## Scratch: Polygon Robot

Objective: This program will draw different designs based on changing variables such as number of sides, arc, radius, pen color, pen width,



- 1. Open Scratch and Make Basic Draw-a-Square Script:
  - a. Click Scratch Icon 1 time.
  - b. Keep the Cat. Add the following Scripts to draw a square



## 2. Change Square Script into Polygon Creator:

- a. Click on the Variables Tab.
- b. Click "Make a Variable"
- c. Type "Sides" into the Dialog Box and Click "OK"
- d. Double Click the "Sides" box on the world to make a Slider. Set Slider to 6

?	Sides 6
/ariable name?	
Sides	
I For all sprites $\bigcirc$ For this sprite only	
OK Cancel	

e. Drag the following Blocks into the Scripts Pane. (The green division is found under "Numbers")



f. Put these blocks into the Square Script

w	hen space key pressed
cle	ar
pe	n down
re	peat Sides
-	move 400 / Sides steps
	turn ( 360 / Sides) degrees

g. Press the space bar. The Cat should draw a hexagon. Slide the slider up and down to create different Polygons.





## 3. Make the Flower Creator Script:

- a. Click on Variables and Make a Variable called "Width."
- b. Make the following Script below the Square Script

wh le	en fv key pressed
er	down
or	ever
1	epeat Sides
	move 400 / Sides steps
	turn 🕀 🔀 / Sides) degrees
	change pen color by 10
t	urn 🕀 20 degrees
5	et pen size to Width / 5

c. Click the "f" key and your Cat should make some interesting designs. Click the Stop Sign to stop the Cat

## 4. Add More Variables

a. Go to the Variables Tab and add the following variables



b. Change the Flower Script to look like this

whe	en fr key pressed
pen for	down
**	epeat Sides * 25 / Arc
	move (10 * Length / Sides) steps
	turn 🕀 🔀 / Sides) degrees
	change pen color by 10
tu	urn 🕀 (Turn) degrees
56	et pen size to (Width)/5)

c. Double Click all the Variables so they have sliders. Make some designs