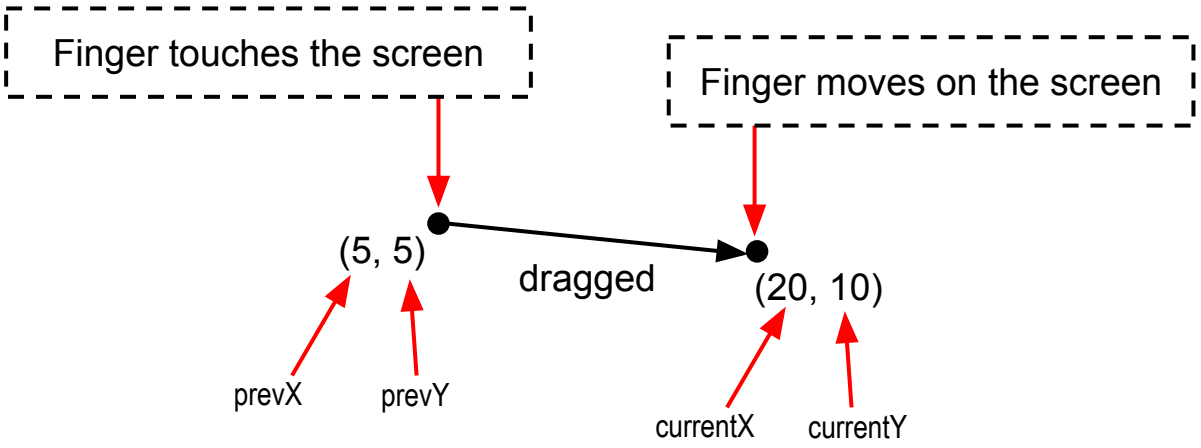
SKETCH & GUESS: PART 2

In this lesson, you will allow the Sketcher to draw.

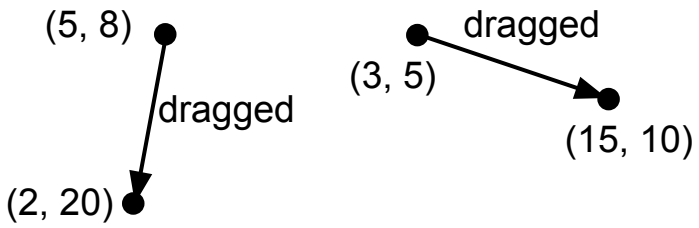
HOW TO DRAW A LINE IN THE APP

You'll start coding on the **SketcherScreen**, and make the drawing part of the app.
To draw something on the Canvas, you need to use the **when Canvas.Dragged** block and the **call Canvas1.DrawLine** blocks.

The diagram below shows how to use coordinates to draw a line in the app. A line is drawn by joining two points. Using **Canvas1.DrawLine**, you need to specify the position of the start point (x1, y1) and the position of the end point (x2, y2).



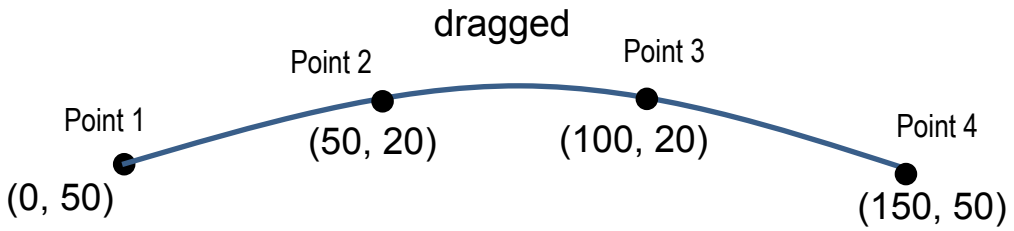
If you want to draw a line in the app, you need to use **prevX**, **prevY** and **currentX**, **currentY**. Below please work with your partner to fill in the blanks.



prevX		
prevY		
currentX		
currentY		

HOW TO DRAW A CURVE IN THE APP

A line is formed by connecting many dots. Each of the dots is represented by its coordinate (x,y).



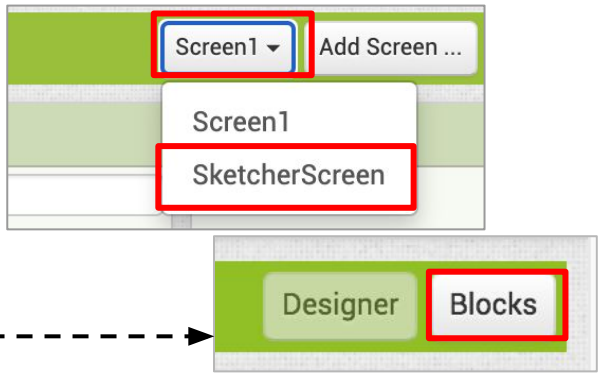
If you want to draw a curve in the app, you need to draw many lines, each with its own **prevX**, **prevY** and **currentX**, **currentY**. Below please work with your partner to fill in the blanks.

	segment 1 (Point 1-Point 2)	segment 2 (Point 2-Point 3)	segment 3 (Point 3-Point 4)
prevX			
prevY			
currentX			
currentY			

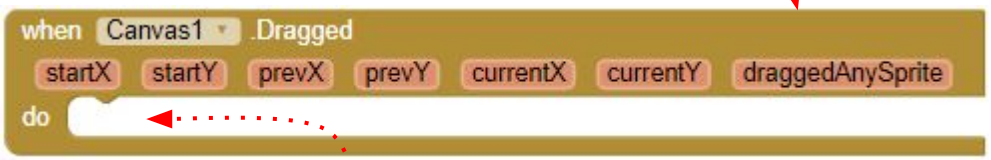
DRAW WHEN USER DRAGS ON THE CANVAS

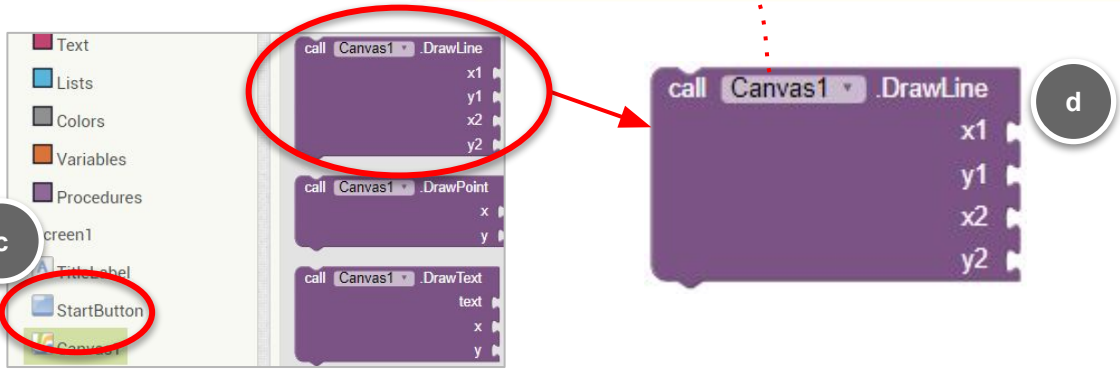
1. Open your SketchAndGuess project.

2. Make sure you are in **SketcherScreen**.
Switch to the **Blocks Editor**.



3. From the Blocks panel, pull out **Canvas1.Dragged** and **Canvas1.DrawLine** blocks.



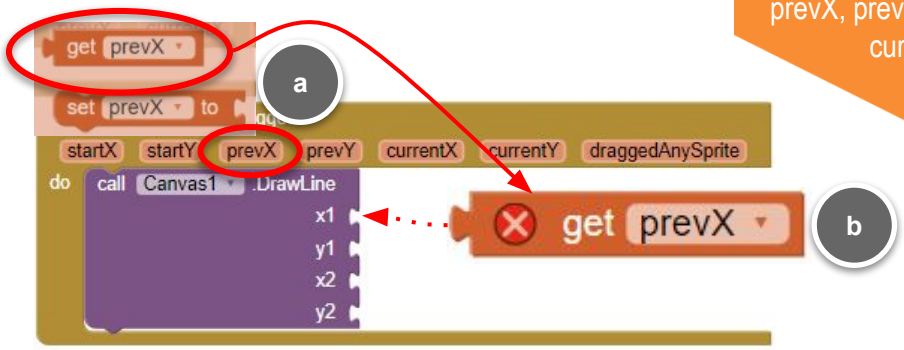


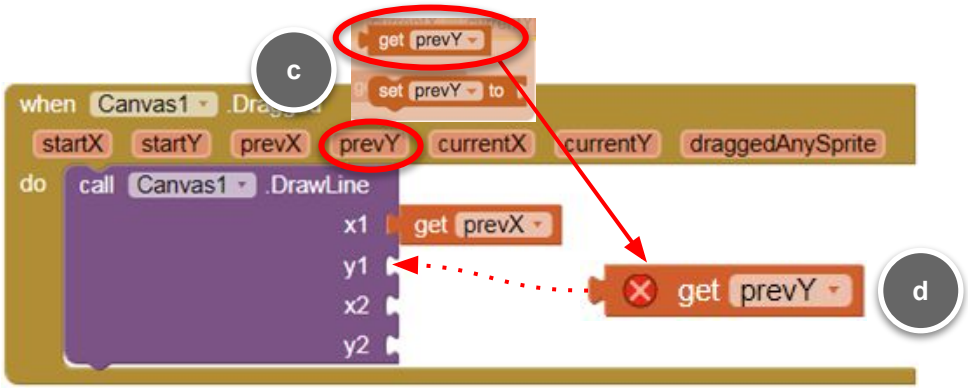
SPECIFY THE START AND END POINTS

startX and startY mark where the user first starts drawing. You will continue to keep track of X,Y as the user draws, so use prevX, prevY to currentX, currentY.

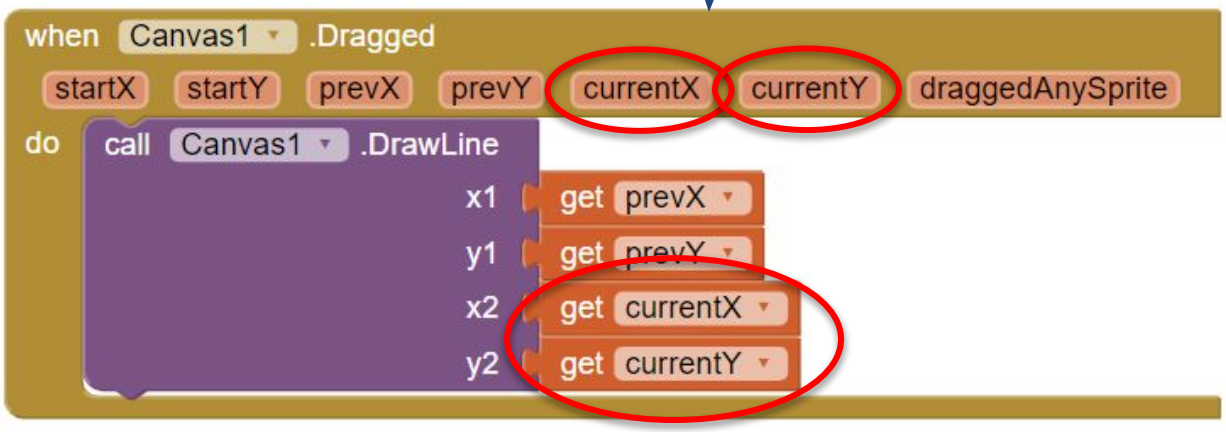
4 Set the start point.

Hover your mouse over the prevX and pull out the **get prevX**



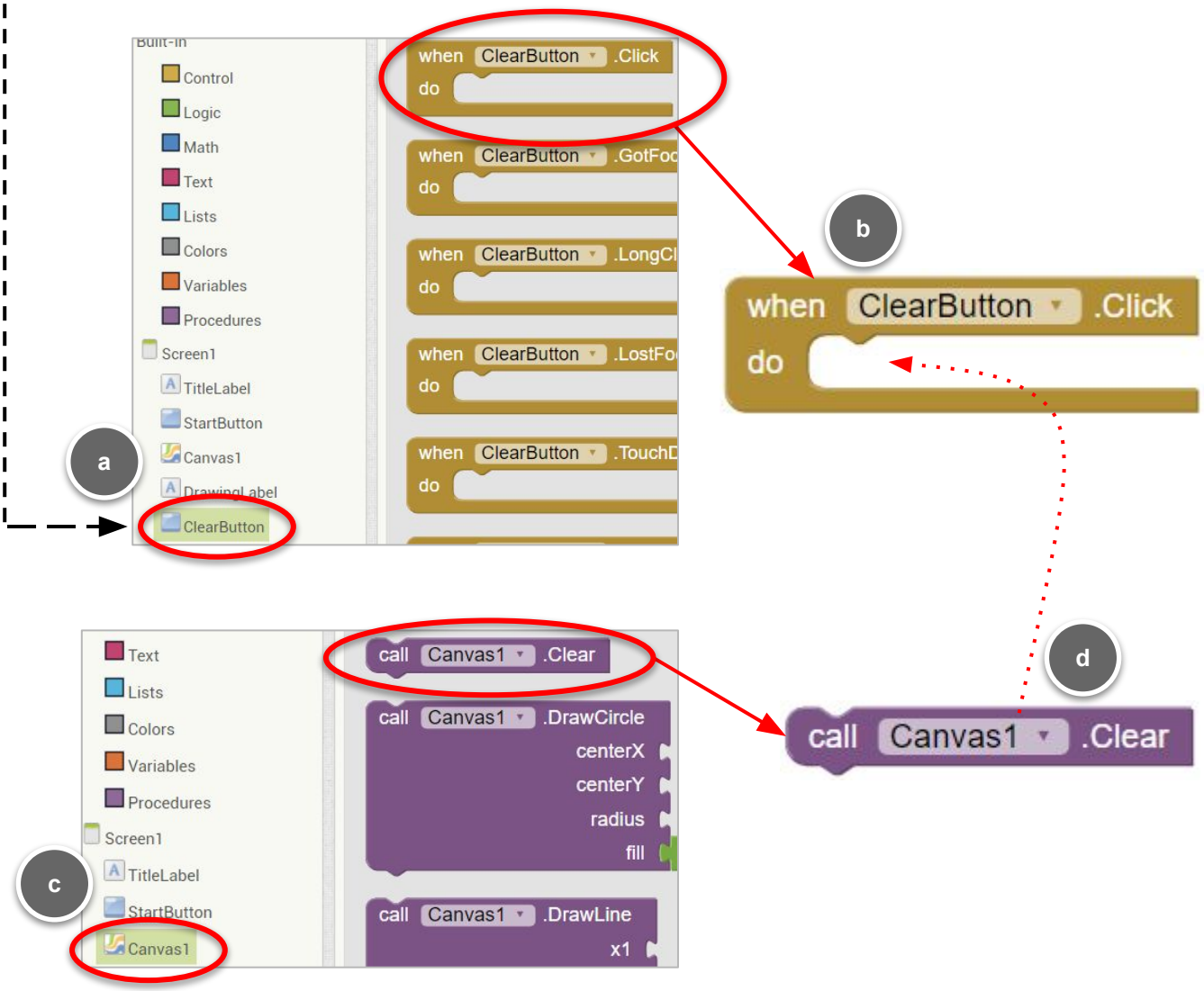


5 Continue to set the end point: **x2** and **y2** to currentX and currentY respectively.

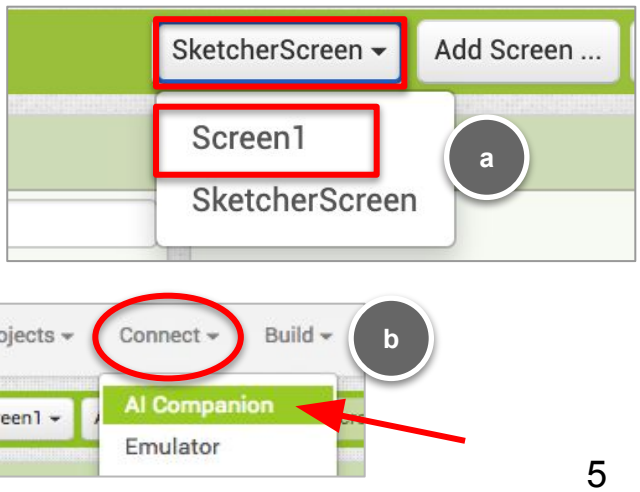


CLEAR THE CANVAS

6 Pull out a **ClearButton.Click** block and add a **Canvas1.Clear** block to it.



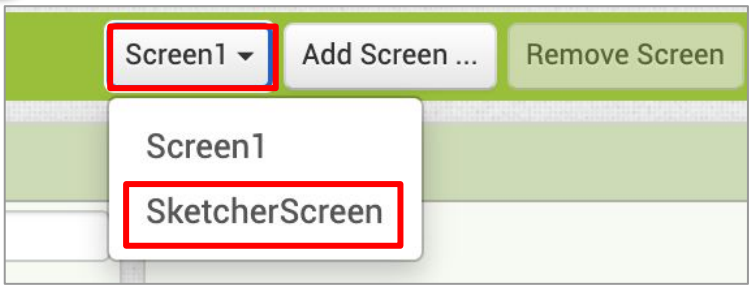
7 Make sure you have Screen1 open. Test your app using the MIT AI2 Companion. Choose the "I want to draw" option and then try drawing on the screen. Press the Clear button to clear the drawing.



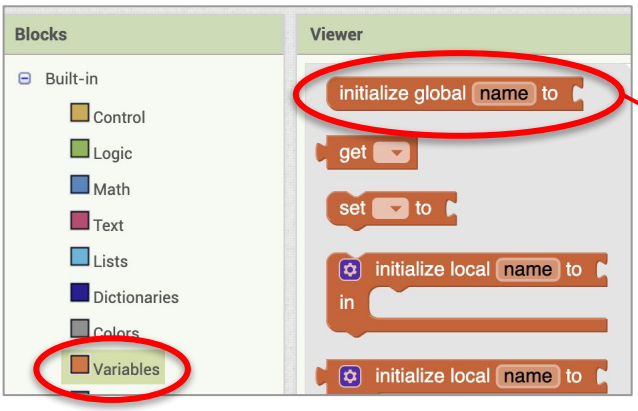
TELL THE SKETCHER WHAT TO DRAW

Because this will eventually be a game with a Sketcher and a Guesser (or even multiple Guessers), the app will require the Sketcher to press a button which will prompt them with a random item to draw.

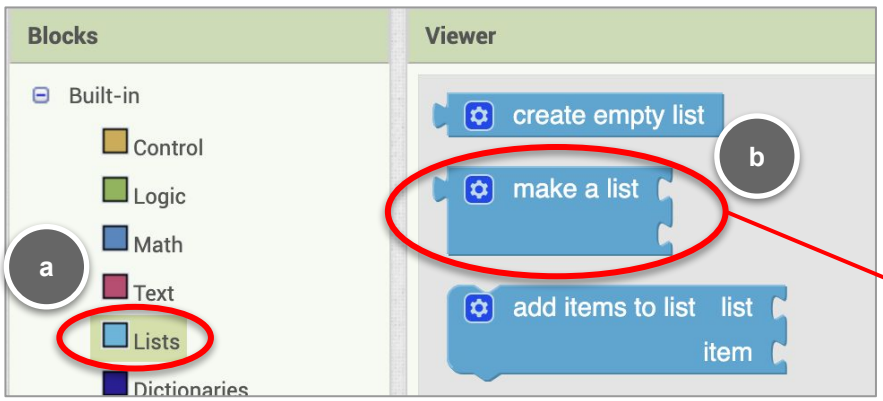
8 Make sure you are in the **SketcherScreen** and in the **Blocks Editor**.

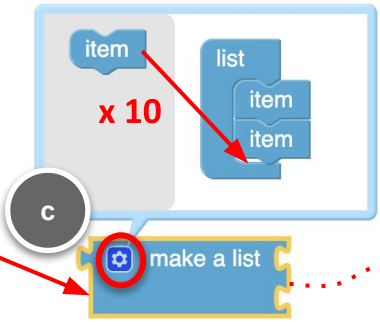


9 Initialize a new variable, and name it **drawingOptions**.



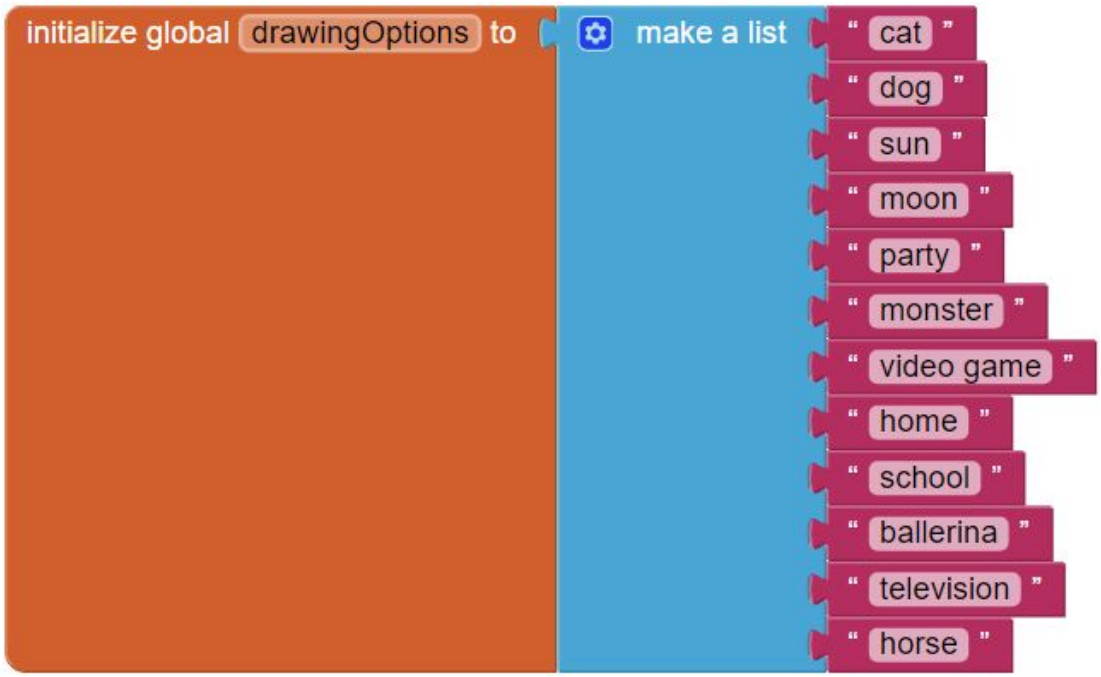
10 From the **Lists** drawer, drag out a **make a list** block and click on the blue icon to add more elements. Add 10 more items to the list for a total of 12 items. Snap to the **initialize** block.





TELL THE SKETCHER WHAT TO DRAW (continued)

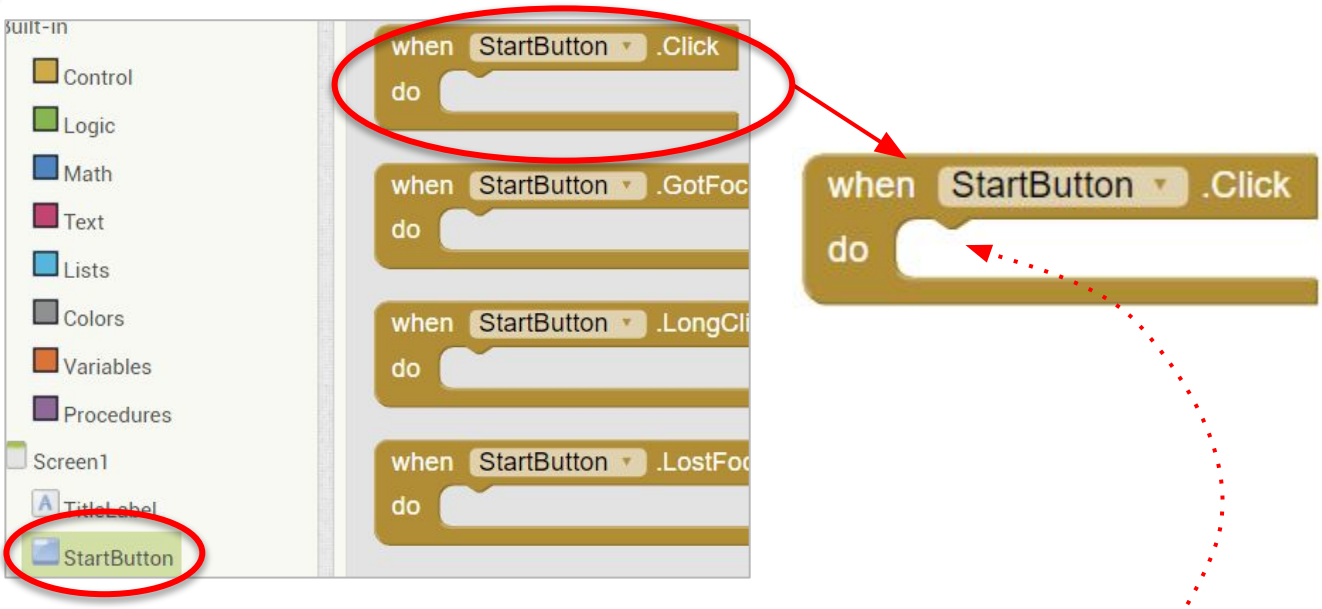
11 Snap in blank Text blocks as items in the list. Type in words for different objects that can be options for the Sketcher to draw. You can use the objects below, or choose your own objects.



12 Create another new variable, and name it **currentDrawing**. Initialize it to a blank Text block. This variable will be used to save a random item from the **drawingOptions** list that will be the object the Sketcher will draw.

PICK A RANDOM ITEM WHEN STARTBUTTON IS CLICKED

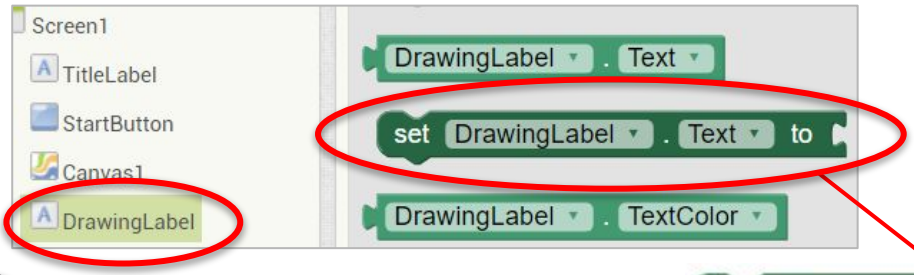
13 Pull out a **StartButton.Click** block.



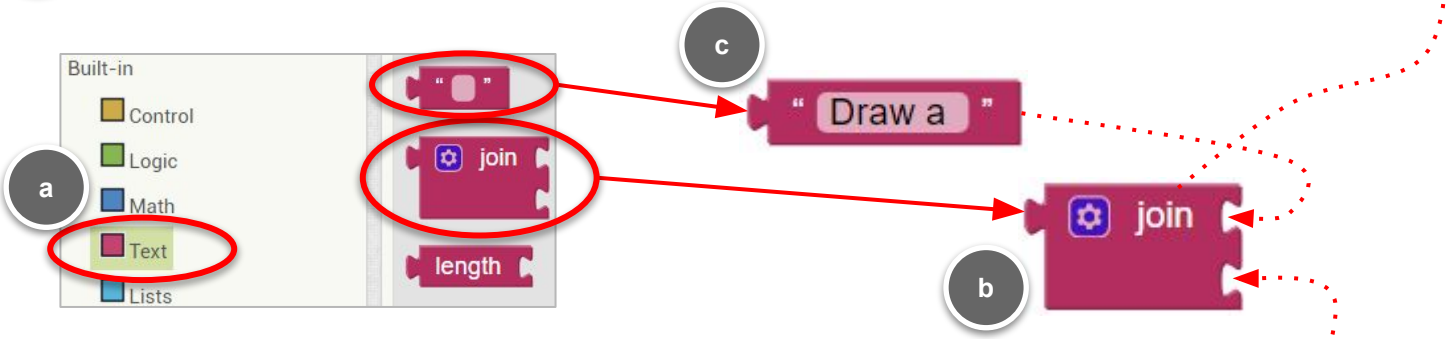
14 Pick a random item from the **drawingOptions** list, then save it to the variable, **currentDrawing**.

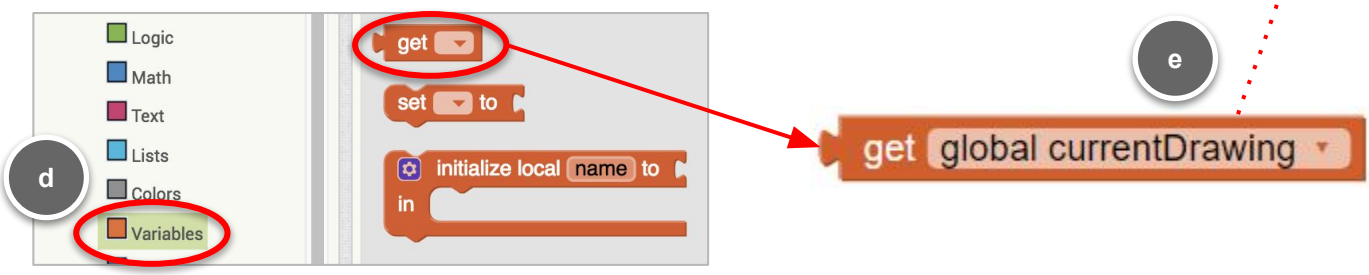
DISPLAY RANDOM ITEM TO DRAW

15 Pull out a **set DrawingLabel.Text** block.

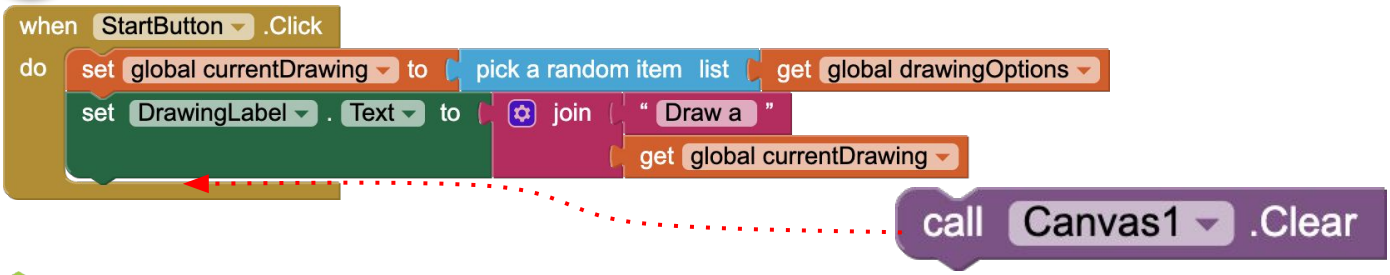


16 Add a **join** block from the Text drawer to display what to draw in the Label.



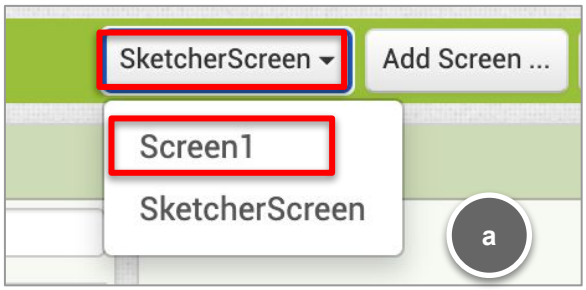


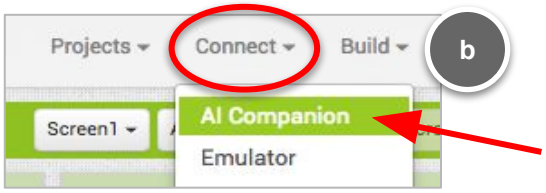
17 Since the Sketcher is starting a new picture, clear the Canvas.



TEST DRAWING OPTIONS

18 Make sure you have Screen1 open.
Connect to the MIT AI2 Companion to test.





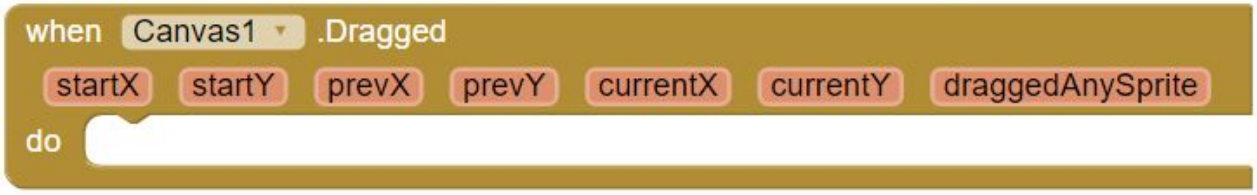
19 Choose the "I want to draw" option.
When the SketcherScreen opens, press the New Picture button.
A random item should be displayed for the user to draw.
Try pressing the button again. Check that random objects to draw are displayed.

COMPUTATIONAL THINKING CONCEPTS

Sketch And Guess Part 2

1. Sequences

2. Events



3. Naming/Variables

4. Manipulation of data and elementary data structures