

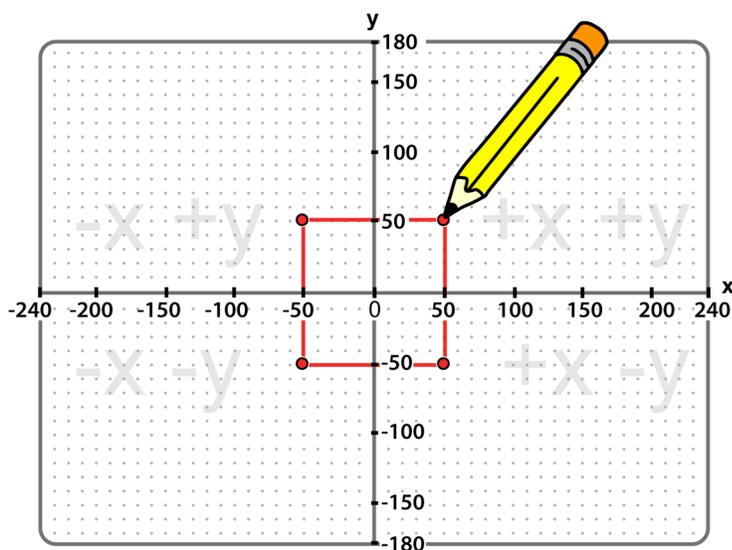
# Session 2 Extension Activity: Draw Artwork with the Pen

Apply what you know about x and y coordinates to draw art with the pen:

- Part One - draw a square
- Part Two – stamp a design
- Part Three - sketch a drawing
- Part Four - create artistic designs

## Part One – Draw a Square

Drawing in Scratch is like doing a dot-to-dot puzzle. To draw a picture, build a script that puts the pen down at the first dot. Then move the pen from one dot to next. Try it!



Form a plan. What are the x and y coordinates for each dot?

	x	50	y	50
	x	-50	y	50
	x	-50	y	-50
	x	50	y	-50



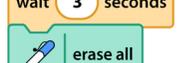
Count across for x.  
Count up or down for y.

1. Start a new project. Name it **square**.
2. Pick a drawing tool. 
3. Resize it to make it small. Size
4. Delete *Sprite 1*.
5. Click *Add Extension*.  Select *Pen*.
6. Build the script.

You need  to clear the canvas.  
If you do not erase it, the square will stay forever on the stage.

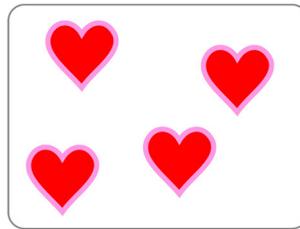


Study the script to get ideas:

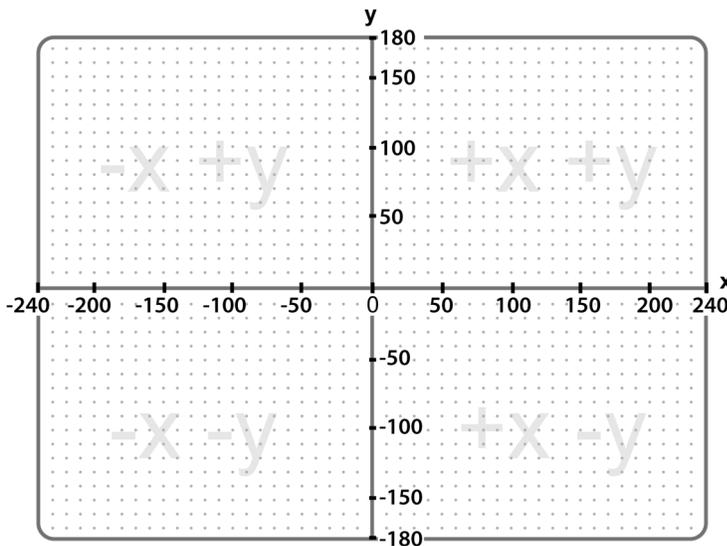
	When click Go start to draw.
	Go to the first dot.
	Put the pen down to draw.
	Draw from one dot to another.
	
	
	See the square for 3 seconds.
	
	Erase the square.

## Part Two – Stamp a Design

You can add stamps onto the stage using a sprite. Use the *wait* block to slow down the action. This will let you see each stamp added to the stage one at a time.



Add stamps to the stage.



Form a plan. Pick four places you want to add a stamp.

x		y	
x		y	
x		y	
x		y	

1. Start a new project. Name it **stamp**.
2. Pick a stamp. 
3. Delete *Sprite 1*.
4. Click *Add Extension*.  Select *Pen*.
5. Build the script.

You can add  to the **start** of a script.

This will remove any previous drawings.



Study the script to get ideas:

```

when green flag clicked
  erase all
  go to x: -120 y: 100
  stamp
  wait 1 seconds
  go to x: 120 y: 80
  stamp
  wait 1 seconds
  go to x: 60 y: -75
  stamp
  wait 1 seconds
  go to x: 130 y: -95
  stamp
  
```

When click Go start to draw.

Erase all drawings.

Go to a spot on the stage.

Add a stamp.

Wait for 1 second.

Go to another spot on the stage.

Add another stamp.

Wait for 1 second.

Keep moving from one spot to another to add stamps.



## Part Four – Create Artistic Designs

Use the *Repeat* and *Pen* blocks to create a fancy design from squares.

1. Start a new project. Name it **art**.
2. Pick a drawing tool.   
Try the tip to edit the drawing tool. →
3. Delete *Sprite 1*.
4. Click *Add Extension*.  Select *Pen*.

**TIP:** Set where the ink comes from.

- Click the *Costumes* tab.
- Click *Select*. 
- Drag around the sprite to select all the parts.
- Click *Group*.  Drag the sprite to move it.
- Place the point where the tool will draw ON the **center gray dot**.

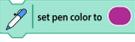


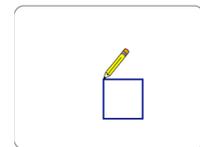
5. Build the script to draw a square.

```

when clicked
  erase all
  go to x: 0 y: 0
  pen down
  repeat 4
    move 100 steps
    turn 90 degrees
  
```

Add blocks to edit the script:

- set the pen color 
- set the line width 
- slow the action with *wait* blocks 



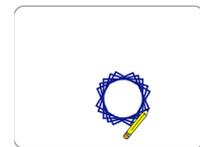
6. Add a *repeat* and  block to the script to draw many squares.

```

when clicked
  erase all
  go to x: 0 y: 0
  pen down
  repeat 15
    repeat 4
      move 100 steps
      turn 90 degrees
    turn 24 degrees
  
```

A circle is 360 degrees. Edit the blocks to try these combinations:

- **6** repeats of **60** degree turns
- **10** repeats of **36** degree turns
- **15** repeats of **24** degree turns
- **24** repeats of **15** degree turns



7. Add the blocks below to the script to make a fancy design using squares.

```

set pen color to purple
repeat 20
  repeat 4
    move 60 steps
    turn 90 degrees
  turn 18 degrees
  move 10 steps

```

Want to draw *even more* squares?

- Right click . Select *Duplicate*.
- Add the blocks to the script.
- Edit the pen color. 
- Move a smaller number of steps. 

