



# BadgerBOTics Camp

Building on Talented Students  
RoboLAB 2.9.3 Quick Sheet #1



## Windows and Palettes

### Startup:

Double Click the “Robolab 29”



On the opening window,  
select “Programmer”



**First Time Only:** On the “Administator”  
“Download Firmware”

Note: *NXT must be connected  
and powered on.*



### The Main Interface:

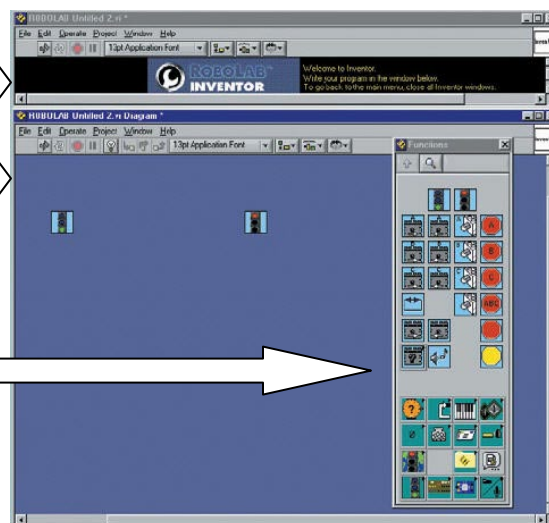
The upper window is the “Front Panel”, it may be “Minimized”, but not closed.



The bottom window is the “Block Diagram” or programming window. It may be “Maximized” to give you as much space as possible for laying out your program.



The Functions Palette contains all of your programming icons directly (upper portion) or in submenus (lower portion). There are only a few submenus that you will use on a regular basis.



## Tool Palette:

### **OPERATE VALUE tool**

Used to click on an icon in a palette, then click in the block diagram window to drop the icon. Also used to highlight and change text or numbers.



### **POSITION/SIZE/SELECT tool**

This tool will select, drop, drag to resize other windows that have text or numbers in them.



### **EDIT TEXT tool**

Highlight text or numbers for editing. VERY useful when you click somewhere off icons and start typing. This is how you add COMMENTS to your program to label what each section of the program is supposed to accomplish.



### **CONNECT WIRE tool**

Click to start a wire, click again to connect the other end of the wire. The program will execute icons in the order they are wired from start icon to end icon. Wires also connect modifiers to icons.



### **OBJECT SHORTCUT tool**

Right-clicking on icons opens a menu with options. This tool makes a left-click act the same way. You will frequently use the right-click menu to get to the REPLACE function to change an icon without having to re-wire it to its neighbors.



### **SCROLL WINDOW tool**

Moves what is visible in the block diagram window without shifting icons relative to each other.



## Function Icons:

### **MOTOR Icon**

Turns on full power to the motor plugged into the jack (port) that matches the letter on the icon.



### **STOP Icon**

Turns off the power to whatever is plugged into the jack (port) that matches the letter on the stopsign.



**IMPORTANT... also applies braking!**

### **COAST OUTPUTS Icon**

Turns off the power to ports, which ones are selected with modifiers, otherwise all of them shut off.



**IMPORTANT... motors coast to a stop!**

## Submenus:

### **WAIT FOR submenu**

The robot will continue whatever it is doing until what it is waiting for actually happens... only then will it move on.



### **MODIFIERS submenu**

Changes another icons input/output location from the default value to where the motor or sensor is actually connected to the NXT brick.



### **NXT COMMANDS submenu**

Many NXT specific icons are located here. Specifically the 4<sup>th</sup> input port modifier and the motor synchronization icon are on this submenu. More are on the STRUCTURES submenu.



### **STRUCTURES submenu**

Master dead-reckoning methods using only motors, wait fors, and stop signs then dive into this menu to create repeating LOOPS, decision making FORKS, and to learn how to create and use SUBROUTINES.

