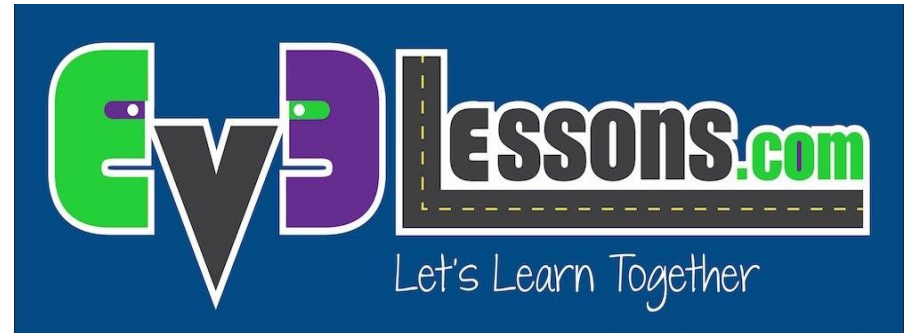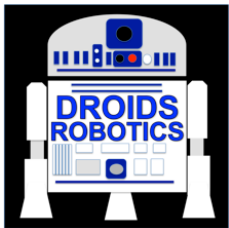# INTERMEDIATE PROGRAMMING LESSON

My Blocks Overview
Step-by-Step Visual Guide to Creating a My Block with Inputs with Outputs

By: Droids Robotics

LESSON OBJECTIVES

1. Learn how to make custom blocks in the EV3 Software (My Blocks)

2. Learn why a My Block is useful

3. Learn to construct a My Block with Inputs and Outputs

WHAT IS A MY BLOCK?

- A My Block is a combination of one or more blocks that you create that can be grouped into a single block

- My Blocks are basically your own custom block in NXT or EV3

- Once a My Block is created, you can use it in multiple programs

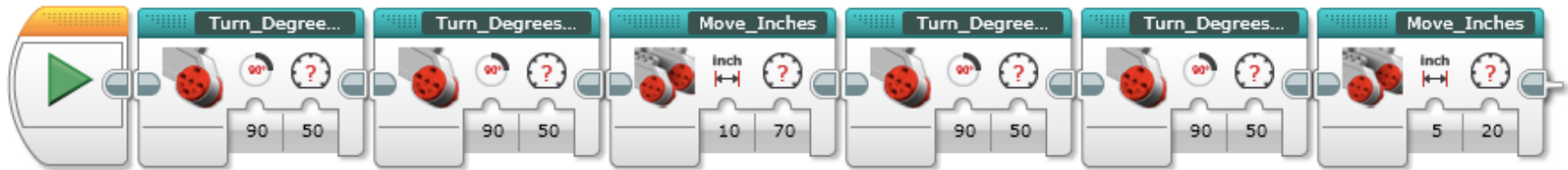- Just like any other block in EV3, My Blocks can have both inputs and outputs
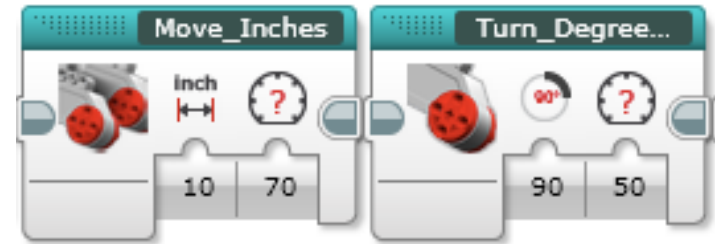
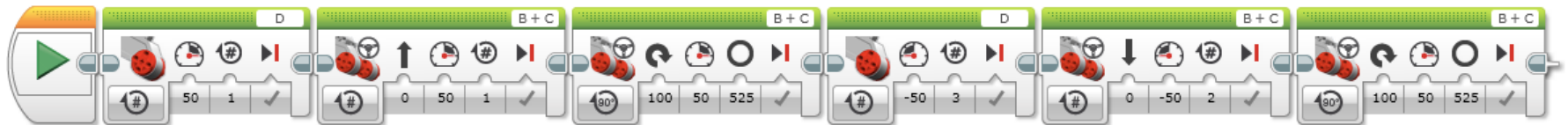The two blocks above are examples of My Blocks:
- Move_Inches tells the robot to move the number of inches we input
- Turn_Degrees tells the robot to turn the amount we input

WHY SHOULD YOU BOTHER?

Because of My Blocks, your missions will look like this…

Instead of this….

This makes your code easier to read and easier to modify!!!

WHEN DO YOU USE A MY BLOCK

- **Whenever the robot is going to repeat an action inside your program**

- **When code is repeated in a different program**

- **Organize and simplify your code**

  - Example: You have 2 different versions of a robot run in FLL and the first half of both of them are identical, then making the first half of the code into a My Block allows you to "clean up your code" in both programs.

DISCUSSION: WHAT MAKES A USEFUL MY BLOCK

Note: Making My Blocks with inputs and outputs can make them far more useful. However, you need to be careful not to make the My Block too complicated.

Question: **Look at the list of three My Blocks below. Which ones do you think are useful for a team to use?**

1) Move2Inches (Moves the robot two inches)

2) MoveInches with an inches and power input

3) MoveInches with inches, power, angle, coast/brake, etc. inputs

Answer:

Move2Inches may be used often but you will be forced to make other My Blocks for other distances. This will be hard to update or fix later on.

MoveInches with inches, power, angle, coast/brake, etc. might look more useful but most of the inputs might never be used in any mission.

MoveInches with inches and power as inputs is probably the best choice for most teams.

SUMMARY: HOW TO MAKE A MY BLOCK

Step 1: Select the blocks you think you will reuse. Go to Tools and Pick My Block Builder
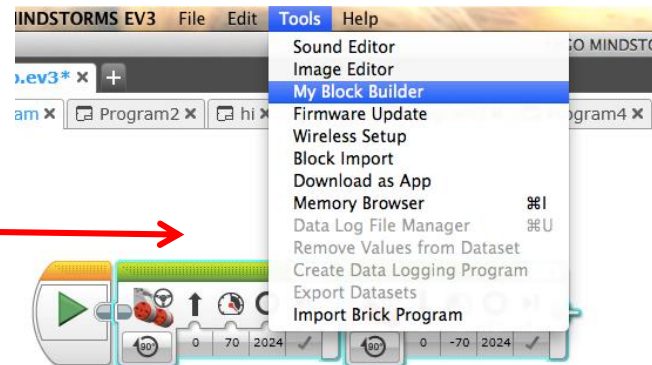
**Step 2:** Pick a name and icon and set inputs & outputs
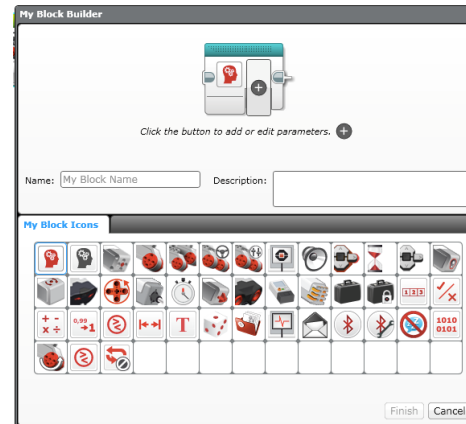
Step 3: You can use your block anytime – found in the turquoise tab

The next few slides show the step-by-step process of creating a My Block with Inputs and Outputs

# HIGHLIGHT BLOCKS AND PICK MY BLOCK BUILDER IN MENU

Note: Do not highlight the constants.

Inputs/Outputs will be auto created based on wires coming into/out of the highlighted code. In this example you get 2 inputs, 0 outputs.
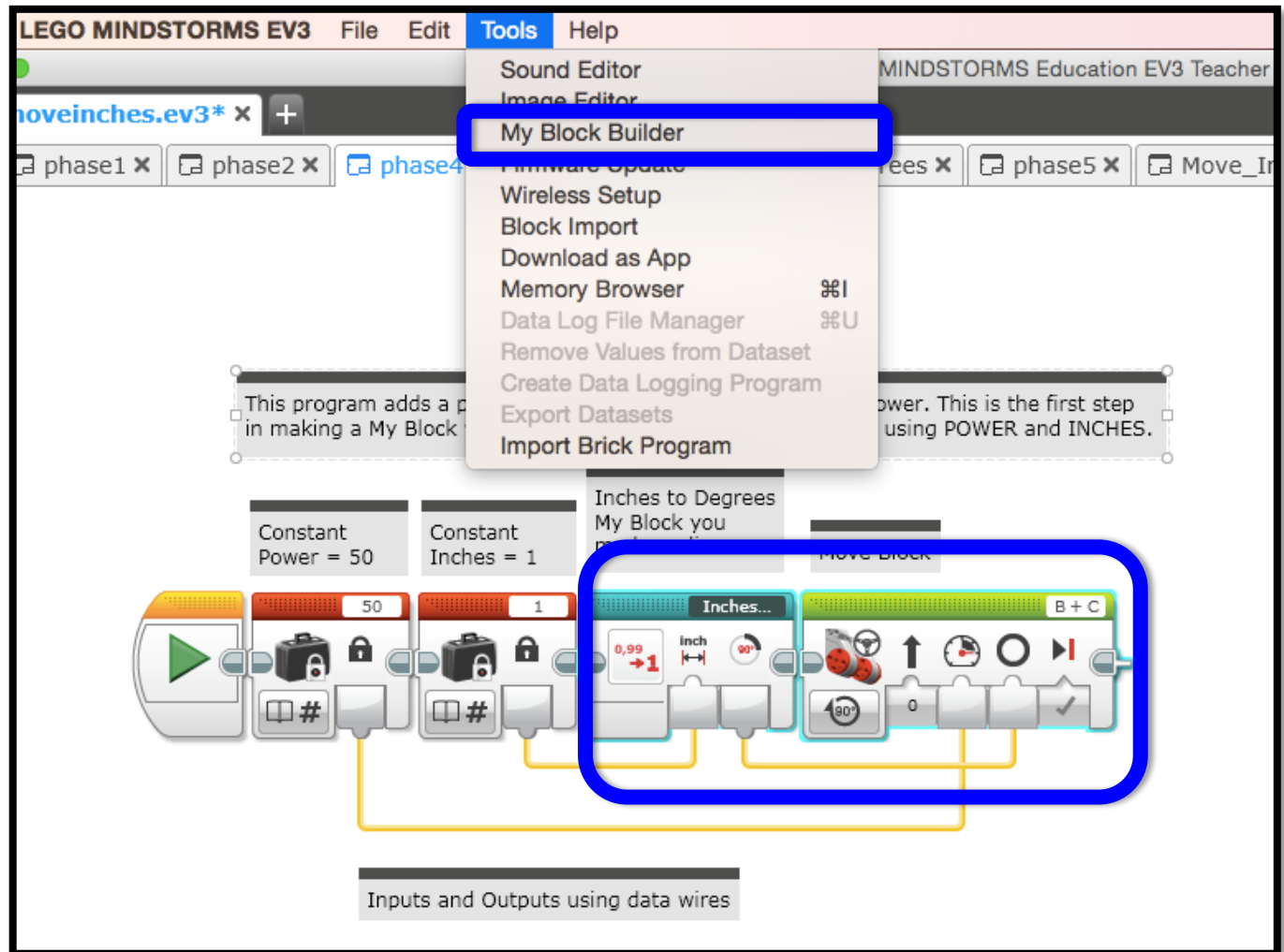
HIGHLIGHT BLOCKS AND PICK MY BLOCK BUILDER IN MENU

You will be able to set up the parameters for the 2 inputs inside the My Block Builder. You can add more inputs/outputs as needed.

NAME BLOCK & PICK ICON
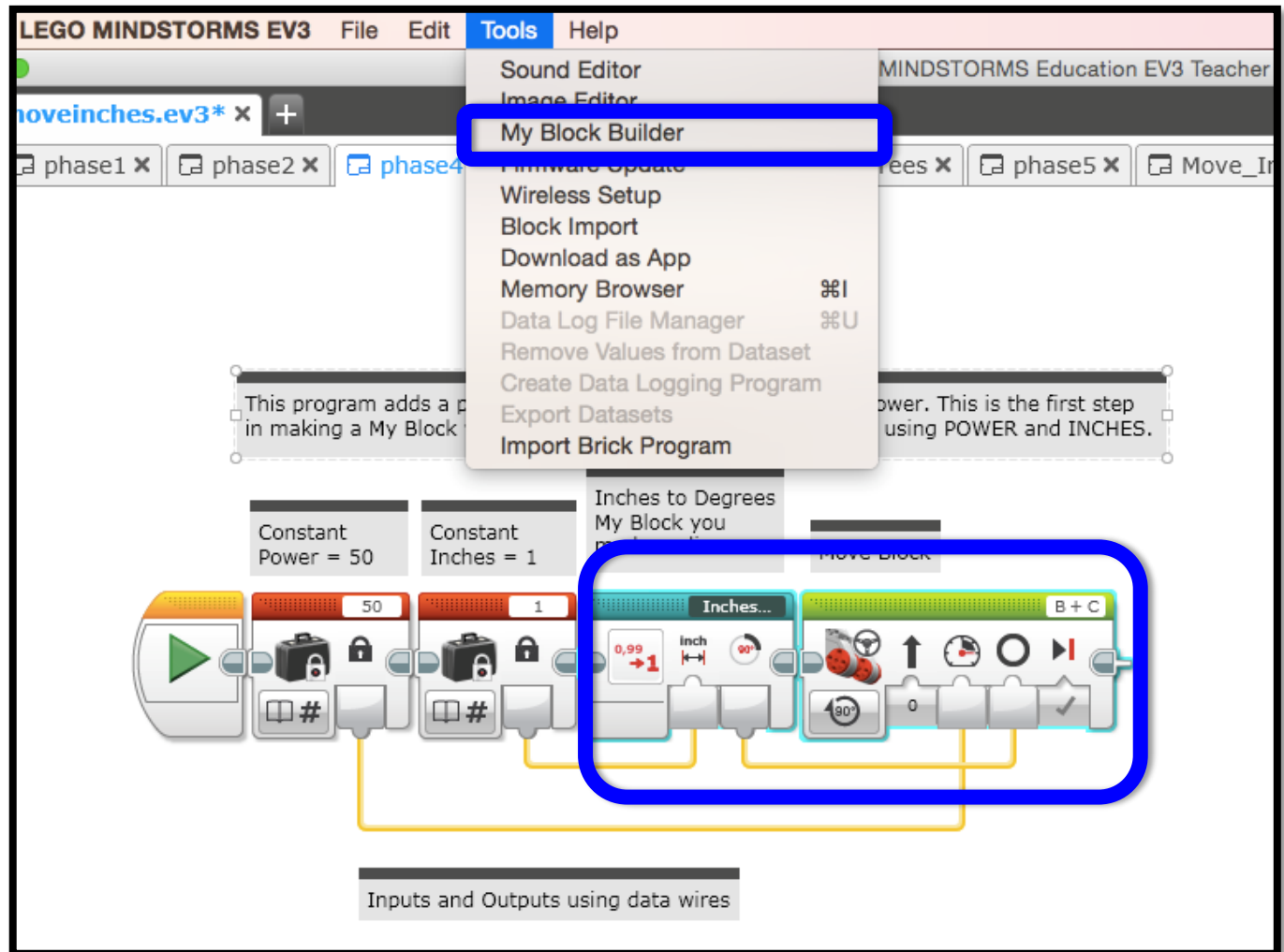
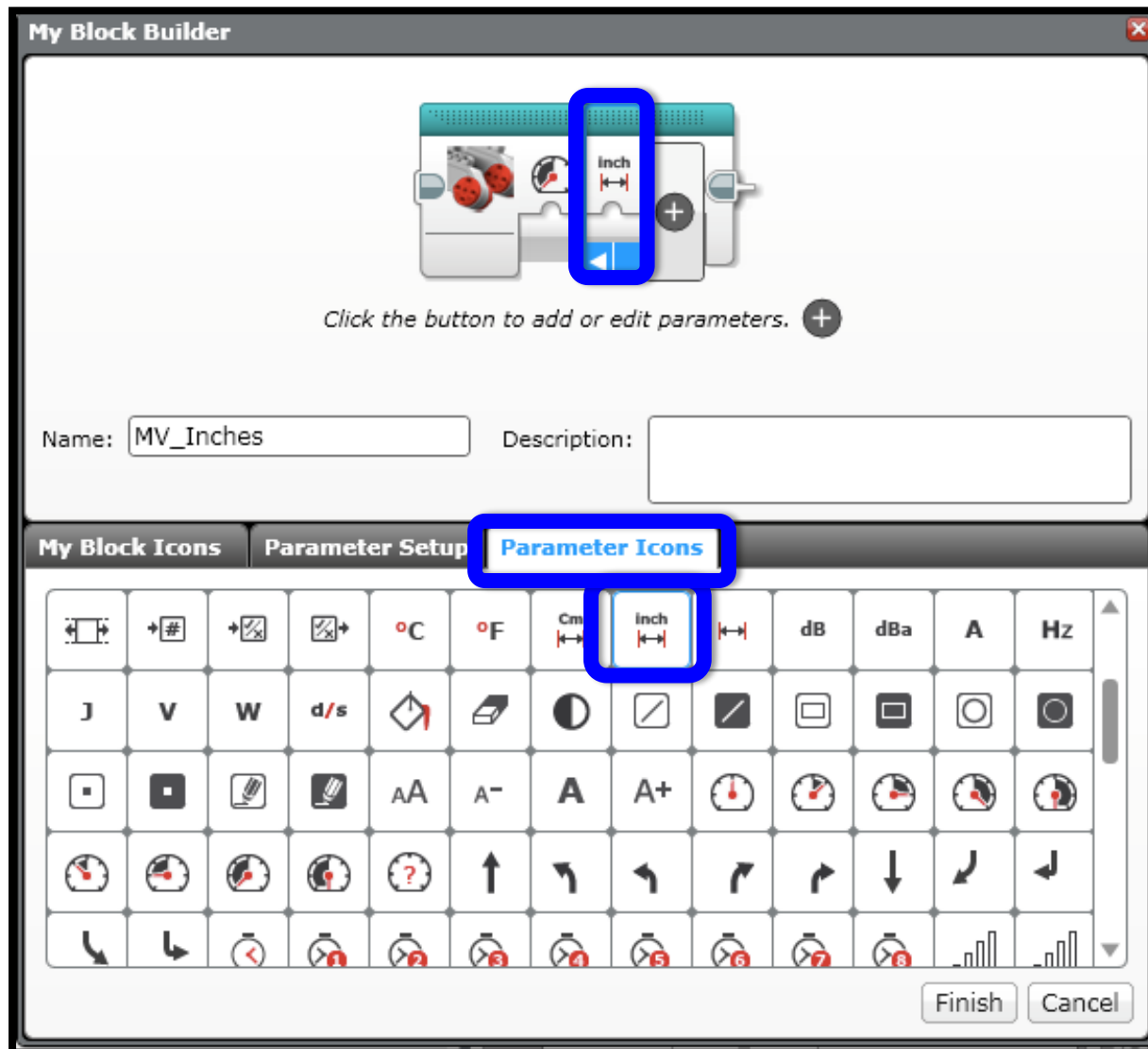# DEFINE INPUT 1: NAME, TYPE, STYLE

PICK AN ICON OF YOUR CHOICE
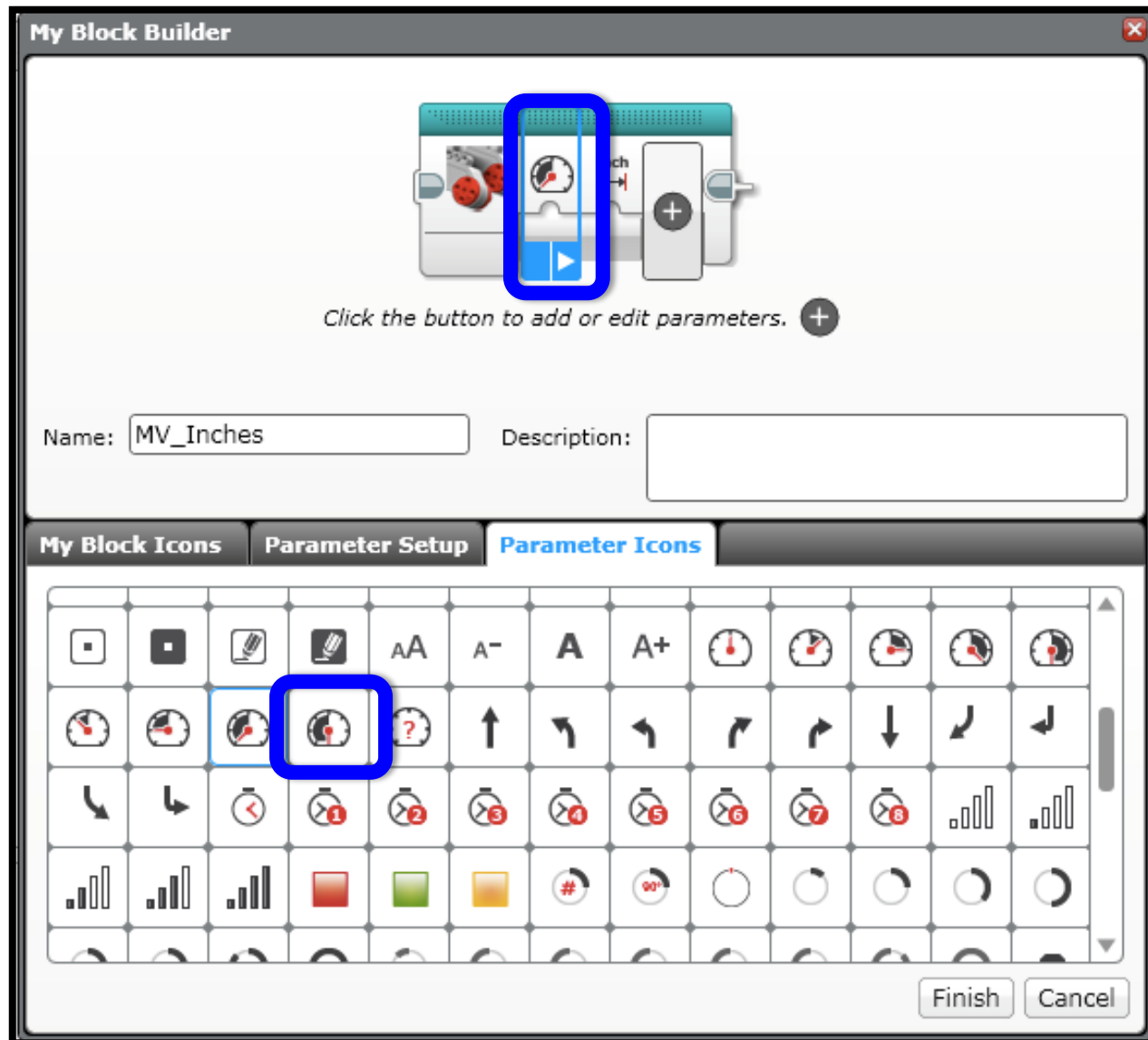
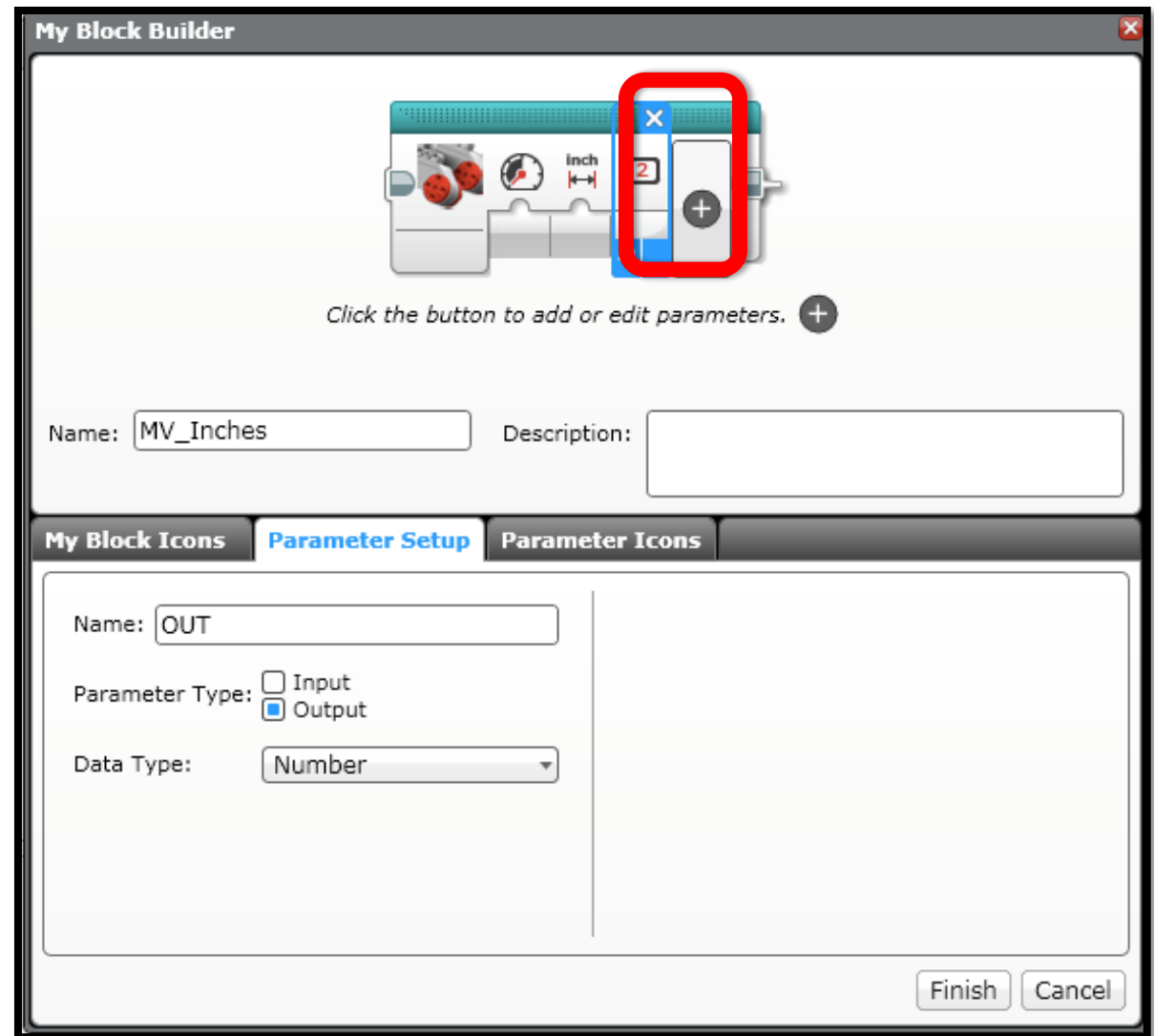# DEFINE INPUT 2: NAME, TYPE, STYLE

PICK AN ICON

ADDING MORE INPUTS/OUTPUTS

Click on "+" to add more inputs or outputs.

Click on "x" to delete inputs/outputs that you create. Note: You cannot delete auto-created inputs/outputs
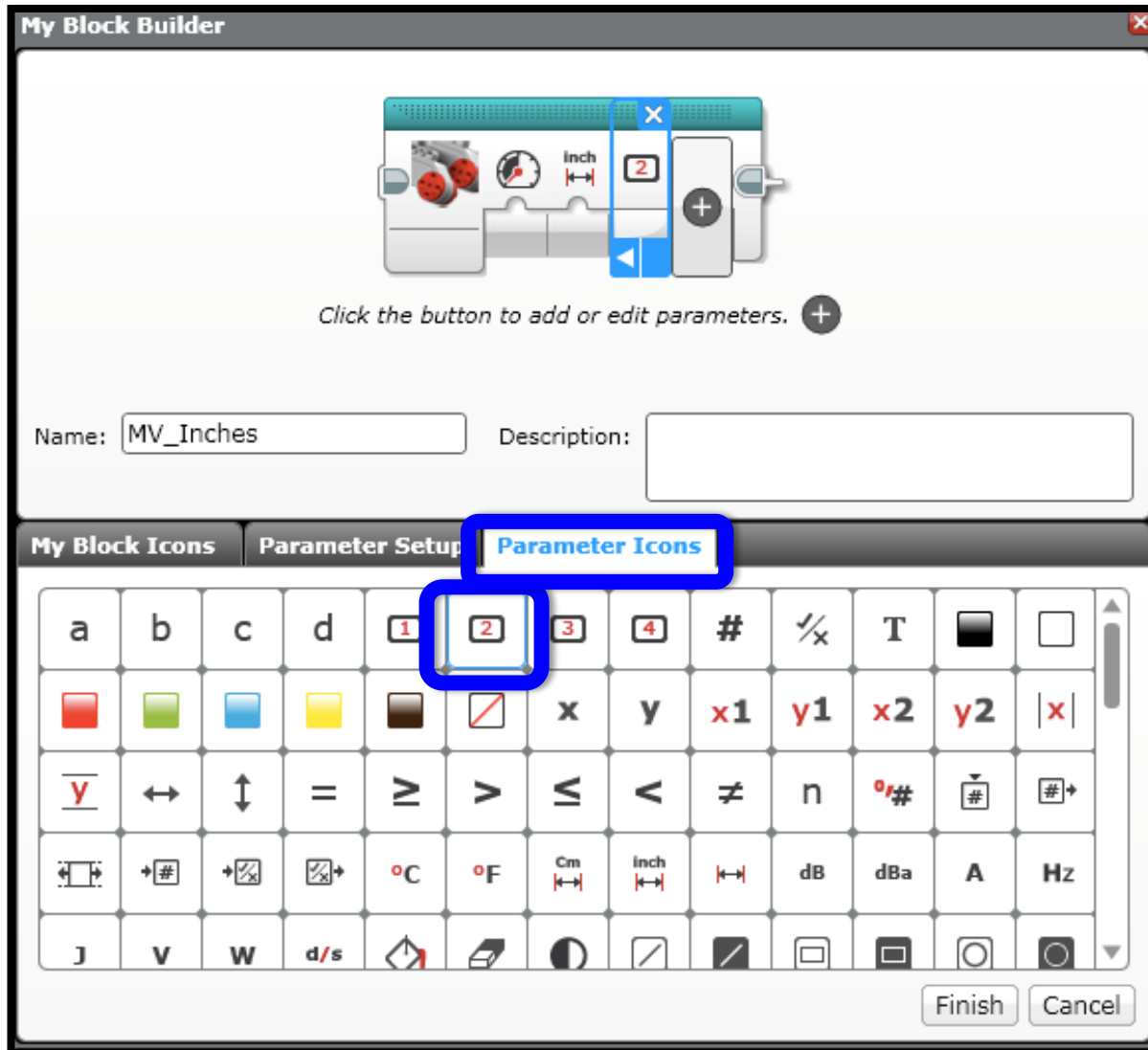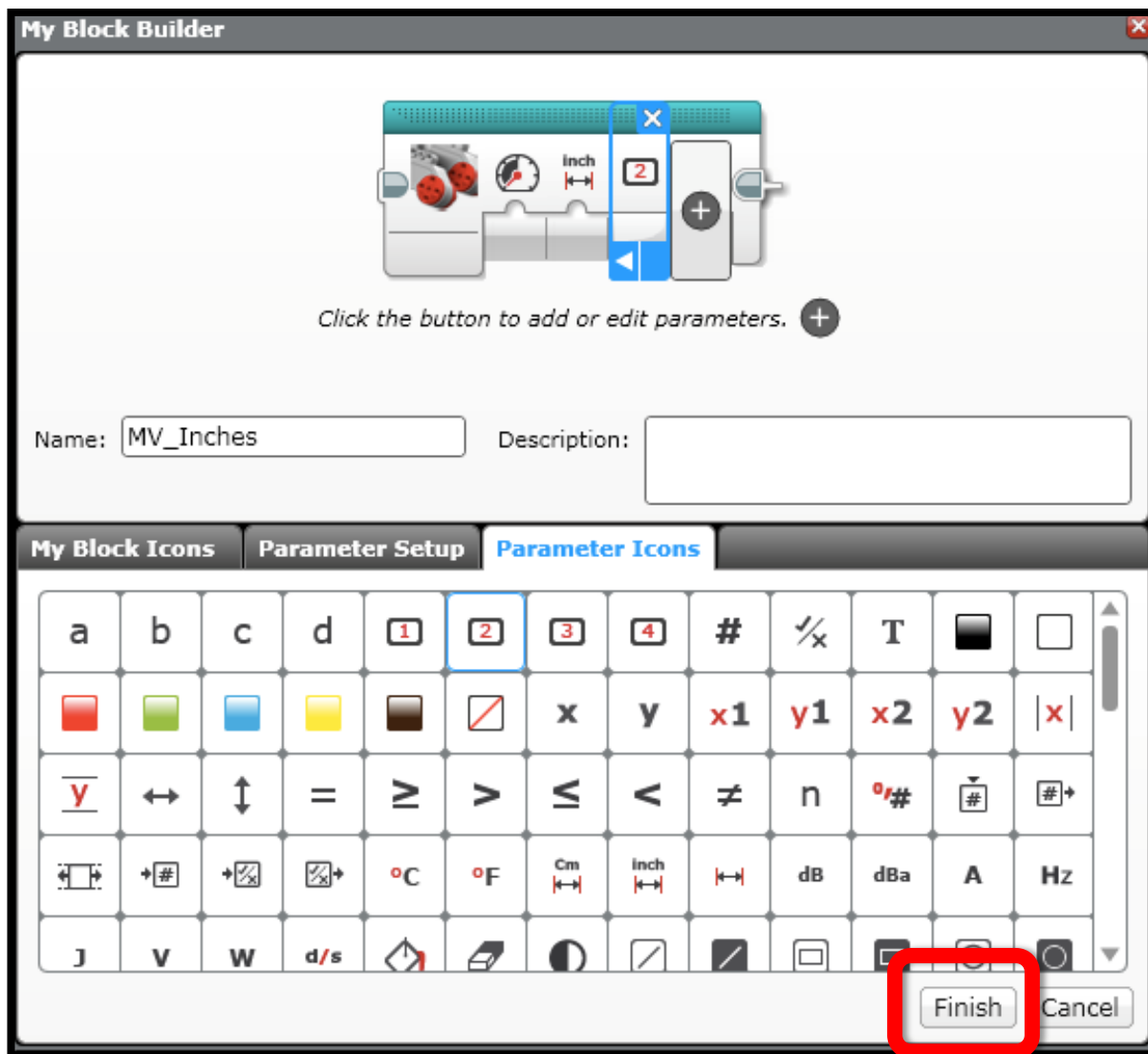
DEFINE OUTPUT PARAMETERS

If you have an output, define the parameters of the output now
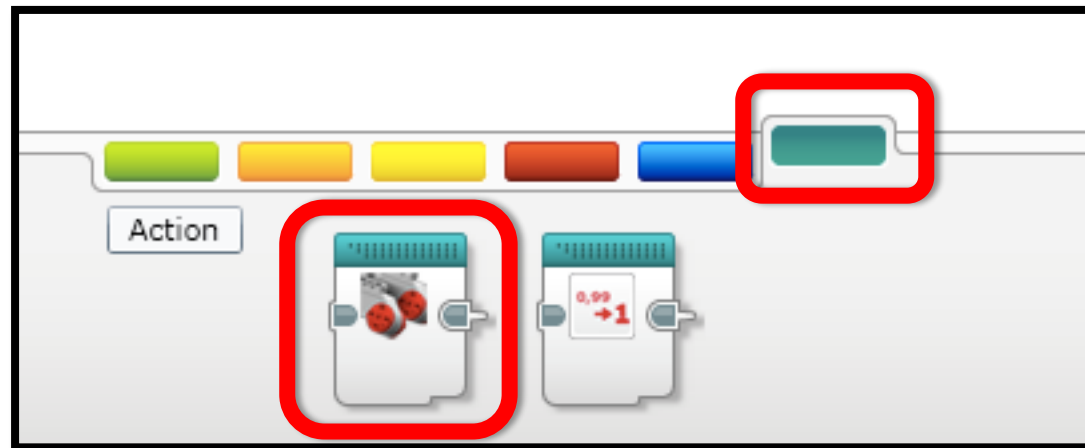
PICK AN ICON

CLICK ON THE FINISH BUTTON

MY BLOCK IN TURQUOISE TAB

You can use this new My Block in any of your code!

CREDITS

- **This tutorial was created by Sanjay Seshan and Arvind Seshan from Droids Robotics.**

- **More lessons are available at www.ev3lessons.com**

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