

# Scratch Variable


Name: \_\_\_\_\_ Period: \_\_\_\_\_


## Variables

Today we're going to be learning about Variables. A **Variable** is a placeholder for storing information that can change.

Start by going to your Scratch folder and making a copy of your **pen.sb**. Save it As **pen2.sb**. Open up **pen2.sb**.

1. For your last homework you figured out what Angle the sprite had to turn and how many times you had to repeat the loop to make different shapes on the screen. Was it kind of annoying to have to change both the Repeat number and the Angle number each time you wanted to experiment with it?


2. Click the *Variable* button on the *Blocks Palette*, and then click on the *Make a variable* button. Give the variable a name of *times*, and then hit *Ok*. You'll see a **Variable** that looks like this:  show up on the left hand side. You'll also see the variable show up in

the Stage looking like this:  .

A. Click on the check box next to the variable name on the left hand side. What happens to the variable on the stage?

B. Click on the check box again. Double click on the variable representation in the Stage. You should see a slider show up underneath the variable. Try moving the slider around. What are the current minimum and maximum values of the slider?

C. Right click on the Variable and bring up the pop up menu. Select *set slider min and max*. In the dialog box set the max to be 12 and hit ok. Now try the slider again. What is the maximum now?

D. Click and drag the  on the left hand side. Drag it into the repeat statement so that it looks like this the picture to the right. Move your slider and running your program with the Green Flag.



## Scratch Variable


Do this three times:


Slider Value	Picture drawn

- Recall back to the previous Pen worksheet... what was the product of the **Angle \* Repeat** in each case?
- Since we're using *times* as our variable name, I have put that into the equation below.  
**Angle \* times =**

Write the equation for Angle in terms of the variable *times*:

**Angle =**

- Notice where we use the angle in our script!  We can change the "90" (or whatever angle you currently have in there) to be an expression based on your equation above. Look under the *Operators* button in the *Blocks Palette*. There you will find a / sign – Build up your expression and put it where the "90" was... so your statement will now look

like this  (with the white space filled in with your number... )

Run your program with the Green Flag. Does it work? Does the shape change appropriately if you change your *times* variable?

Try using 0, 1, & 2 for the *times* variable. What happens?

What would be a better *min* value on the *times* variable slider? Set it to that value.

**Save your file (pen2.sb) and show it for Sign Off! Great Job!**

**Want to try more?** Try adding some more variables in the appropriate place in your script and try running your script to make sure it still works. Here are some suggestions:

**x & y** – start location      **move** – size of the side      **color** – color of the drawing      any more??