Merry-Go-Round

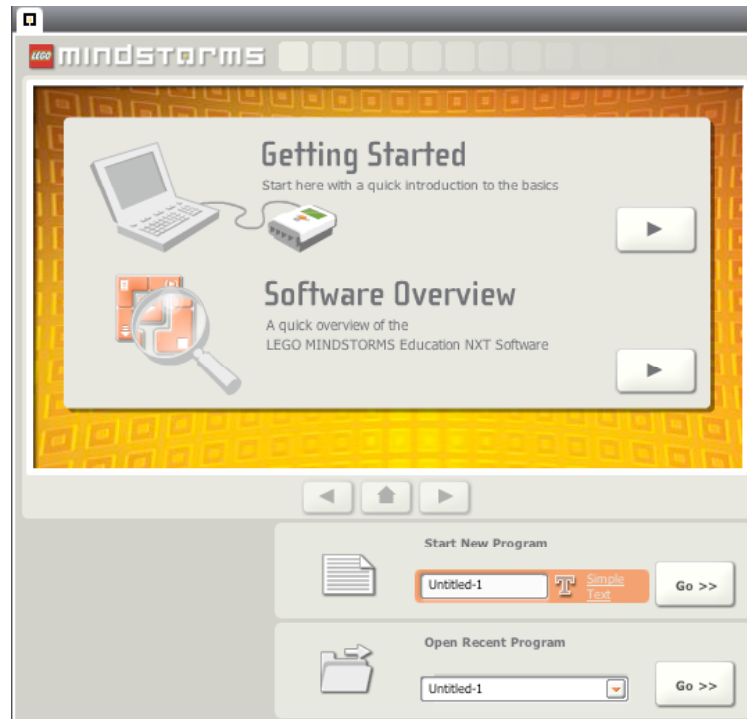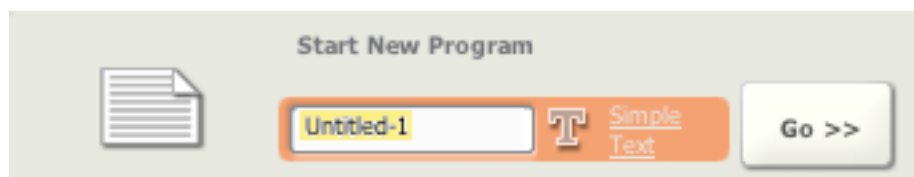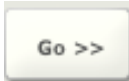**Programming Procedure:**

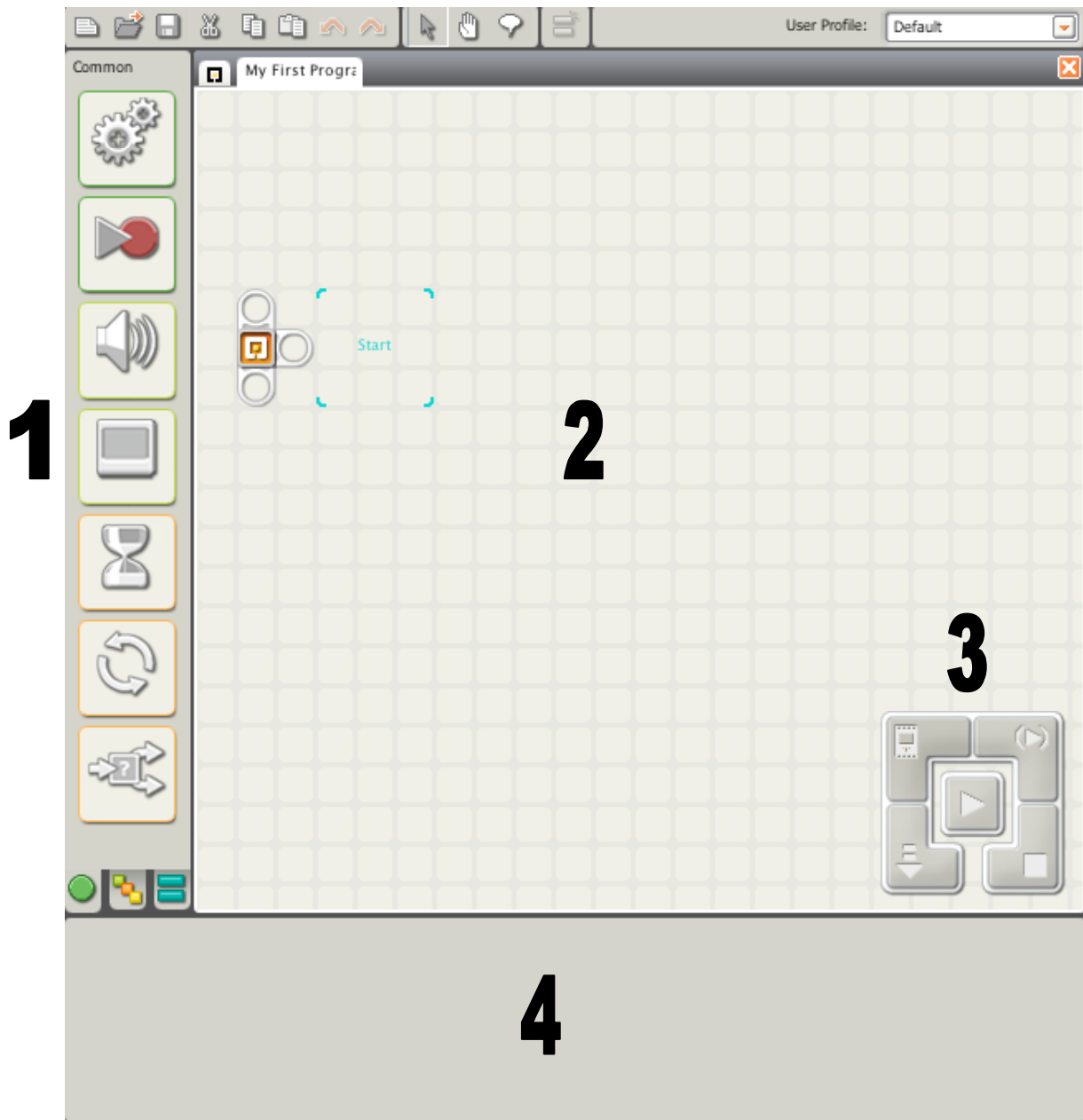> **Step 1:** Start the LEGO MINDSTORMS program. The menu below should appear.

> **Step 2:** In the MINDSTORMS NXT start screen, type into the orange *Start New Program* title box the name your program - *MerryGoRound*

> **Step 3:** Click the [Go >>] button to the right of the orange title box.

> **Step 4:** MINDSTORMS NXT should open the following screen, which is the main work area for your NXT programs.

Area 1: The Common Icon Palette.
Area 2: The NXT Workspace.
Area 3: The NXT Download Control.
Area 4: The Configuration Panel

Step 5: Select the Complete Palette icon ![icon] to reveal further programming block options.
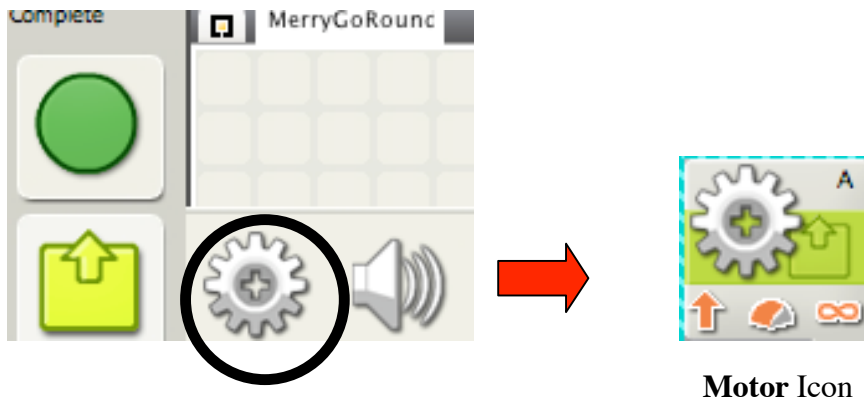
Step 6: Create a 3-icon program by selecting three **Motor** icons from the Complete Icon Palette and dragging it into the NXT workspace.

When adding programming icons to the workspace, place the first programming icon after the NXT start bar (pictured to the right). Each icon added into the program will follow the proceeding icon - forming a continuous line of icons.

NXT Start Bar

The **Motor** Icon is selected by clicking on the second icon ("Action") in the Complete Icon Palate.
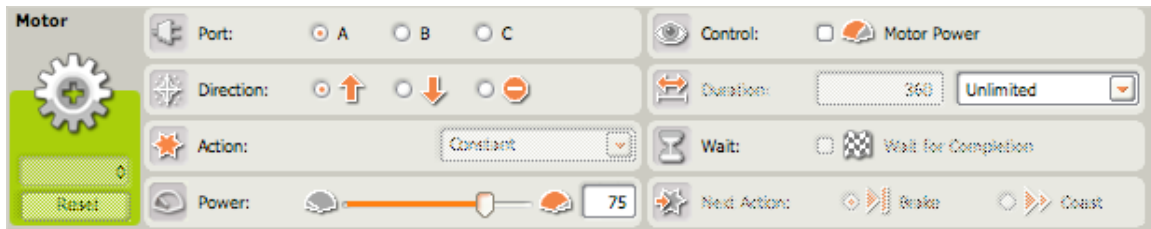
Motor Icon

Step 7: Add two more **Motor** icons to the program "MerryGoRound".

Your three-icon program "MerryGoRound should look the picture below

Step 8: Next, the 1ˢᵗ icon of the program needs to be configured to make your merry-go-round gradually increase its speed from the initial stopped position.

When you select the first **Motor** Icon, a corresponding Configuration Panel appears at the bottom of the screen.

Default Configuration Panel for the Motor Icon

The following chart shows the settings that are the default selections for the Motor icon's Configuration Panel
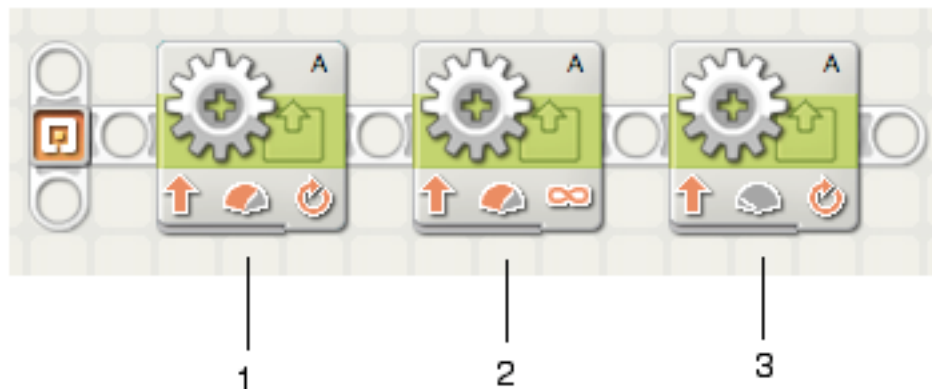
	Port:	A		Control:	☐ 🦪
	Direction:	⬆		Duration:	Unlimited
	Action:			Wait:	☐ 🏁
	Power:	75		Next Action:	

Chart form of the Default Configuration Panel for the Motor Icon

NOTE: Choosing specific settings will prevent you from modifying other areas. In the example above, you are unable to change the *Action or Next Action* settings unless the *Duration* is set to a finite amount.

Sample Configuration for MerryGoRound Program

In this program, a 1-motor LEGO merry-go-round gradually increases its speed, maintains constant speed, and then gradually decreases speed to a stop.

Icon #	Icon	Configuration			

1

Port:	A	Control:	☐ 🛇
Direction:	⬆	Duration:	15 Rotations
Action:	Ramp Up	Wait:	☑ 🏁
Power:	80	Next Action:	⊙ ▷▷ Coast

2

Port:	A	Control:	☐ 🛇
Direction:	⬆	Duration:	3 Rotations
Action:	Constant	Wait:	☑ 🏁
Power:	80	Next Action:	⊙ ▷▷ Coast

3

Port:	A	Control:	☐ 🛇
Direction:	⬆	Duration:	10 Rotations
Action:	Ramp Down	Wait:	☑ 🏁
Power:	0	Next Action:	⊙ ▷❙ Brake

Step 9: After writing and configuring your program, the next step is downloading the program to your NXT.

Step 10: Using the long adaptor cable in your NXT kit, attach one end to your NXT brick and the other end to a USB port on your computer.

Step 11: Turn your NXT brick on by pressing the **Select** (orange) button.

Step 12: Locate download control (in the bottom right corner of the NXT workspace) and click on the *Download* button.

Step 13: The 'Downloading to NXT…' window will appear. The program will be completely downloaded when this window disappears and the NXT brick beeps.

Step 14: To run your program, press the **Select** (orange) button on the NXT brick four (4) times.