



*Compute With Me*



**Hello and welcome to our first ever 'Compute With Me' workshop!**

**Before we begin how confident are you with using technology?**

Welcome to

**SCRATCH**



# What will be required in today's workshop?

## Computational Thinking

**We're all computational thinkers here!**

When you think about it, whether we're parents, pupils or teachers - we're all natural computer scientists, capable of computational thinking.

Our brains, like computers, process, debug and make simple algorithms every day!

[barefootcas.org.uk](http://barefootcas.org.uk)

### Concepts

 **Logic**  
Predicting and analysing

 **Evaluation**  
Making judgements

 **Algorithms**  
Making steps and rules

 **Patterns**  
Spotting and using similarities

 **Decomposition**  
Breaking down into parts

 **Abstraction**  
Removing unnecessary detail

### Approaches

 **Tinkering**  
Changing things to see what happens

 **Creating**  
Designing and making

 **Debugging**  
Finding and fixing errors

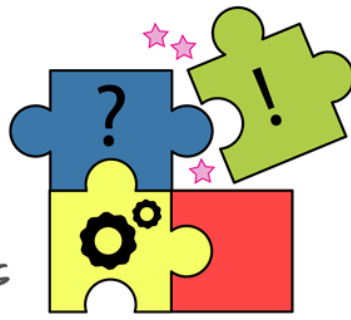
 **Persevering**  
Keeping going

 **Collaborating**  
Working together

Principal partners  
EST  COMPUTING AT SCHOOL

**Barefoot**

actively listens  
contributes ideas  
communicates progress



shares responsibilities  
helps team members  
aims towards a common goal

## TEAMWORK

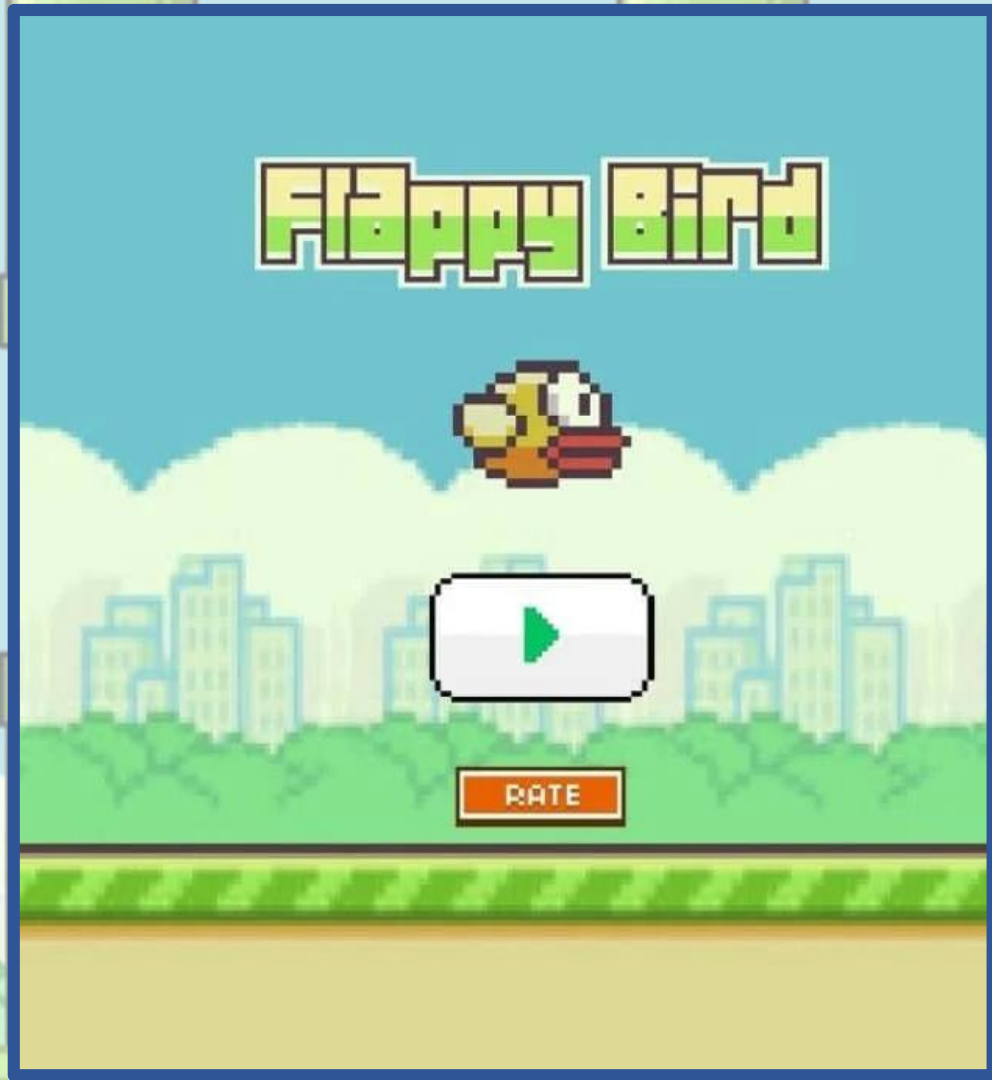


Captains Commitment, Communication, Creativity and Confidence.



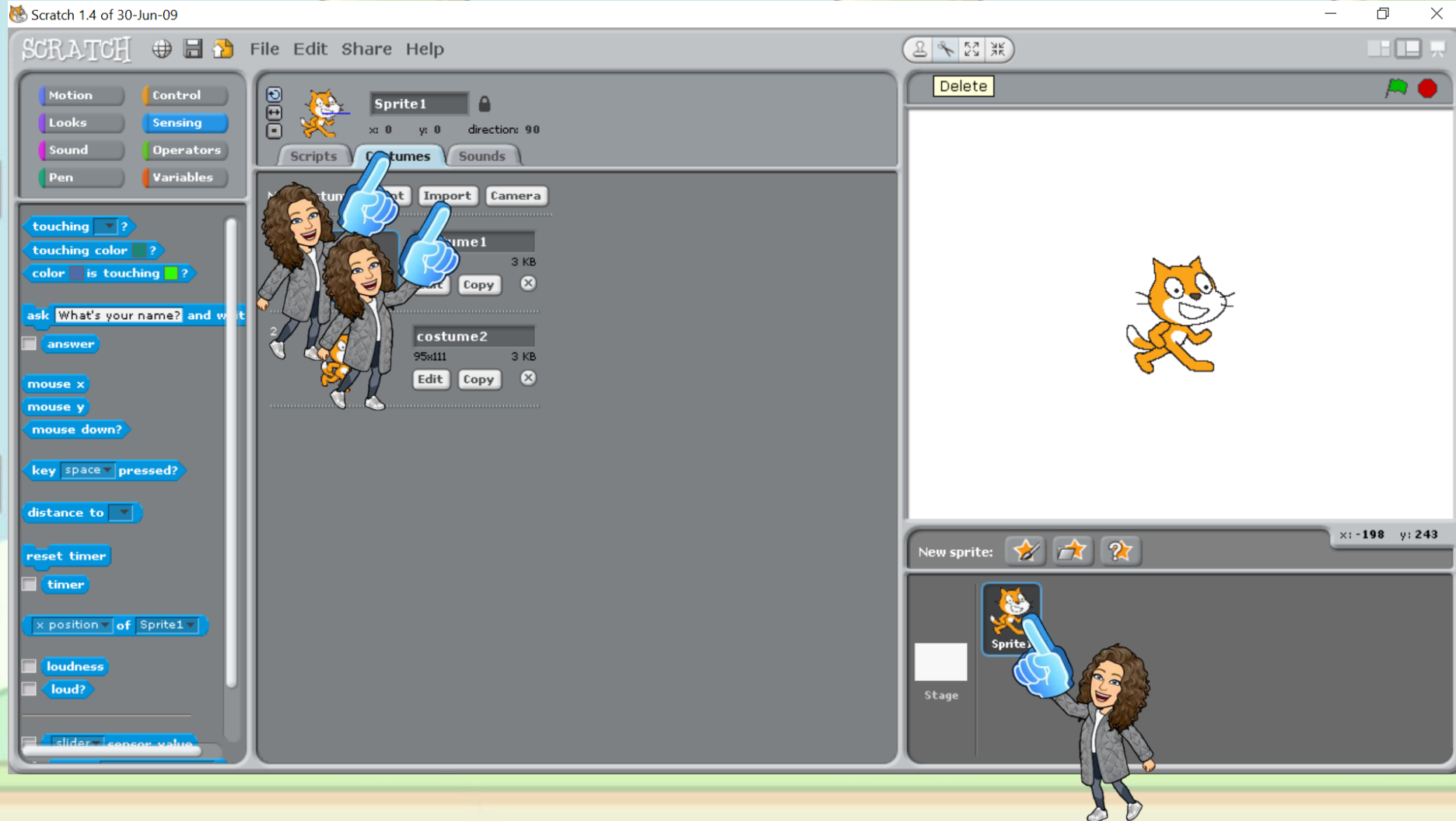
**In today's session, we will be aiming to design  
and code a very well-known game.**

**Can you guess what it is?**

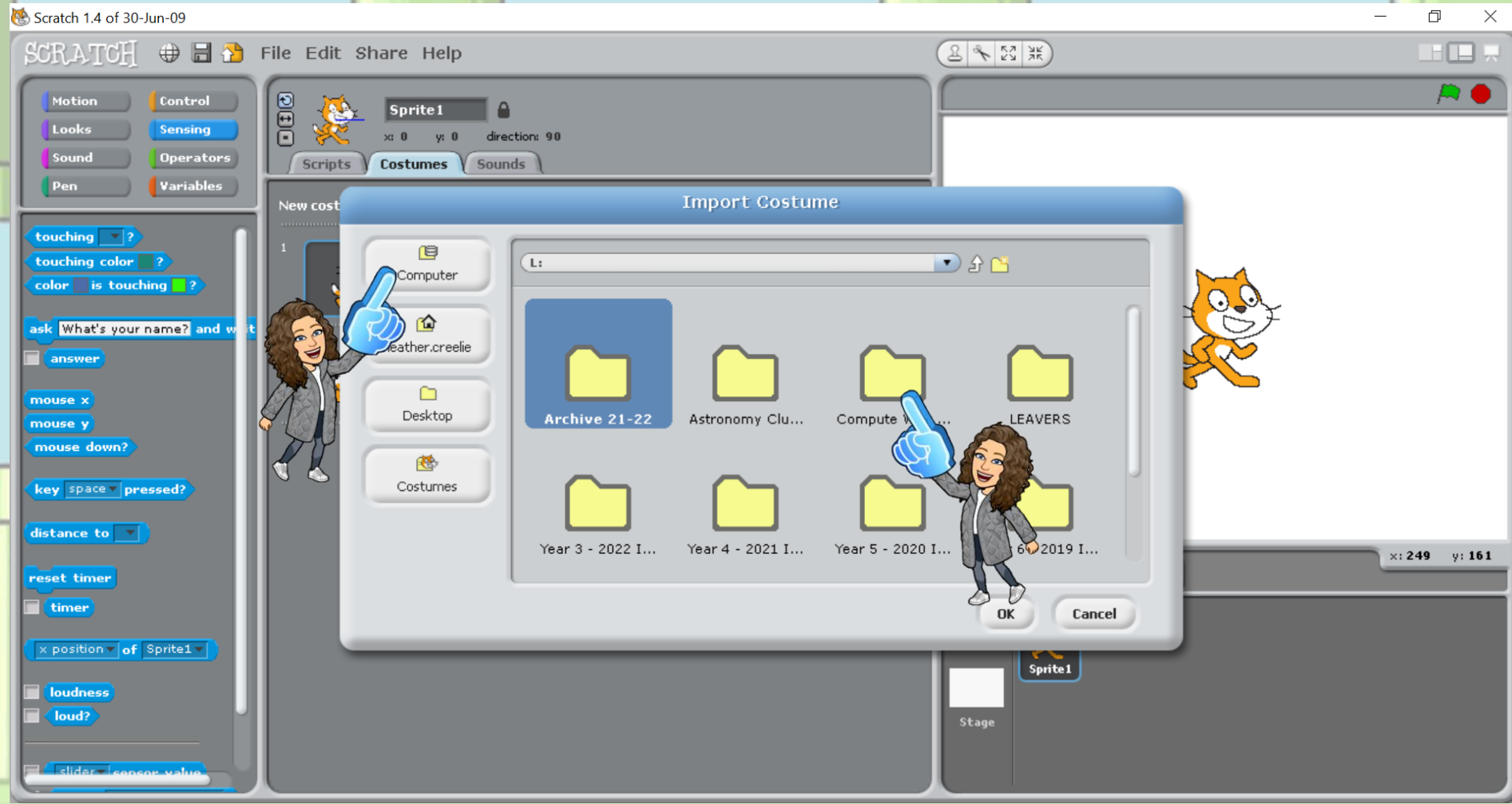


Let's begin by having a look at an example of what we are aiming to create...

# Step 1: Changing the Sprite

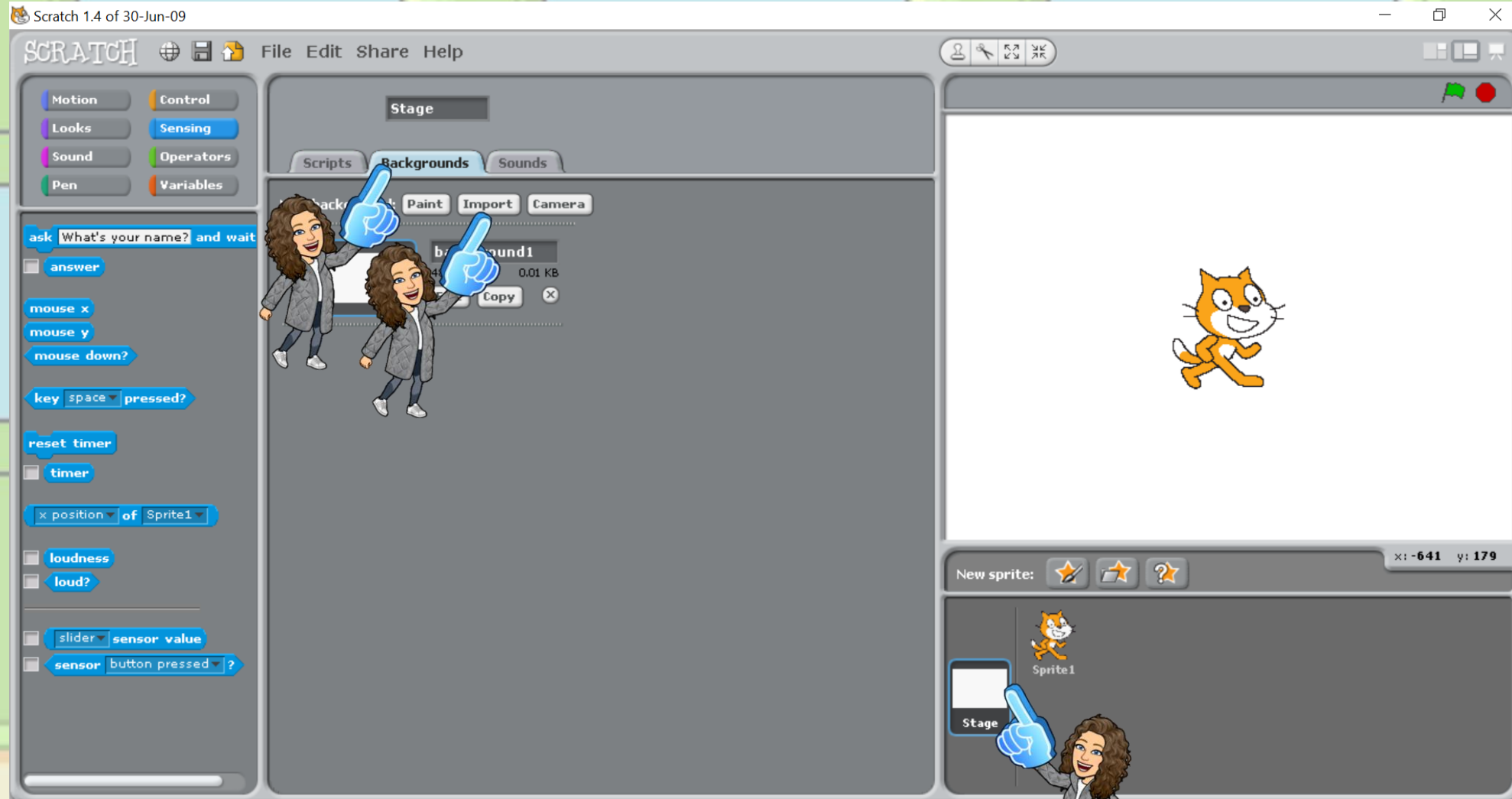


# Step 1: Changing the Sprite

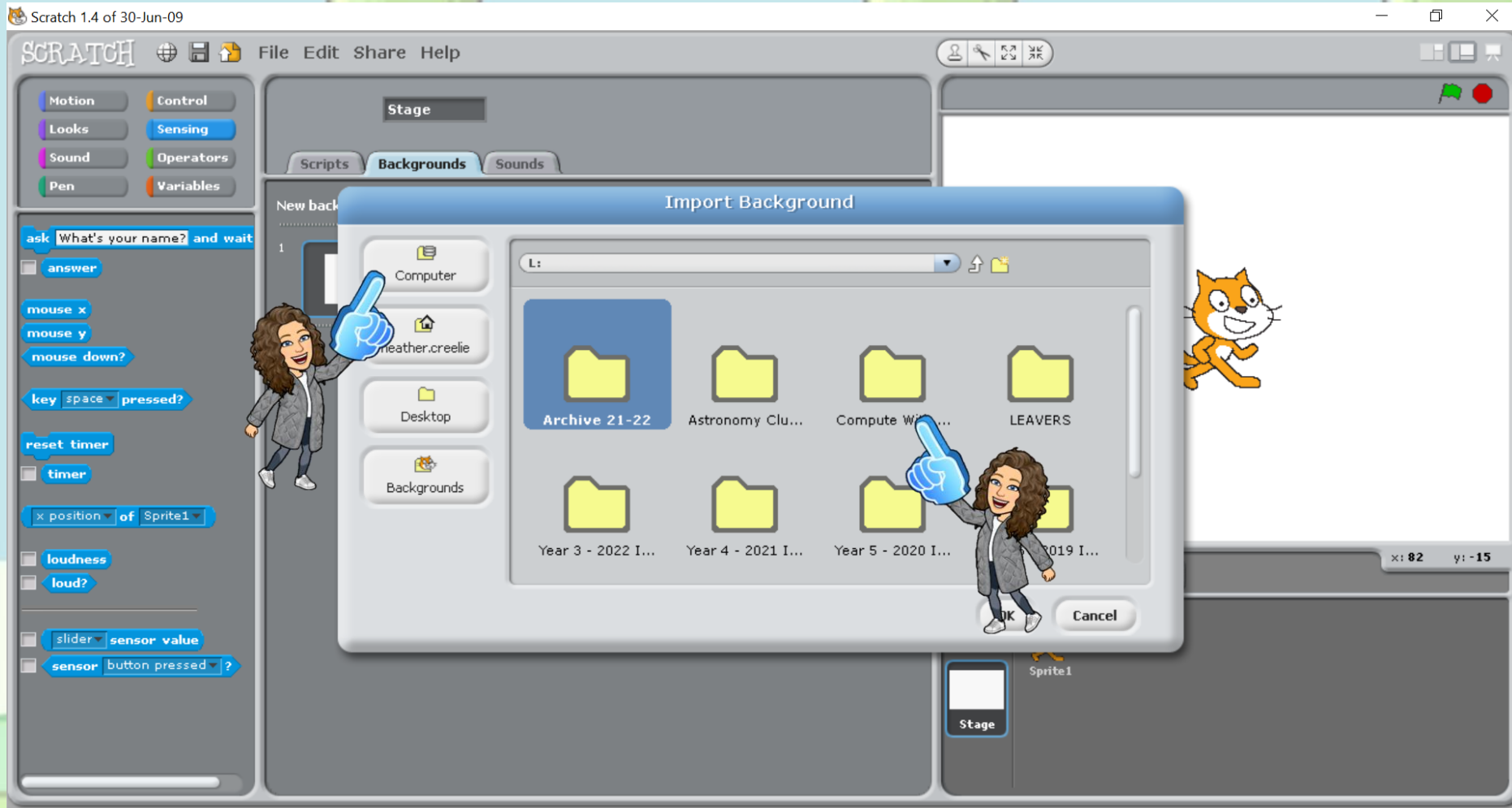


Computer > L: > Compute With Me! > Birds

# Step 2: Changing the background

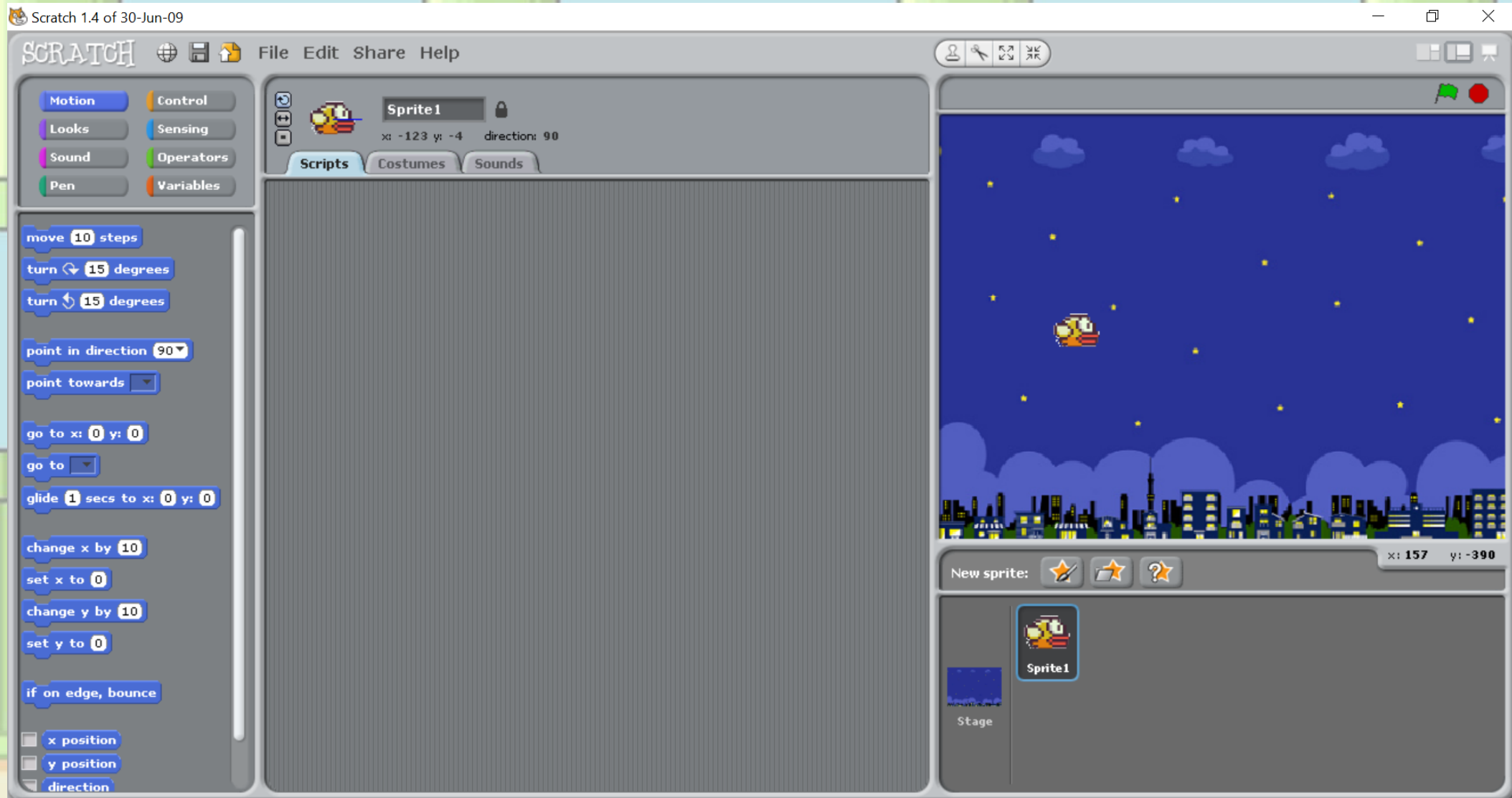


# Step 2: Changing the background



Computer > L: > Compute With Me! > Backgrounds

# You should now have something that resembles this ...



### **Step 3: Making the bird flap (or jump up and down!)**



**What do we know controls the bird?**  
**What happens when you aren't controlling it?**  
**Can you think of any blocks that might helpful?**  
**If you were to give instructions to a person, what  
would they be?**

# Step 3: Making the bird flap (or jump up and down!)



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Sprite1  
x: -80 y: -75 direction: 90

Scripts Costumes Sounds

when clicked

when space key pressed

when Sprite1 clicked

wait 1 secs

forever

repeat 10

if

else

forever

change y by 4

change y by -2

key space pressed?

glide 1 secs to x: -80 y: -113

when clicked

if

else

forever

change y by 4

change y by -2

key space pressed?

glide 1 secs to x: -80 y: -113

New sprite: [star] [star] [star]

Sprite1

Stage

x: 51 y: -398

These are all the blocks you will need — can you figure out how to put them all together?

# Step 3: Making the bird flap (or jump up and down!)



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Sprite1 x: -80 y: -75 direction: 90

Scripts Costumes Sounds

when clicked

when space key pressed

when Sprite1 clicked

wait 1 secs

forever

repeat 10

broadcast

broadcast and wait

when I receive

forever if

if

when clicked

go to x: -80 y: -80

forever

if key space pressed?

change y by 2

else

change y by -2

This is the solution!

Stage

Sprite1

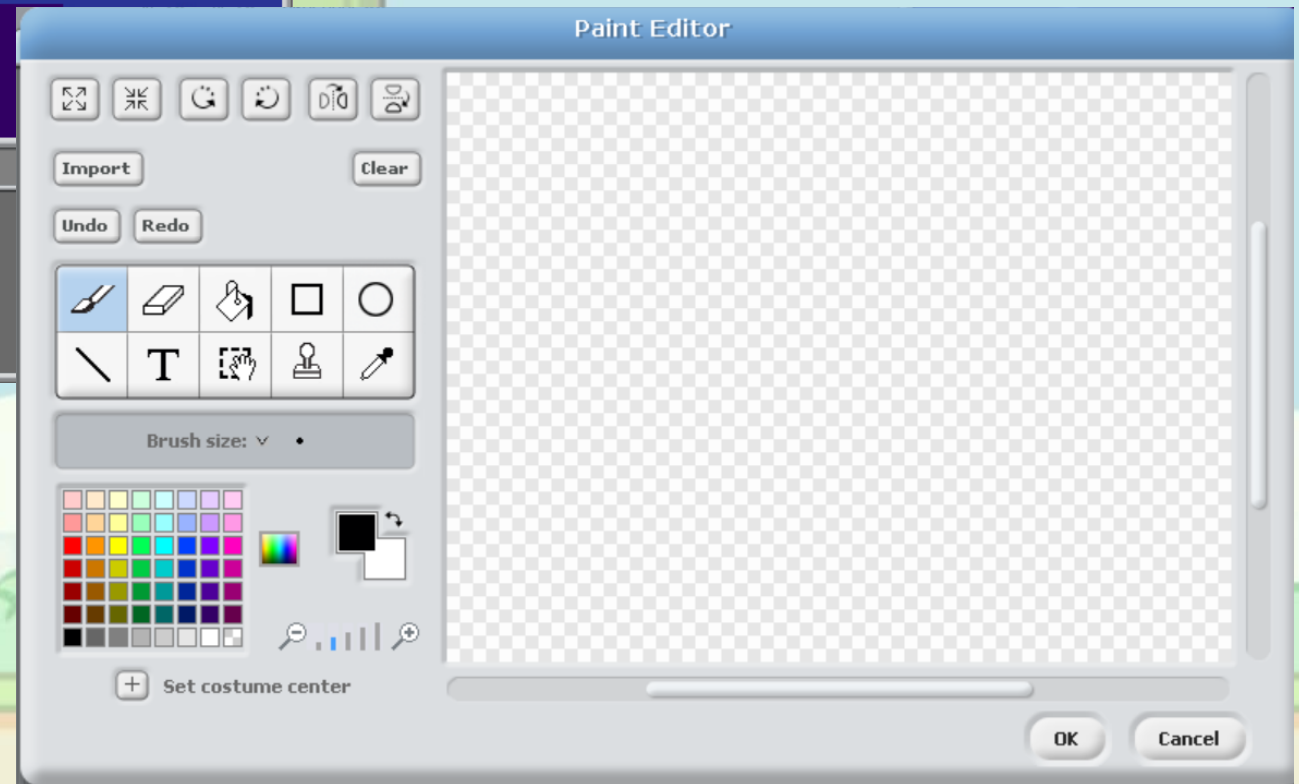
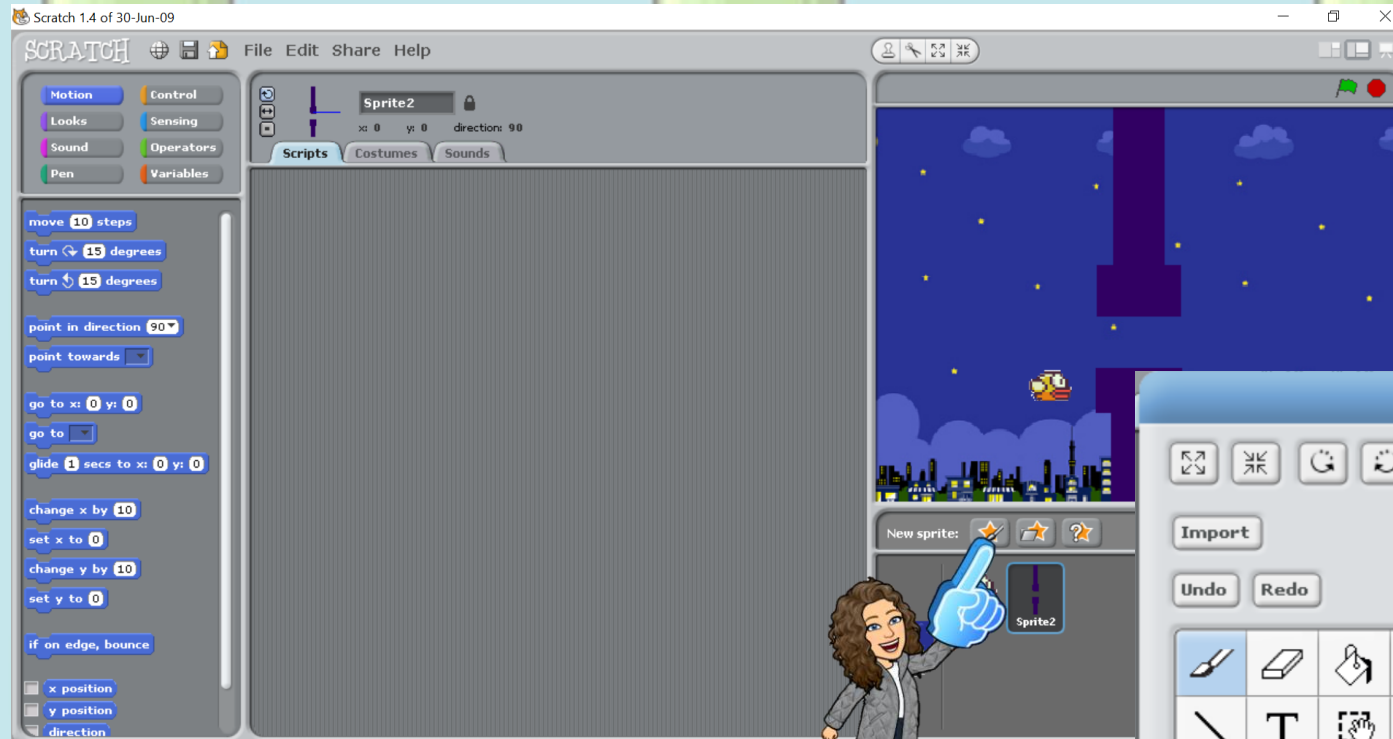
x: 229 y: -404

New sprite: [icon] [icon] [icon]

Stage

Sprite1

# Step 4: Making the pipes and moving them



# Step 4: Making the pipes and moving them



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Scripts Costumes Sounds

Sprite2  
x: 0 y: 0 direction: 90

move 10 steps  
turn 15 degrees  
turn 15 degrees  
point in direction 90  
point towards  
go to x: 0 y: 0  
go to  
glide 1 secs to x: 0 y: 0  
change x by 10  
set x to 0  
change y by 10  
set y to 0  
if on edge, bounce  
x position  
y position  
direction

Stage

New sprite:

Sprite1 Sprite2

x: 249 y: -318

# Step 4: Making the pipes and moving them



Scratch 1.4 of 30-Jun-09

File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Sprite2  
x: -27 y: 0 direction: 90

Scripts Costumes Sounds

when clicked  
when space key pressed  
when Sprite2 clicked  
wait 1 secs  
forever  
repeat 10  
broadcast  
broadcast and wait

wait 1 secs  
hide  
go to x: 255 y: 0  
switch to costume pick random 1 to 4  
show  
glide 7 secs to x: -255 y: 0  
forever

x: -429 y: -405

New sprite:

Sprite1 Sprite2

Stage



These are all the blocks you will need — can you figure out how to put them all together?

# Step 4: Making the pipes and moving them



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Sprite2 x: -27 y: 0 direction: 90

Scripts Costumes Sounds

when clicked

forever

hide

wait 1 secs

go to x: 255 y: 0

switch to costume pick random 1 to 4

show

glide 7 secs to x: -255 y: 0

when I receive

forever if

if

when space key pressed

when Sprite2 clicked

wait 1 secs

repeat 10

broadcast

broadcast and wait

when I receive

forever if

if

This is the solution!

New sprite: Star Star ?

Sprite1 Sprite2

Stage

x: -41 y: -403

## Step 5: Losing the game!



**What do we know will cause someone to lose the game?**

**Have a look at the coding blocks on Scratch. Which do you think we will need to use and why?**

# Step 5: Losing the game!



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Sprite1 x: -80 y: -48 direction: 90

Scripts Costumes Sounds

when clicked

when space key pressed

when Sprite1 clicked

wait 1 secs

forever

repeat 10

broadcast

broadcast and wait

when I receive

forever if

if

when clicked

forever

if key space pressed?

repeat 10

change y by 5

else

repeat 10

change y by -2

when clicked

forever if touching Sprite2?

stop all

New sprite: [Stage] [Sprite1] [Sprite2]

Stage

Sprite1

Sprite2

x: -131 y: -405

The image shows the Scratch 1.4 interface with a script for a game. The script for Sprite1 has a 'when clicked' event followed by a 'forever' loop. Inside the loop, there is an 'if' statement: 'if key space pressed?' with a 'repeat 10' loop containing 'change y by 5', and an 'else' branch with a 'repeat 10' loop containing 'change y by -2'. The script for Sprite2 has a 'when clicked' event followed by a 'forever if touching Sprite2?' loop containing a 'stop all' block. A cartoon character is pointing at the 'stop all' block. The stage shows a night cityscape with a helicopter (Sprite1) and a city skyline. The 'New sprite' panel shows 'Sprite1' and 'Sprite2'.

# Step 6: Adding a score



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Control Looks Sensing Sound Operators Pen Variables

Make a variable Delete a variable

☒ Score

set Score to change Score show variable Score hide variable Score

Make a list

Sprite2 x: -112 y: 0 direction: 90

Scripts Costumes Sounds

New costume: Paint Import Camera

costume1 79x360 3 KB Edit Copy X

costume2 102x360 4 KB Edit Copy X

costume3 105x360 4 KB Edit Copy X

Score 0

x: 138 y: -388

New sprite: Stage Sprite1 Sprite2

# Step 6: Adding a score



Scratch 1.4 of 30-Jun-09

File Edit Share Help

**Sprite1**  
x: -80 y: -180 direction: 90

**Scripts** Costumes Sounds

**when green flag clicked**  
go to x: -80 y: -80  
forever loop:  
if key space pressed?  
change y by 2  
else  
change y by -2

**when green flag clicked**  
forever if touching Sprite2?  
stop all

**Score** 0

New sprite:

Sprite1 Sprite3 Stage

**when green flag clicked**  
go to x: -235 y: 0

# Step 6: Adding a score



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

Motion Looks Sound Pen Control Sensing Operators Variables

Sprite2 x: 255 y: 0 direction: 90

Scripts Costumes Sounds

when clicked

forever

hide

wait 1 secs

go to x: 255 y: 0

switch to costume pick random 1 to 4

show

glide 7 secs to x: -255 y: 0

when clicked

forever

set Score to 0

change Score by 1

touching Sprite3 ?

if

Score 0

ask What's your name? and wait

answer

mouse x

mouse y

mouse down?

key space pressed?

distance to

reset timer

Sprite1

Stage

Sprite1 Sprite2 Sprite3

x: 237 y: -345

These are all the blocks you will need — can you figure out how to put them all together?

# Step 6: Adding a score



Scratch 1.4 of 30-Jun-09

SCRATCH File Edit Share Help

**Sprite2**  
x: 255 y: 0 direction: 90

**Scripts** Costumes Sounds

**when green flag clicked**

- set Score to 0**
- forever loop**
  - if touching Sprite3?**
    - change Score by 1**

**when green flag clicked**

- hide**
- wait 1 secs**
- go to x: 255 y: 0**
- switch to costume pick random 1 to 4**
- show**
- glide 7 secs to x: -255 y: 0**

**Score 0**

**New sprite:**

**Sprite1** **Sprite2** **Sprite3**

**Stage**

**This is the solution!**

Have fun playing your game!

Thank you so much for coming to our first ever 'Compute With Me' workshop — we hope you enjoyed it! 😊

