

## Scratch, day7: pen tool

Due: 4th period, Thursday 10/15/20 by midnight  
3rd & 7th periods, Friday 10/16 by midnight

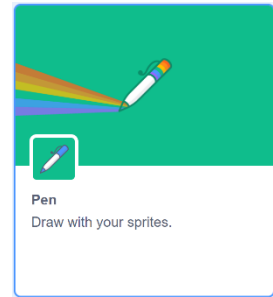
Today we're going to draw things using the pen tool in Scratch. Here's how you get the pen tool:

First, log in to your Scratch account.

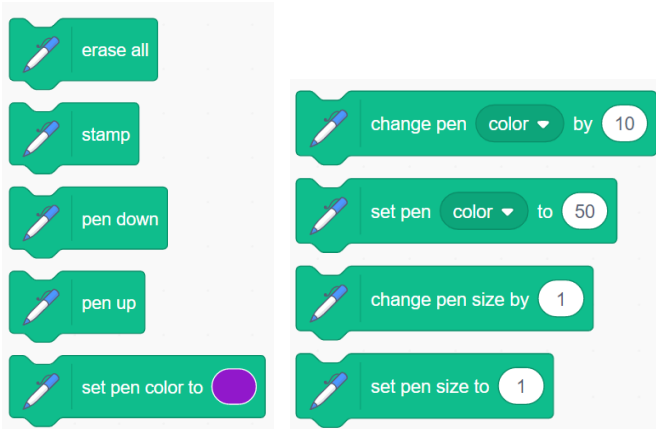
Then, click on this block at the bottom of all the code groups:



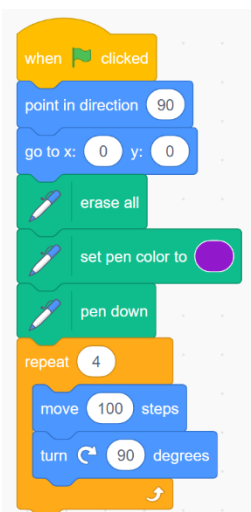
In the next window, choose the Pen tool, as shown to the right.



This adds the pen tool blocks to your program. Here are the blocks:

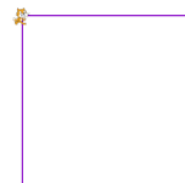


The stamp tool leaves a copy of the sprite's image painted onto the background. The erase all tool clears all drawing. Otherwise, everything else has to do with the pen, which doesn't draw anything until you do the "pen down" command, but then it leaves a trail behind wherever a sprite goes. Here's a simple program that draws a square.



The first two blocks are basic setup, so you know what is going to happen. Put the sprite into the center of the window ( x: 0, y: 0), point it in a particular direction. The next three blocks are pen blocks that erase any previous drawing, set the pen color to something, then put them pen into drawing mode. Then the loop repeats 4 times drawing a side (move 100) and then turning right 90 degrees.

You can see my cat sprite on the top left corner of the square. I made the cat very small so it wouldn't get in the way of my drawings.

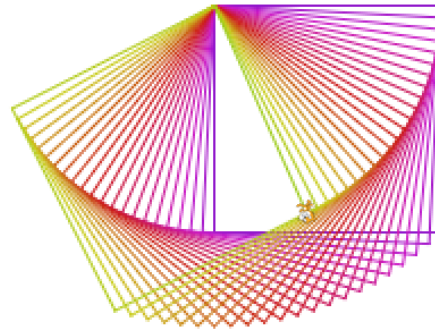


(continued on next page)

I put the part that draws the square (the repeat 4 stuff) inside another loop that repeats 120 times. It draws 120 squares, turning 3 degrees between each one. Here is the code and also the drawing partway through. I also added a "change pen color" block so I get rainbows.

```

repeat 120
  repeat 4
    move 100 steps
    turn 90 degrees
  change pen color by 2
  turn 3 degrees
  
```



You can adapt this program to draw triangles instead of squares (turn 120 degrees instead of 90, only repeat 3 times) or hexagons (turn 60 degrees and repeat 6 times). You can make the shapes larger by making it move more than 100 steps. You can change the 3 degrees too. I made the 3 value and the 120 value multiply to get 360 which is a complete circle.

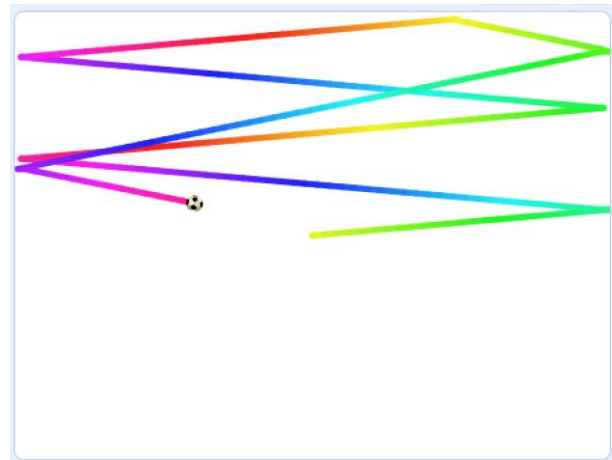
Another fun thing you can do is make a sprite bounce off the walls. Here's an example of that and what it looks like as it gets started.

For this program if you change the starting degrees (the example shows 85 degrees) the drawing changes dramatically. If you mess with this type of drawing, change the values to see what you like best.

```

when clicked
  go to x: 0 y: 0
  point in direction 85
  erase all
  set pen color to yellow
  pen down
  set pen size to 5
  forever
    move 10 steps
    if on edge, bounce
    change pen color by 1
  
```

Try turning on "Turbo mode" under the Edit menu. It makes the drawing happen instantly instead of in slow motion.



(continued on the next page)

Your task for today:

Make a program that does a cool drawing. You can modify one of the types of drawing I showed you here or you can make your own. The only requirements are that it be interesting and/or pretty and that it not be exactly one of the examples I show you here.

If you're not sure if what you have is good enough, ask to share your screen and show it to me. It would be fun for everyone to see what you created anyway.

When done, turn in a share link.