Introduction to

What are we going to do?

- Day 1
  - Introduce Scratch
  - Scratch Video
  - Scratch Account
  - Explore Scratch
  - Hello World
- Day 2
  - Revision from Day 1

Day 1

- Introduce Scratch
- Scratch Video
- Scratch Account
- Explore Scratch
- Hello World

Devoxx4Kids

- Promote programming, technology, engineering to school kids
- Conduct workshops through out the world
  - Belgium, France, Netherlands, UK, Indonesia, India, USA, Brazil, …
  - Very active SF Bay Area Chapter
    http://www.meetup.com/Devoxx4Kids-BayArea/
- Arduino, Raspberry Pi, Scratch, Minecraft modding, Python, Java, much more…

About Scratch

- What is Scratch ?

  – Scratch is a programming language.
  – We can use it to create our own interactive stories, animations, games, music, and art.

About SCRATCH

- What can we learn from SCRATCH

  – We can learn important computational ideas.
  – We can learn to think creatively.
  – We can learn to reason systematically.
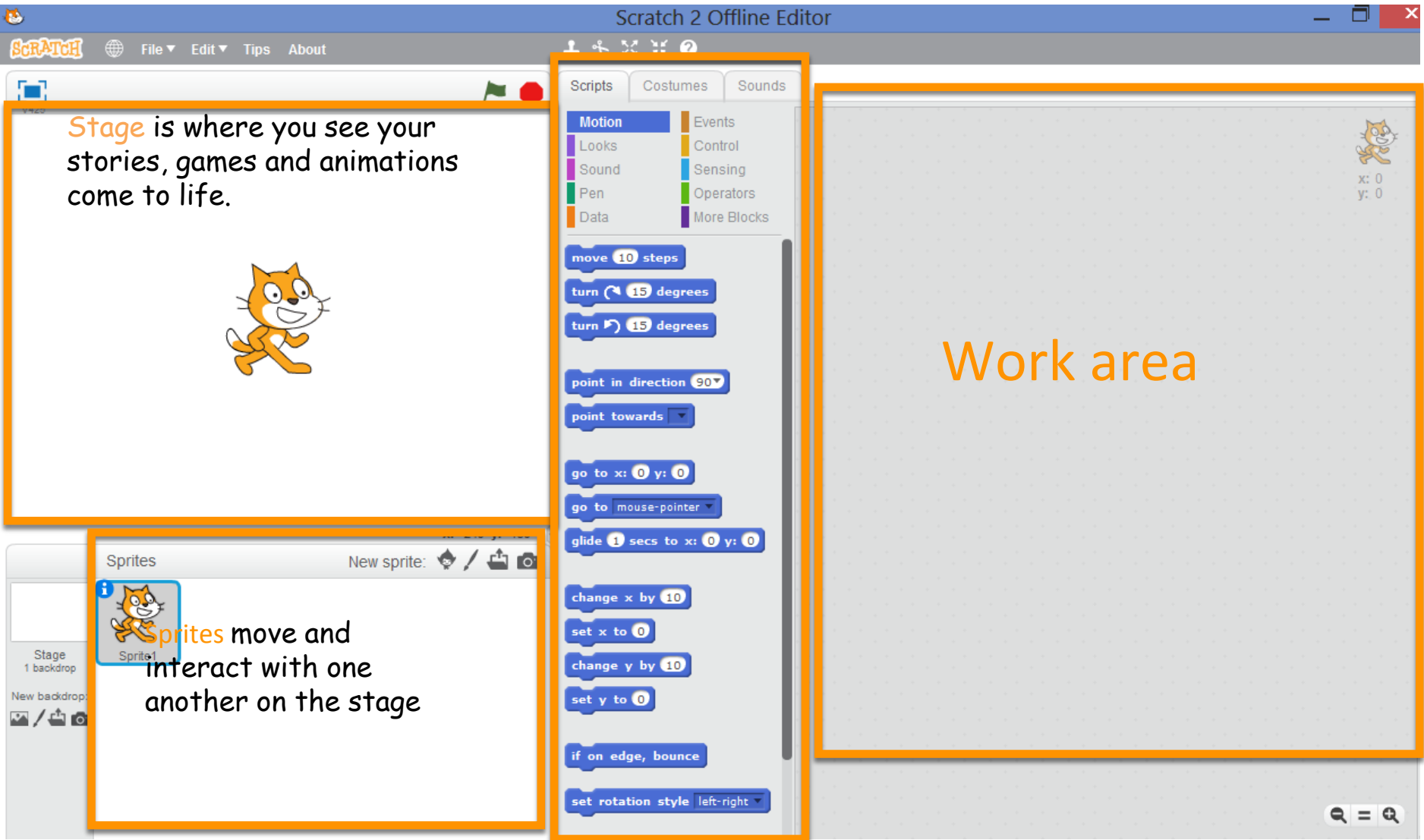
Scratch Video

- Go to https://vimeo.com/65583694

Online Scratch

- Go to scratch.mit.edu
- Click on Join Scratch
- Enter username and password

Offline Scratch

- ## Adobe AIR
  - Mac OS X – http://get.adobe.com/air/
  - Mac OS 10.5 & older – http://airdownload.adobe.com/air/mac/download/2.6/AdobeAIR.dmg
  - Windows – http://get.adobe.com/air/

- ## Scratch Offline Editor
  - Mac OS X – http://cdn.scratch.mit.edu/scratchr2/static/sa/Scratch.dmg
  - Mac OS 10.5 & older – http://cdn.scratch.mit.edu/scratchr2/static/sa/Scratch.air
  - Windows – http://cdn.scratch.mit.edu/scratchr2/static/sa/Scratch.exe

Stage is where you see your stories, games and animations come to life.

Sprites move and interact with one another on the stage

Work area

Scripts are the instructions for sprites

devoxx4kids.org

Sample Scripts

Costumes

Sounds

Start and Stop Your Program

- Click the Green Flag to start all scripts that have ![when green flag clicked] at the top.

- Red Stop Sign stops all scripts
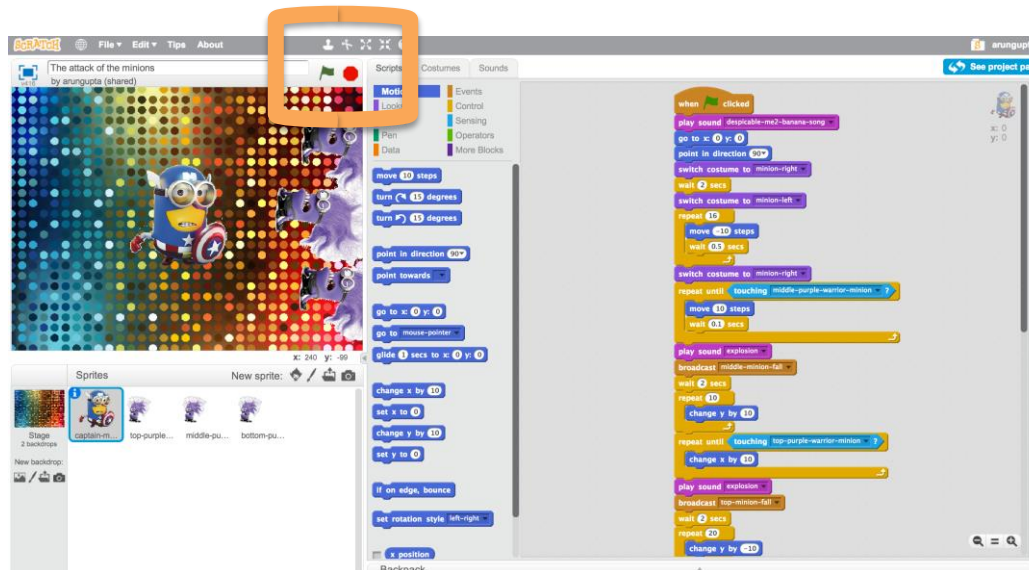
Hello World

Day 2

- Revision from Day 1
- Exploring Scratch
  - Importance of a sequence in specifying a set of instructions

Exercise 1

A. Move the kitty 50 steps forward, and then 50 steps backward
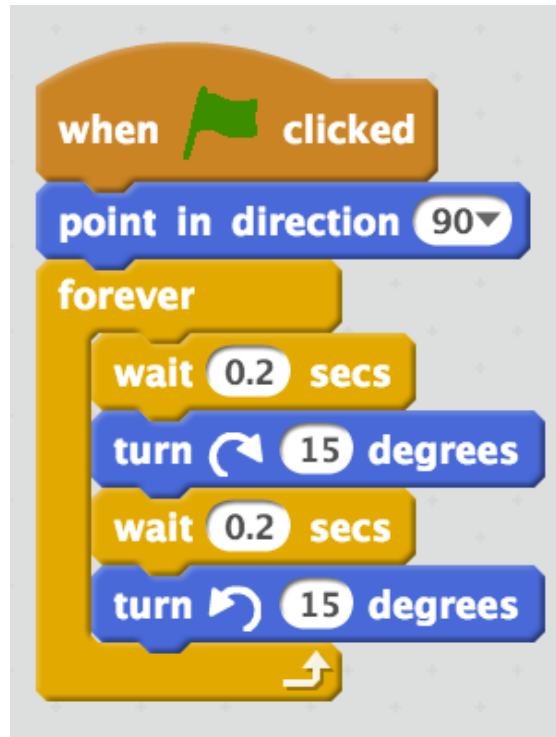B. Repeat it 10 times
C. Make it move forever

Solution 1

Exercise 2

A. Make the kitty dance

Solution 2

Toolbar

- Toolbar allows you to make sprites larger or smaller

- You can also duplicate or delete sprites, costumes, sounds or scripts

Sprites

- You can create new sprites
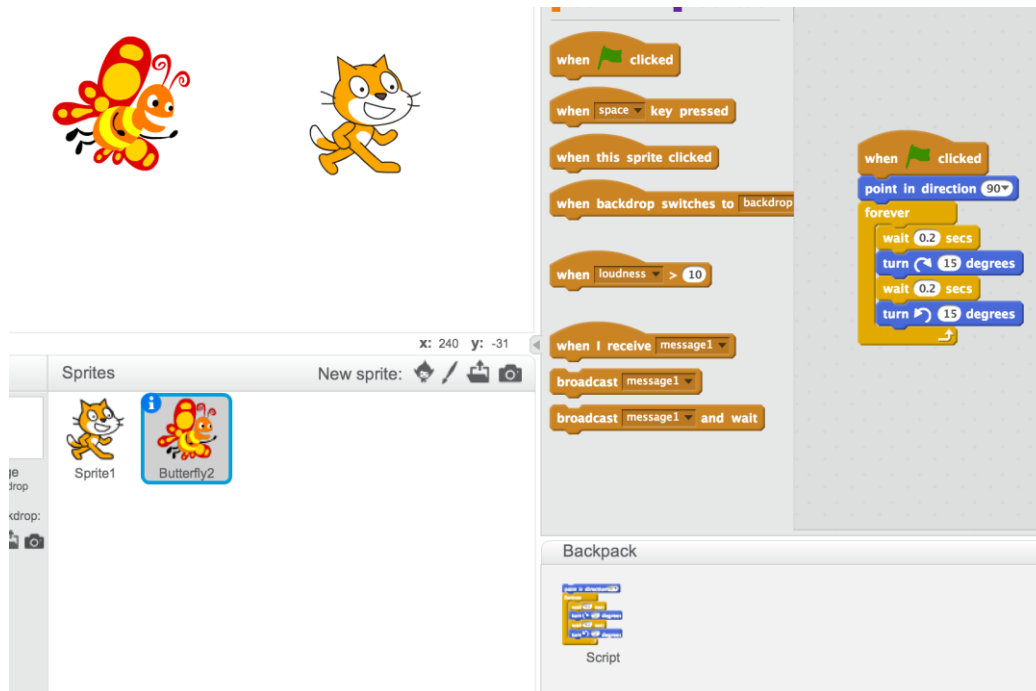- Choose from Sprite Library
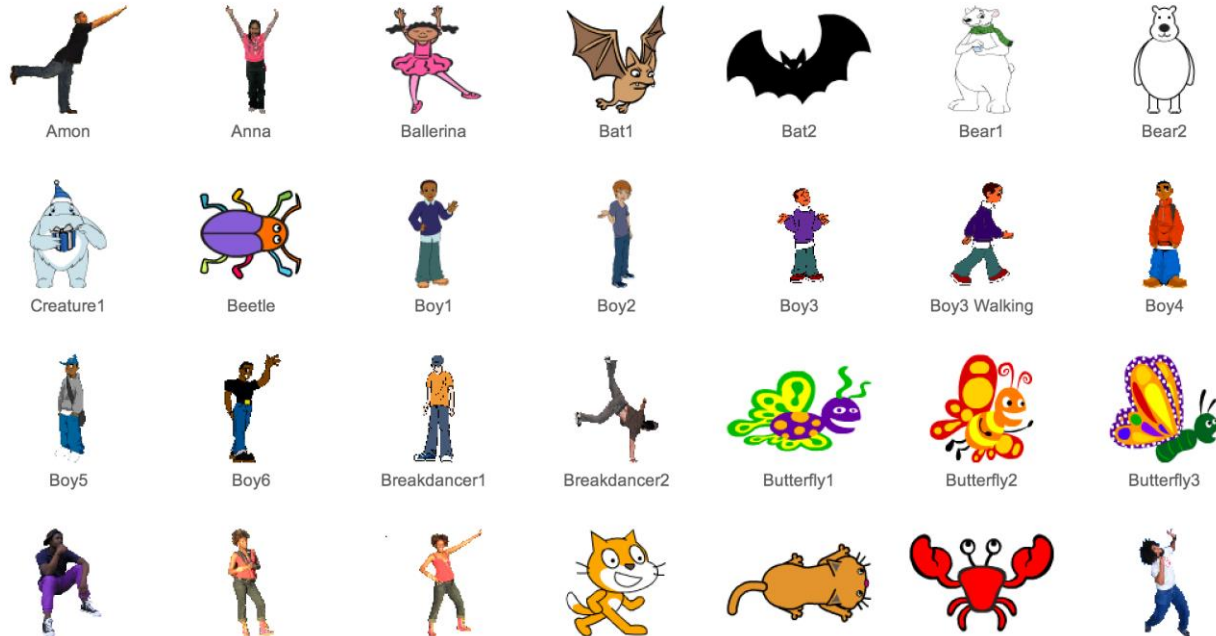
Exercise 3

A. Do Exercise 2 with a different sprite

Solution 3

- Option 1: Copy the script to Backpack
- Option 2: Copy the script directly on the sprite
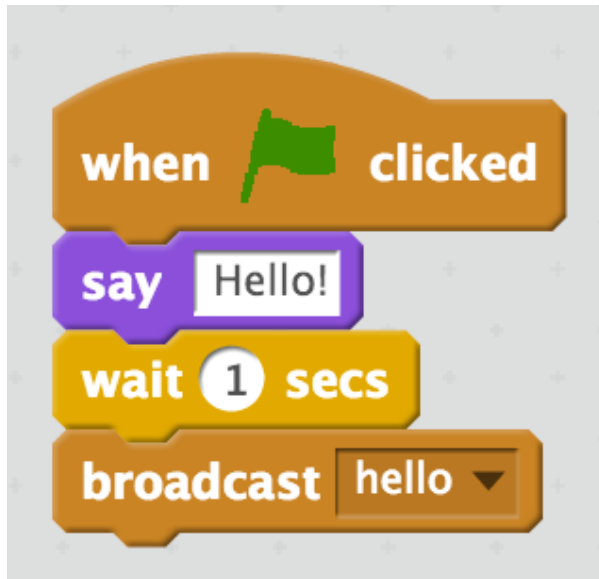
Send messages

- Sprites can broadcast message
- Other sprites can react to those messages

Exercise 4

- Make the sprites talk to each other
  - Sprite 1 says: Hello
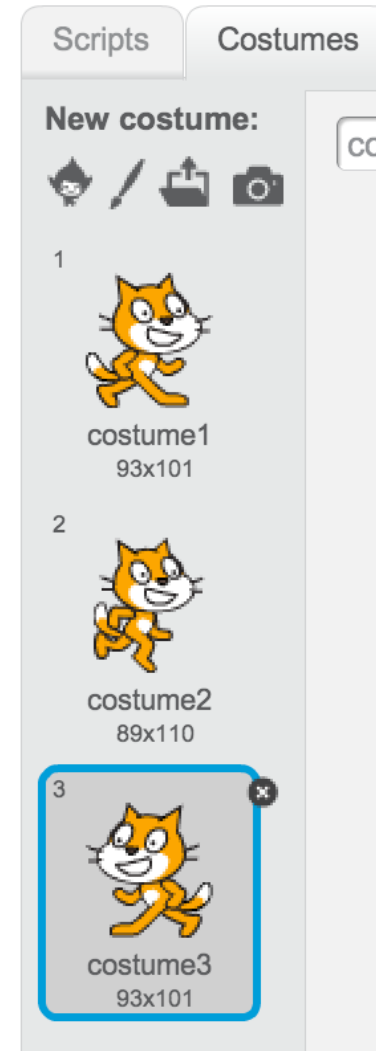 - After that, Sprite 2 says: Hi there!

Solution 4

Costume

- You can change how a sprite looks by giving it different costumes.

- You can make a sprite look like a person, a train, a butterfly or anything else.
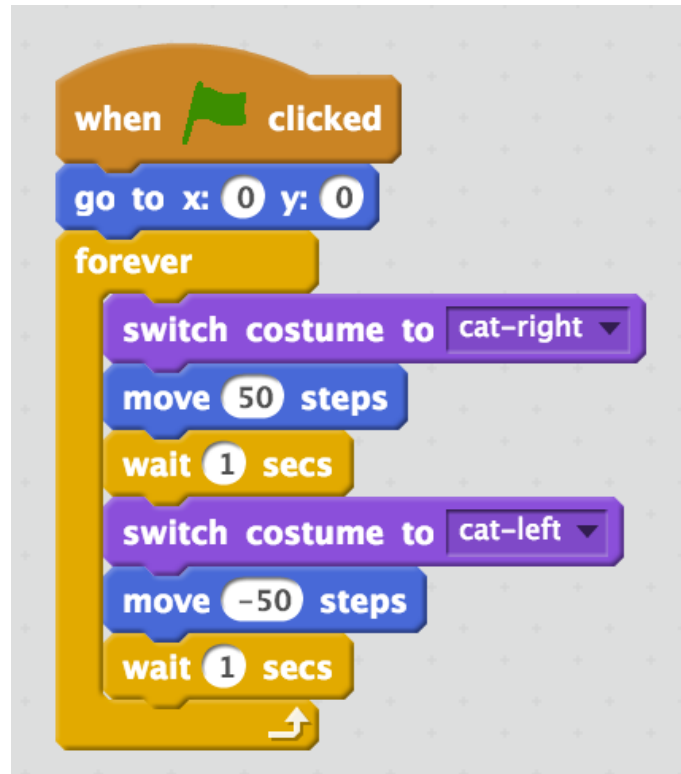
- You can use any image as a costume.

Costumes

- To see different costumes of a sprite, choose the Costumes tab page
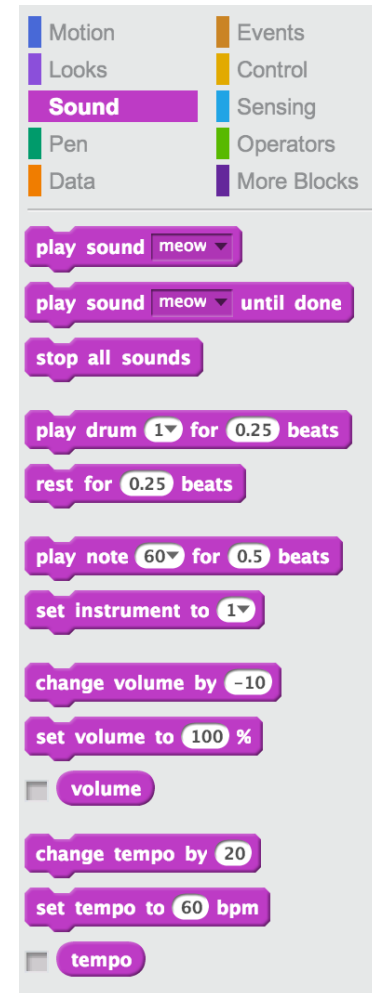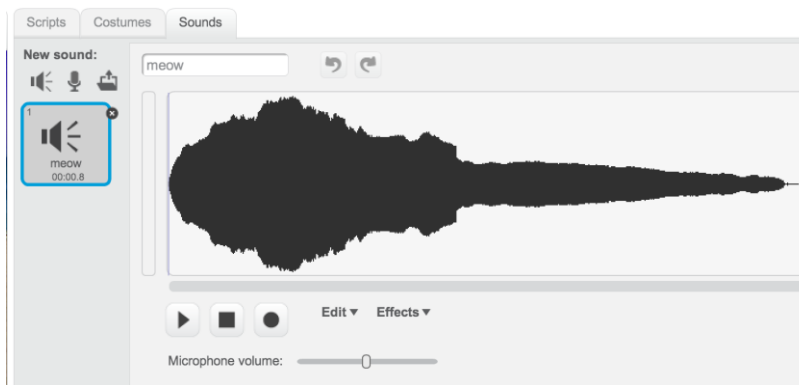
Exercise 5

A. Make the kitty face in the direction of travel

Solution 5


```
when [green flag] clicked
go to x: 0 y: 0
forever
    switch costume to [cat-right ▼]
    move 50 steps
    wait 1 secs
    switch costume to [cat-left ▼]
    move -50 steps
    wait 1 secs
```

Sound

- Import from:
  - Built-in sound library
  - Can be recorded
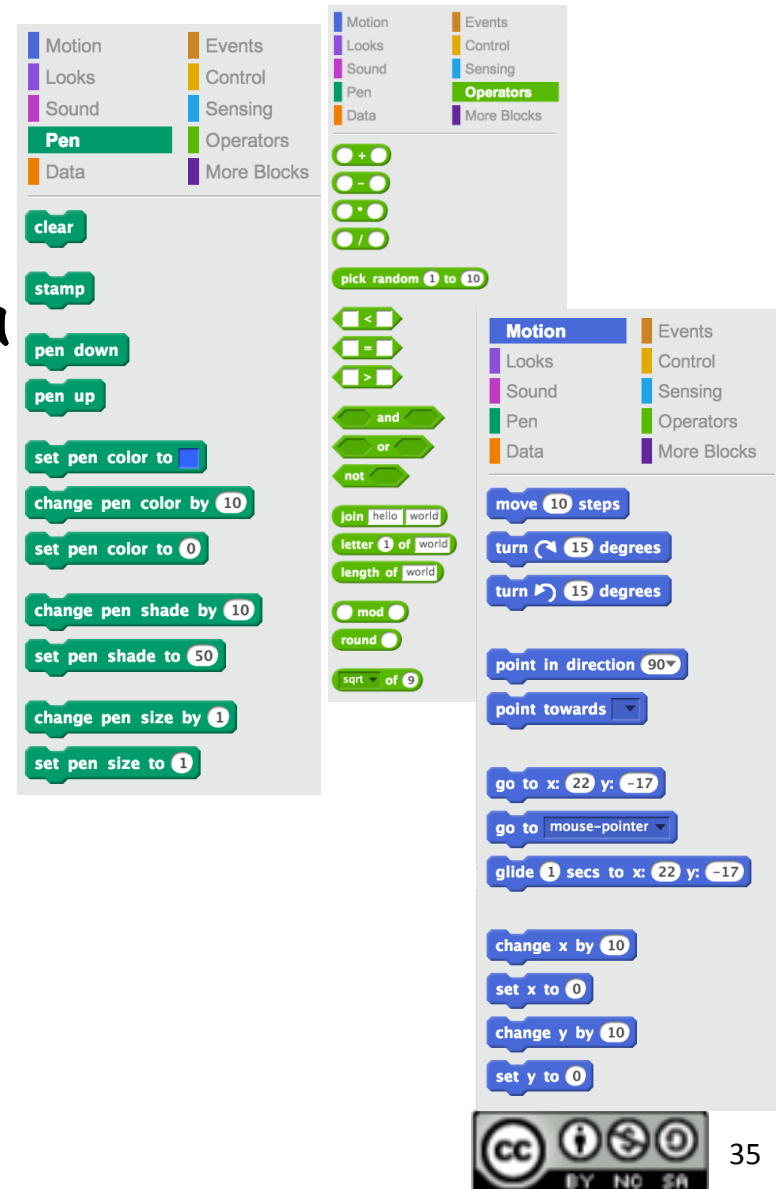- Play using sound blocks

Exercise 6

A. Play a sound every time sprite changes direction

Solution 6

Leave your trace!

- **Pen**: allows sprite to draw shapes

- **Random number**: Includes a random number between the first and second number

- **Glide**: Moves the sprite to X and Y position in the specified amount of secs

Exercise 7

- Gliding artist goes all over the stage and draws in a color of your choice
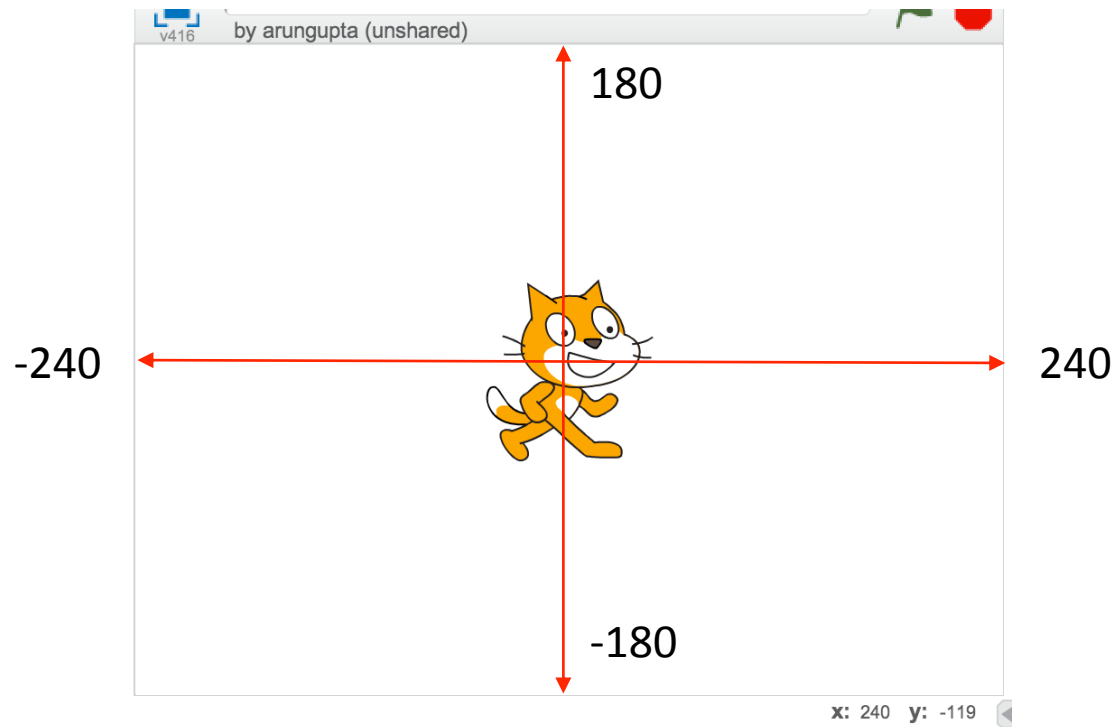
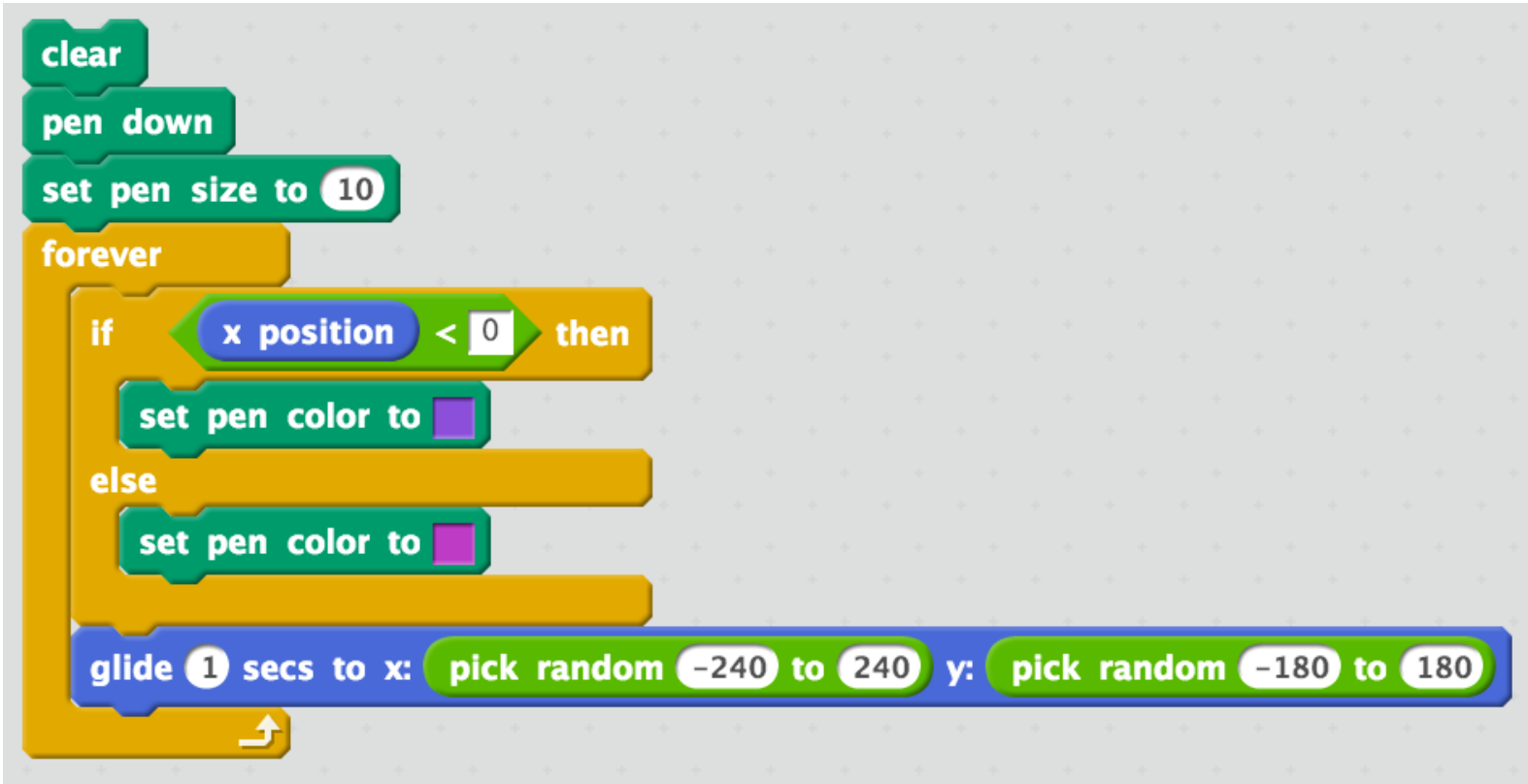# Solution 7

If, then, else

- if (some condition is true) then
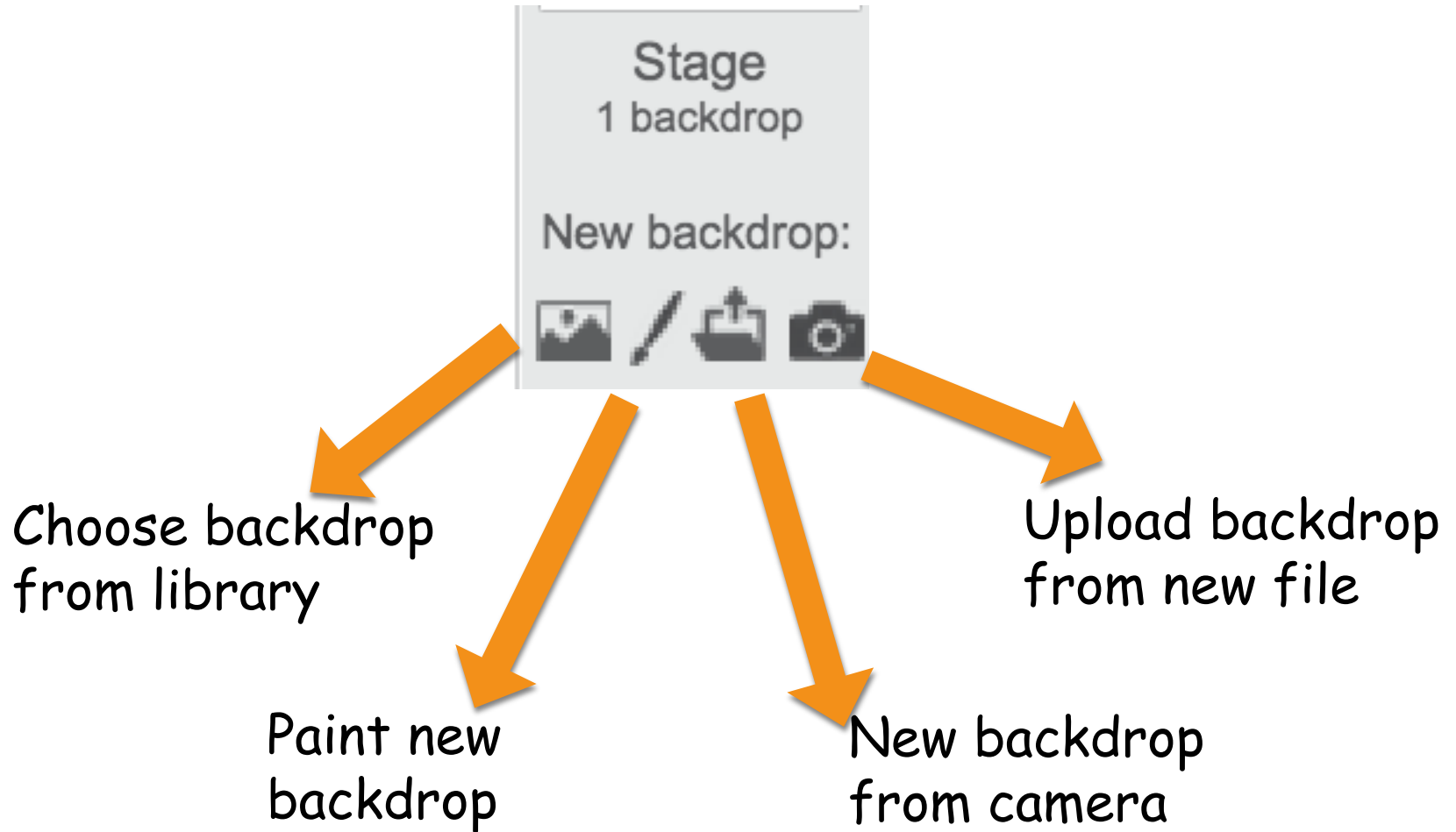   do something
  else
    do something else

Exercise 8

- Draw with one color pen in left part of the stage, and with a different color pen in right part of the stage

Solution 8

Backdrop

Stage
1 backdrop

New backdrop:

Choose backdrop
from library

Paint new
backdrop

New backdrop
from camera

Upload backdrop
from new file

Exercise 8

A. Add a new backdrop for your sprites

A. Add a new backdrop for your sprites

Exercise 9

A. Make the kitty glide left and right

Solution 9

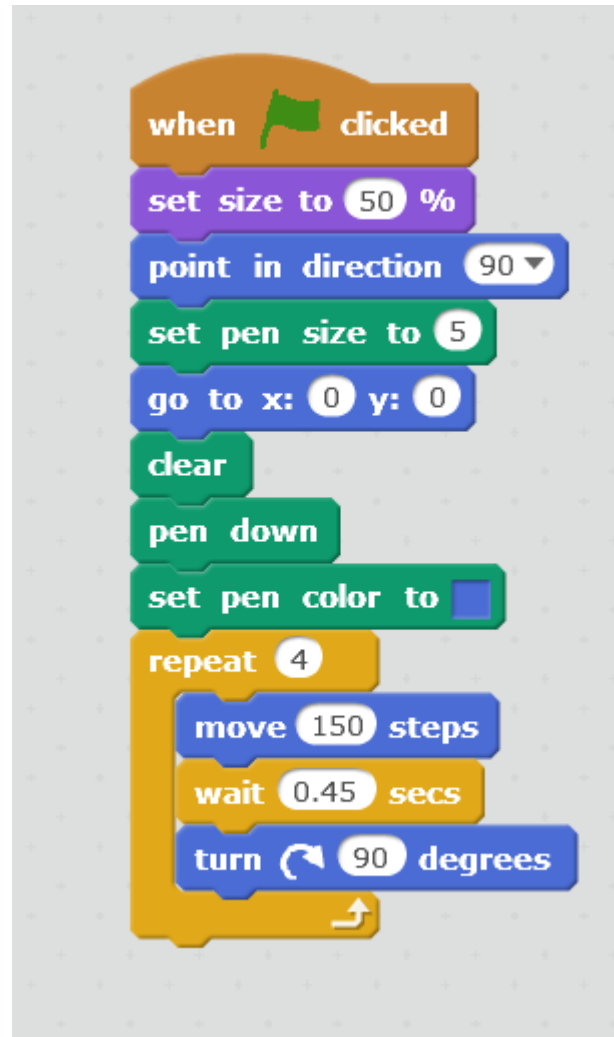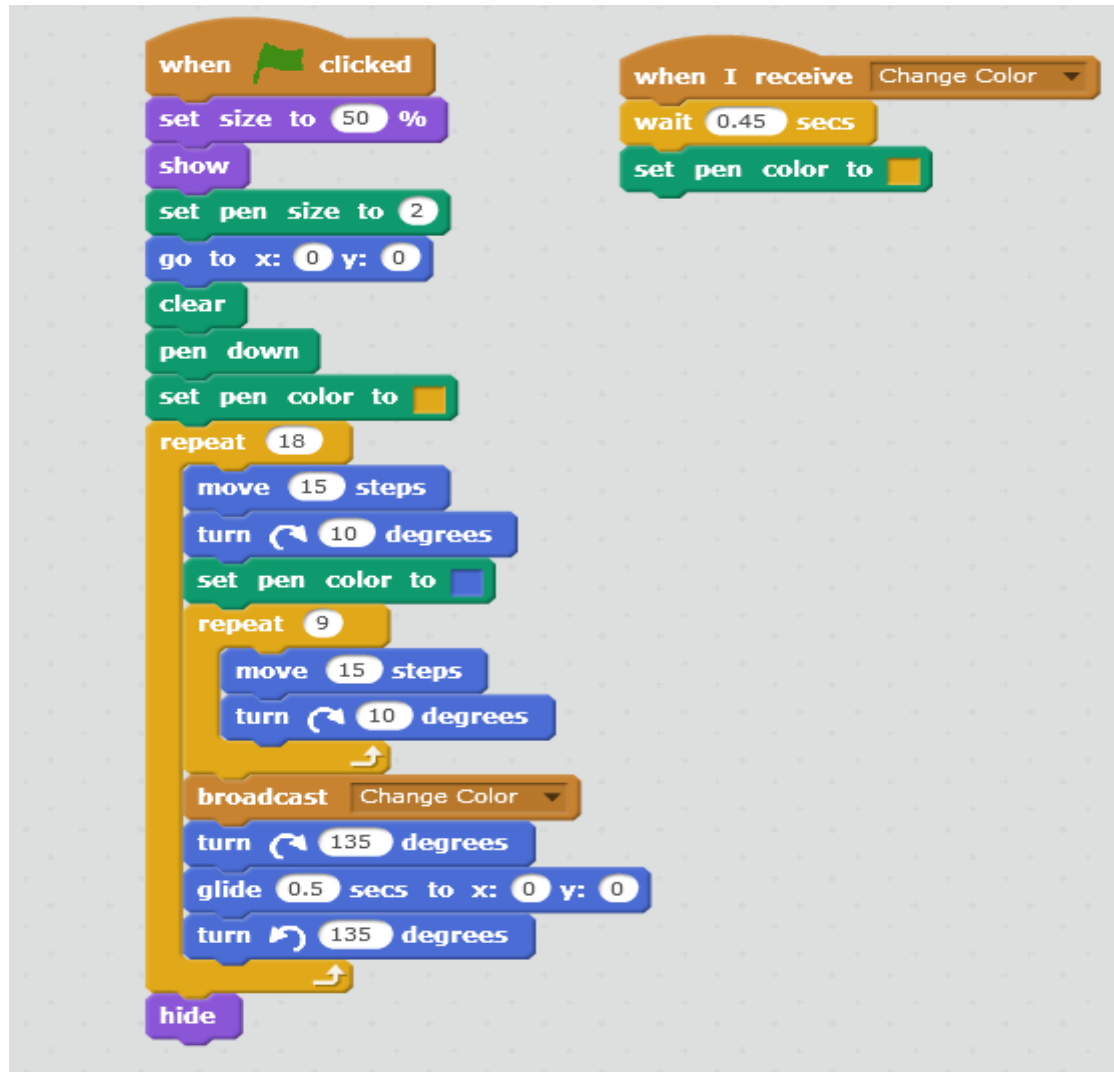# Exercise 10

A. Make a shape

Solution 10

Exercise 11

A. Create your own pattern

Solution 11

Solutions

- All solutions: http://scratch.mit.edu/studios/558726/
- Twitter: @Devoxx4KidsUSA
- Facebook: facebook.com/Devoxx4KidsUSA

Introduction to

SCRATCH