

What's Next After Pro-Bot? – Logo!

Pro-Bot users may not realize how closely the Pro-Bot commands follow those of the Logo language. Learning Logo is the next logical step for students who are familiar with Pro-Bot.

The examples using Pro-Bot were created using the Square Mat in the Pro-Bot Online Emulator. https://probot.terrpinlogo.com/?square_mat

The Logo examples use the Logo programming language.

Try out Logo using the 14-day free trial. www.terrpinlogo.com/terrpin-logo-free-trial.html

Drawing Shapes

Consider this set of commands for Pro-Bot to draw a square:

```
Main  
Rpt4C  
Fd  
Rt  
J
```

When you press GO, Pro-Bot draws this design:



With Pro-Bot:

- Pressing the Forward or Back arrow with no number after it moves Pro-Bot 25 steps.
- Pressing the Right or Left arrow with no number after it turns Pro-Bot 90 degrees.

The Logo commands to create the same design are:

```
REPEAT 4 [FD 25 RT 90]
```



With both Pro-Bot and the Logo turtle, you can add numbers, called inputs, to the move and turn commands to draw all types of designs.

```
Main  
Rpt6C  
Fd30  
Rt60  
J
```

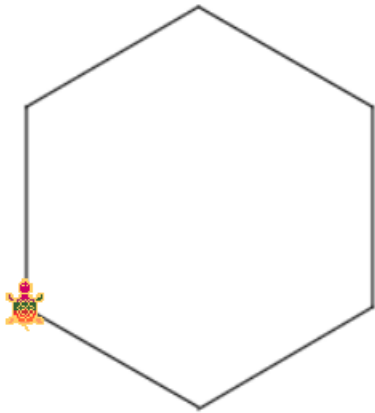


Using Logo, you would enter:

```
REPEAT 6 [FD 30 RT 60]
```



Of course you can use much larger numbers with the Logo turtle.

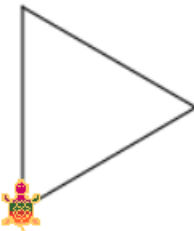
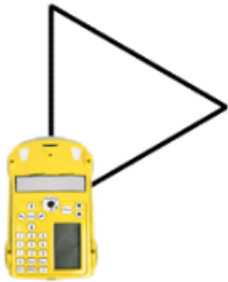


```
REPEAT 6 [FD 100 RT 60]
```

How can Pro-Bot and the Logo turtle draw a triangle?

How much does it need to turn?

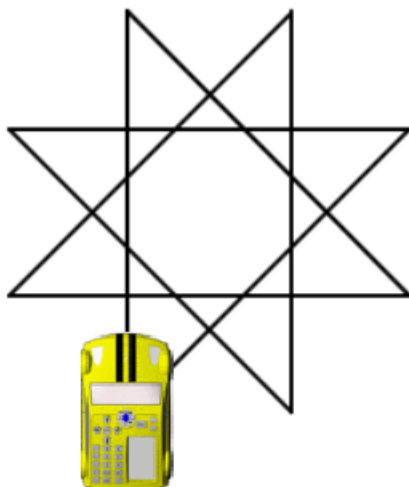
The answer is the same for both of them.



```
Main  
Rpt3L  
Fd35  
Rt120  
]
```

```
REPEAT 3 [FD 100 RT 120]
```

In Logo, you can set the turtle to many different shapes. You can even set it look like a Pro-Bot! You would just drag the shape from the Robots set of Toolbox on top of the turtle. There is a shape with Pro-Bot with its headlights turned off and a different one with its headlights turned on. You can change the background color of the Graphics window to see the lights better.



Here are the commands to draw this star design in Logo:

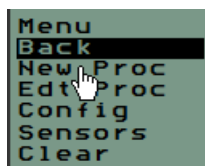
```
SETWIDTH 2 REPEAT 8 [FD 200 RT 135]
```

Using Logo's multiple turtles, you could code a race between two Pro-Bots and have the winner flash its headlights on and off!

Writing Procedures

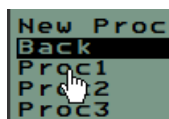
Procedures are the building blocks of coding. Writing procedures is fundamental to learning to code. A procedure is a set of instructions that you can name. Then you can use it over and over in larger programs.

With Pro-Bot, click the **Menu** button and then **New Proc.**



Click on a procedure name. If there are already instructions for that procedure, you will see them. If there are no instructions, you can use that procedure to enter new commands.

Let's start with **Proc1**. Click that name.



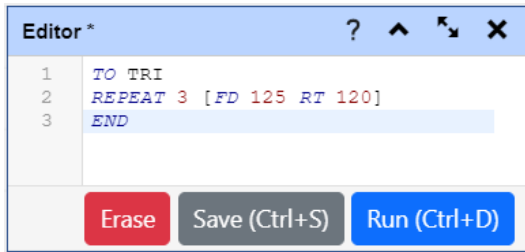
Enter the commands to draw a triangle, as you did above.

Then, in the **Main** command window, click the **Proc1** button and then press **1**, for **Proc1**.

Press **GO** and see what happens? Did it draw the triangle?

Now you can use **Proc1** just the way you use any other command.

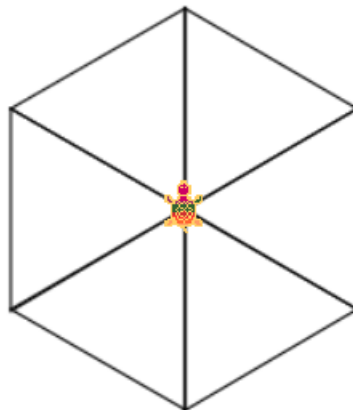
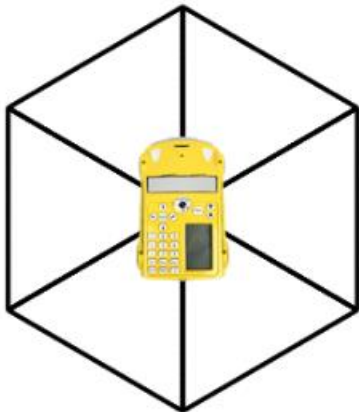
In Logo, you can give a procedure a name that will help you remember what it does. You start a procedure with **TO** and finish it with **END**. You write the procedure in the Logo Editor and click the Run button to define the procedure and store it for future use. This procedure is named **TRI** and we can use the new command **TRI** whenever we want to draw a triangle



```
Editor*
1 TO TRI
2 REPEAT 3 [FD 125 RT 120]
3 END
```

Buttons: Erase, Save (Ctrl+S), Run (Ctrl+D)

How would you create this design with Pro-Bot and with Logo?



```
Main
Rpt6L
Proc1
Rt60
J
```

```
REPEAT 6 [TRI RT 60]
```

You can see how similar Pro-Bot and Logo are when it comes to drawing designs and writing procedures.

How are Pro-Bot and Logo Different? How Are They the Same?

With both Pro-Bot (in the Online Emulator) and Logo, you can:

- Move and turn different amounts to draw shapes and other designs.
- Use the built-in REPEAT function to create loops.
- Set the color it draws with. (Logo uses SETPC, short for SETPENCOLOR, with a color name, as in SETPC "RED.)
- Write procedures and use them in other programs.
- Nest REPEAT loops (have a REPEAT inside a REPEAT).
- Play sounds. (With Pro-Bot, press and hold the Menu for 1-1/2 seconds to get to the sounds.)
- Save your code and load it back later.
- Try some of the Turtle Tuesday challenges, many of which can be done with Pro-Bot.

With Pro-Bot, you can also:

- Use its sensors for touch, sound, and light.
- Use many online activities in the Pro-Bot Online Emulator, including the Coding Journeys.

With Logo, you can also:

- Use many more commands to use, over 600!
- Change the shape of the turtle.
- Use up to 1,000 turtles at the same time.
- Place the turtle at a specific x-y location, as in SETXY [50 100].
- Play music.
- Get information from the user.
- Display text on the screen.
- Use debugging tools.
- Connect to Blue-Bot and InO-Bot using Bluetooth technology.
- Learn to code using tutorials and other materials that come with Logo.
- Have your programs published in the Logo Program Library for others to try.
- And much more...

Give Logo a try and see all you can do!