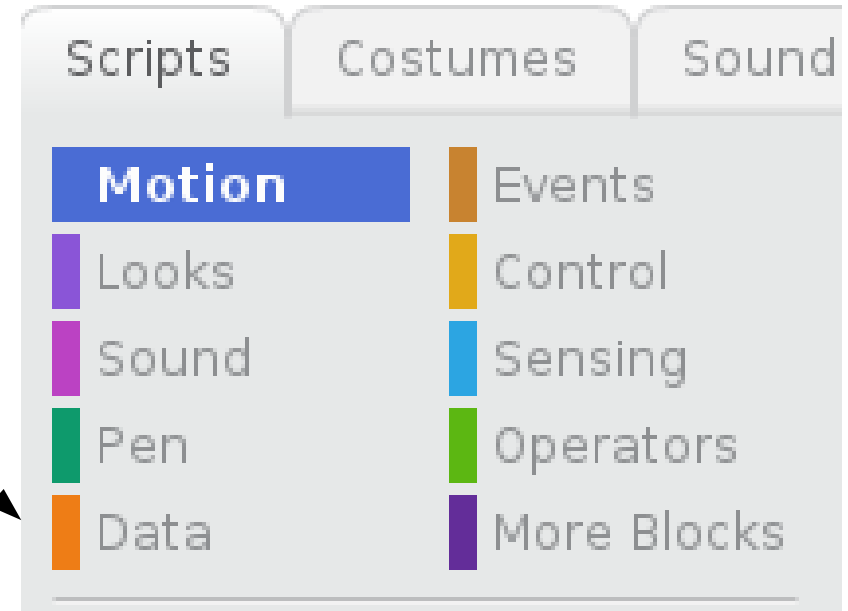


# Week 2; Lecture 1

## Scratch Variables

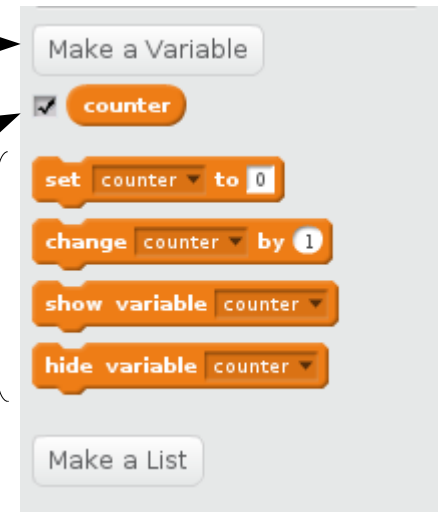
# Data

- Create new Data Objects
  - I.e. memory



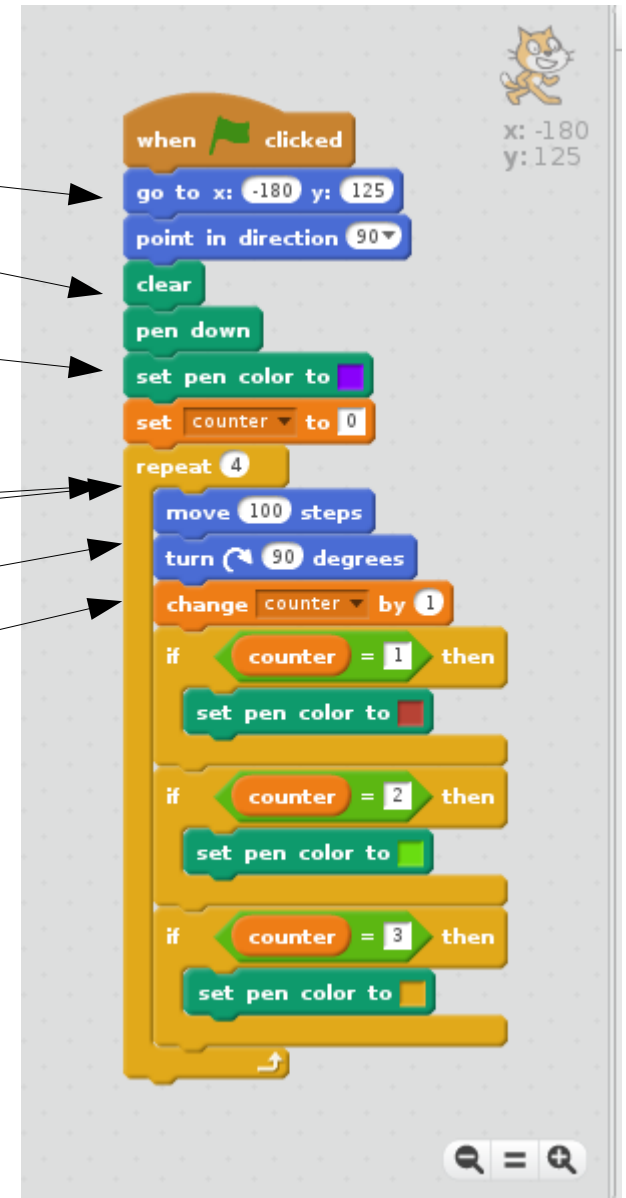
# Data

- Click on “Make a variable”
- Give it a name (e.g. “counter”)
- Four new block created



# Draw a Square 3

- Reset
- Start drawing
- Four times
- Draw a line
- Turn 90 degrees
- Change counter
- Change color based on counter



# Draw Squares 2

- We can use a list to draw squares.
  - List name
  - Add an item to the list
  - Remove things from list
  - Get the length of the list

The image shows a Scratch script for drawing squares using a list. The script is organized into two sections: 'Make a Variable' and 'Make a List'.

**Make a Variable:**

- ☒ **counter**
- set** counter **to** 0
- change** counter **by** 1
- show variable** counter
- hide variable** counter

**Make a List:**

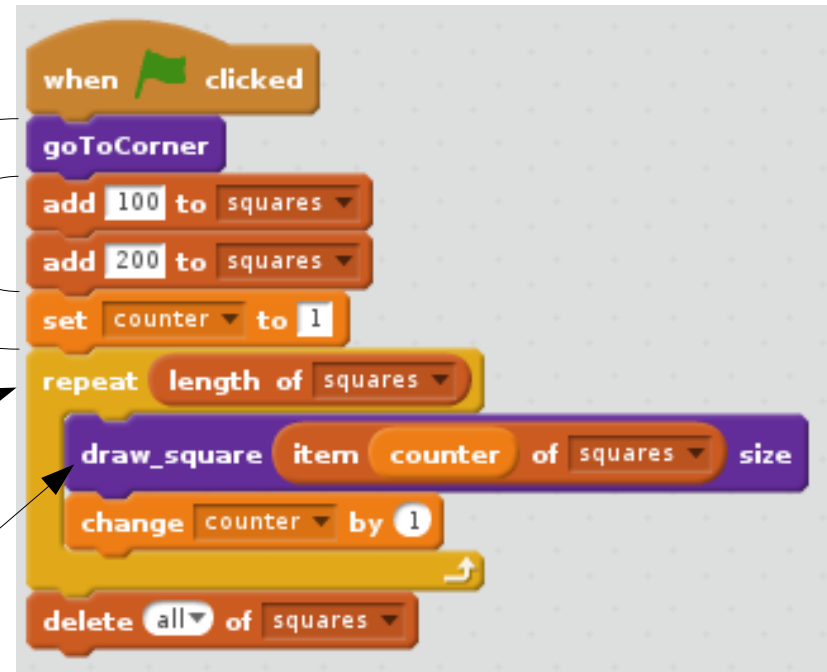
- ☒ **squares**
- add** thing **to** squares
- delete** 1 **of** squares
- insert** thing **at** 1 **of** squares
- replace item** 1 **of** squares **with**
- item** 1 **of** squares
- length of** squares
- squares** **contains** thing ?
- show list** squares
- hide list** squares

Arrows from the text in the first list point to the corresponding blocks in the script:

- List name → **squares**
- Add an item to the list → **add thing to squares**
- Remove things from list → **delete 1 of squares**
- Get the length of the list → **length of squares**

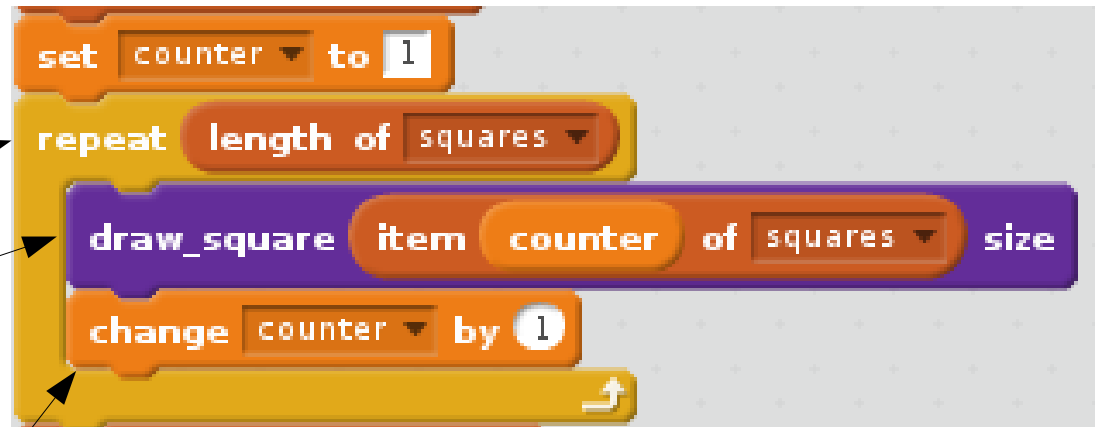
# Draw Squares 2

- Initialize
  - Squares  $\leftarrow \{100, 200\}$
  - Counter  $\leftarrow 1$
- Loop through Squares
- Drawing a new square each time



# Looping through a list

- Initialize counter
- Repeat to end of list
- Action
- Increment counter



- Looping through a list of items is a very common activity