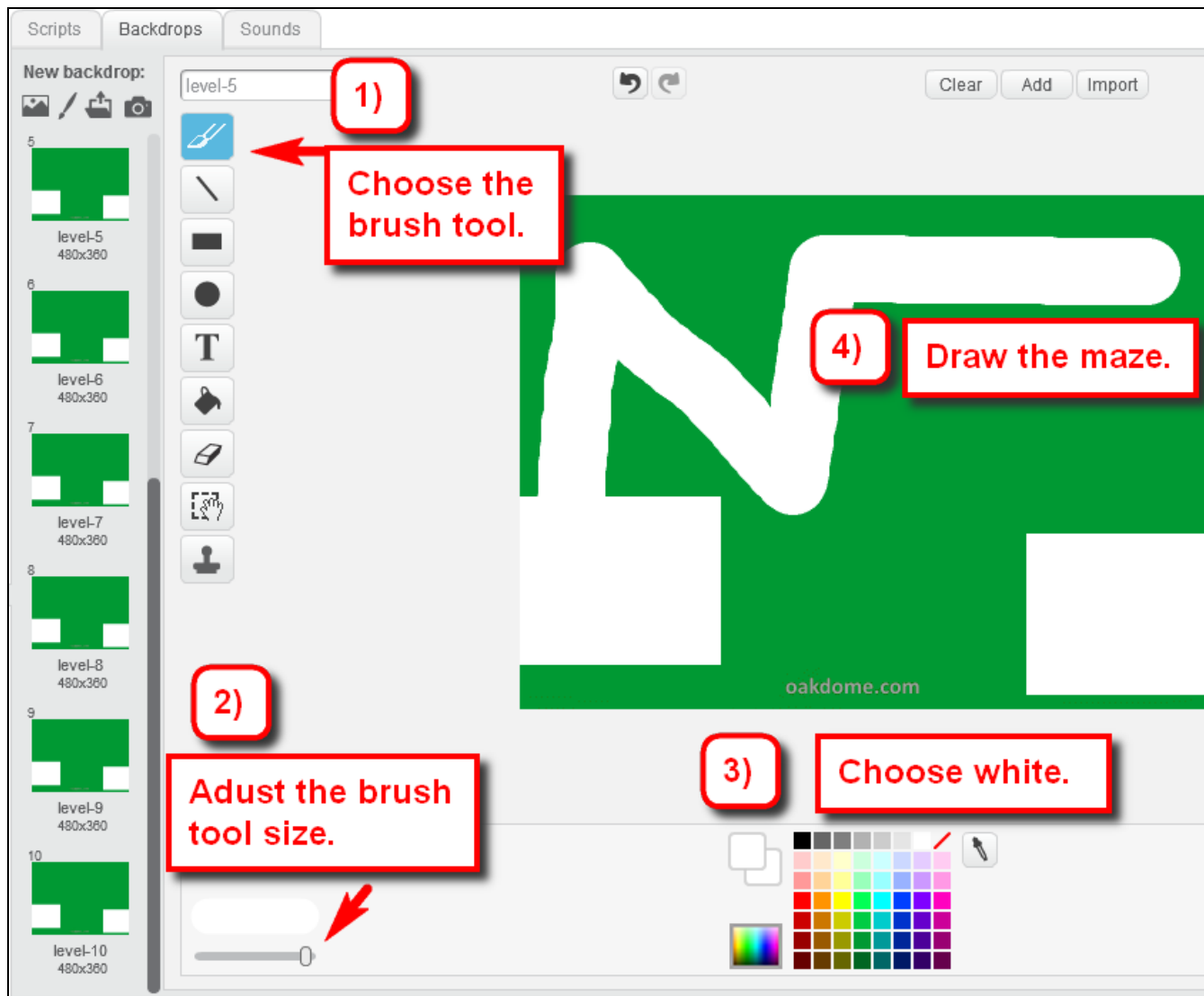
## 10) Angry-cat – code:



# TIP: Finding and Setting the Cat's Location on the Maze for Each Level



## TIP: How to Draw Mazes in 4 Easy Steps



# Play Your Game

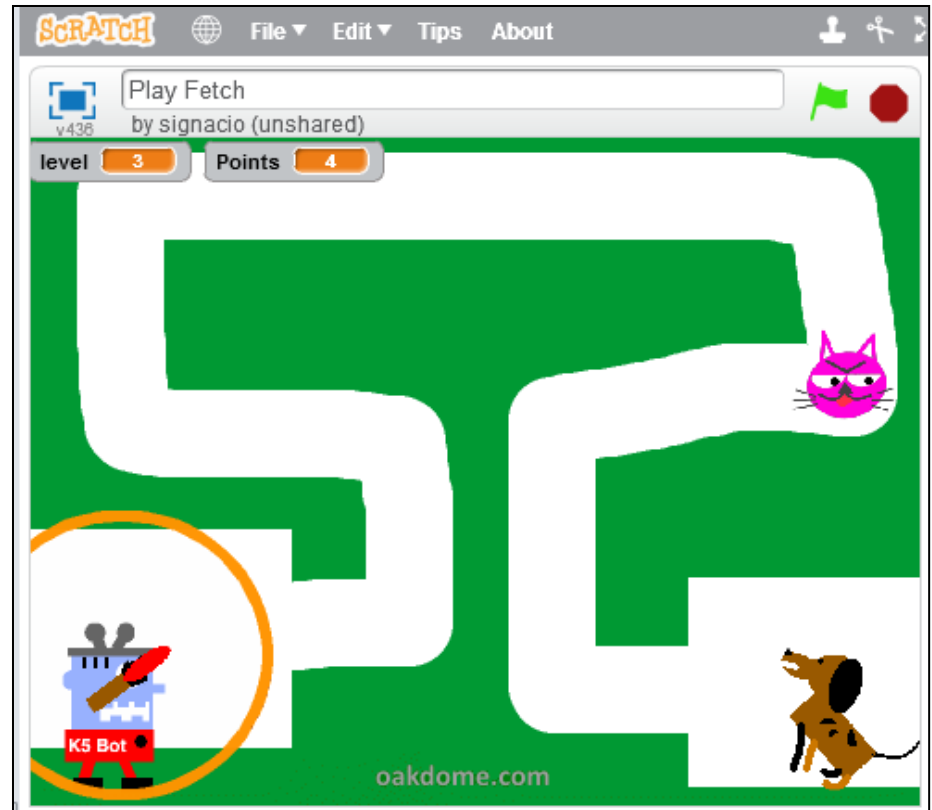
Once you've added all your code and drawn all your mazes, it's time to test and play your game.

## How to Play:

Click your mouse inside the orange ring to "throw" the dog toy.

Use the mouse to guide the toy to the dog without running off course.

Score points by touching the cat with the dog toy and by getting the toy to the dog.



**If your game doesn't work properly, debug your code.** Debugging is the process of finding and fixing errors (bugs) in your code. Carefully check your code for errors such as missing code, incomplete code, incorrect code, code in the wrong order, or errors in number values.