

Blue-Bot – A Mechanical Robot



We can command a **Blue-Bot Robot** with the buttons on the top of the robot.

If you wish, [order the Blue-Bot Robot at the link](#),

BLUE-BOT Robot @ \$119.95 US\$

Use the coupon code, (NLSRobot).
You will receive a 10% discount plus free shipping.

Turn on the robot with the two switches at the bottom.

Experiment by pressing the buttons on the top of the robot.

Now try the following set of codes in order.

X F F F RT F F // B B LT GO

The robot should be following the path to the right ...



F .. forward a length
B .. backward a length
RT .. right turn
LT .. left turn
X .. clear memory
// .. wait

On paper, **PREDICT** the design which will occur for the following code.

X F F RT RT F LT // // F F F GO

Now **TEST** your answer by commanding the robot through the code above.

Your design and the robot's design should match the shape below.






EXPERIMENT with the code by pressing the buttons and noting the result.

THE ROBOT PLAN SHEET

MY COMMANDS ARE ..

I PREDICT

The Robot will Draw ..

Mark the robot's start position with a ... 

THE ROBOT DREW ..

SOME NOTES

Great Ideas or
Changes or ..

I learn from my bugs!!





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Think .. Predict the Shape .. Code

THINK THROUGH each line of code below.

Then **PREDICT** each shape by drawing it on paper.

Then **CODE** the robot to **TEST** your prediction.

i) X F F F // RT F F LT // F F F GO

ii) X F F LT LT B B RT RT F // RT GO

iii) X RT // F F RT F F RT // F F RT // F F GO

iv) X F RT // F LT // F RT // F LT // F RT GO

Challenge #1

Challenge a partner.

Think through and **Write a Line of Code** on paper.

On a hidden paper, draw the resulting design that you expect.

Now have your partner **PREDICT** the shape by drawing it on paper.

COMPARE the two **PREDICTIONS**.

DISCUSS results and make corrections.

Now **CODE** the robot to **TEST** both predictions.

i)

ii)

iii)



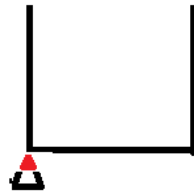
iv)

Creating Shapes by Coding

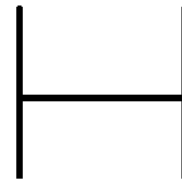
WRITE CODE that commands your robot to design each shape below.
(If the **START** is not given, choose the **START** Point and Direction.)
Then **TEST YOUR CODE** by commanding your robot.



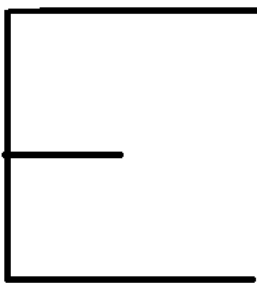
The code is:



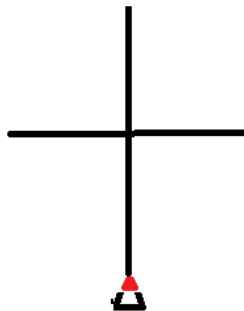
The code is:



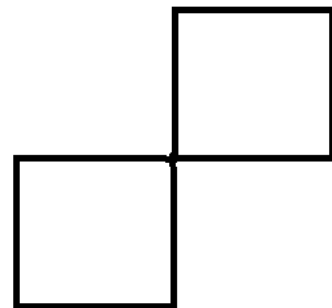
The code is:



The code is:



The code is:



The code is:

Estimation

Design a landscape on the floor on grid paper where the grid is the length of the Blue-Bot. Place obstacles on the grid. Begin with 2 or 3 obstacles.



ESTIMATE distances and on paper, write a line of code that you feel would command the robot to move from present position and reach a **GOAL**.



Now **TEST** your estimates by keying in your code on the robot.
Make corrections in the code and try again.

Now repeat the above with various trips

1. exactly 2 turns allowed in the trip
2. the robot can only make right turns
3. the robot can only make left turns

The Blue-Bot Adds and Subtracts

The Setup

Form a straight line by on a grid where one robot length is the distance between lines as shown below. Begin with the robot on a line with it's nose just before the line as shown.

Mark that point ... **0**

Now command the robot with the code ... **X F // GO**

Use a marker to mark that point ... **1**

Continue with this process to mark the points .. **2** .. then **3** .. then **4** .. to **10**



For the following line of code:

X F F // F // B B // GO

First draw the line on a separate sheet of paper labelled with numbers.

PREDICT the final location of the robot.



Then **TEST** your answer by keying the code into the robot keyboard.



X F F // F // B B // GO

Then translate above code to the following number sentence:

$$2 + 1 - 2 = 1$$

... which reads: **2** forward **followed by** 1 forward **followed by** 2 back.

... = is **EQUALS**. It asks for the final position, (where is the robot?)

Repeat the above steps for each of the following lines of code.

i) **X F F F // F F // B B B GO**

ii) **X F F F F // B // F F F GO**

iii) **X F F F F F // B B B // F F GO**

Write a few lines of code like the examples above.

Then give the lines to your partner who should repeat the steps above.

i)

ii)

iii)

Given the following number sentence, complete the steps below it.

$$3 + 2 + 1 - 2 =$$

... which reads ...

... = means ...

The corresponding code for the robot is ...

TEST the answer by keying in the code and testing the robot's final position.



Repeat the above steps for each of the following number sentences.

i) $4 + 2 - 3 =$

ii) $2 + 1 + 4 - 4 =$

iii) Have a partner design a number sentence

COMMANDING BLUE-BOT BY COMPUTER WITH BLUETOOTH

This section needs to be completed

