1. Follow the directions in the book to build the robot. Start on page 8 and stop on page 22. However, make this change from the directions. Connect your motors to ports A and C on your robot.

2. Turn on your robot by pushing the orange button.

3. Push the orange button three more times, or until you see the word Copy.

4. Put the robot on the FLOOR and push the orange button twice.

5. The robot will move.

6. Pay close attention to the robot’s movements. How many movements or actions does the robot perform? What does the robot do in between actions?

7. Write each movement down.

8. Write your own program to make the robot do the exact same movements.

9. Open Robolab, open a new programming window, and name your program by following the directions below.

Open Robolab 2.9 by double clicking on the icon.

Click on Programmer.
Double click on Inventor 4.

Delete the green light – select the green light and press the delete button on the keyboard.

Use the SELECT tool to select the green light.
Replace old green light with NXT green light.
Click on the NXT green light and drop in program window.

Name the program - Use the text tool to select rbl. Delete rbl and type MyCopy.

10. Make your robot go forward using the following program.
Add the MOTOR A FORWARD and MOTOR C FORWARD commands and the STOP ALL OUTPUTS command. Make sure the motors on your robot are plugged into ports A and C on the robot.

Add the WAIT FOR ROTATION icon to your program.

Add the numeric constant, the motor speed, and the port (A) to the WAIT FOR ROTATION icon.
To add the pink wires, use the wire tool.

Click on the upper right of the green light. Then click on the upper left of MOTOR A FORWARD. Then click on the right side of MOTOR A FORWARD and the left side of MOTOR C FORWARD. Continue wiring until each icon is wired. You should see the arrow in the upper left corner of the programming window go from a broken arrow to a solid white arrow. This tells you that everything is wired.

11. Download your program to your robot by pushing the white arrow.
Change the distance that the robot will move by changing the number 1080. A larger number will make the robot go farther.

Download the program and run it again. What happens?

Change the speed of the robot by changing the power level from 2” to “5”. What happens?

Download the program and run it again. What happens?

Change your program to make your robot go forward instead of backward. Download the program and run it.

12. Make your robot spin around using the following program.

What’s the difference between this program and the previous one?

Can you make the robot spin faster? Can you make your robot spin around once? Twice? Three times?

Can you make your robot turn to the right?

Can you make your robot turn with only one motor?

13. Make your robot make sounds by using the following program.

You will find the PLAY SOUND icon here.
Use the OPERATE VALUE from the TOOLS PALETTE to select different sounds.

You can also have your robot play musical notes by selecting the MUSIC icon and selecting notes as shown below.

Select the notes from the MUSIC PALETTE
14. Run the program COPY that is on your robot again.

15. Use all of the things you have learned to get your robot to do the exact same movements.

16. Show your instructor or mentor both programs. Are they EXACTLY the same? If not, what's different?