

14

2 Bumps and Stop

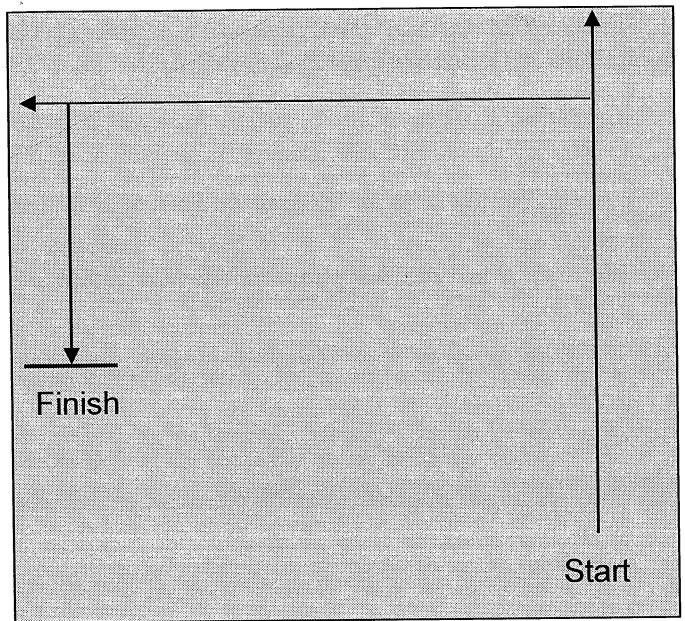
Mission: The robot will bump into one wall, turn left, bump into the next wall, and then stop when it senses a dark line under it.

Equipment: White table top or playing field.
Blue or green masking tape to make a line

Sensors: Touch and Light

Directions: Attach the light sensor facing down and the bump sensor facing forward.

Adjust the light sensor so it is at least two pennies above the surface.



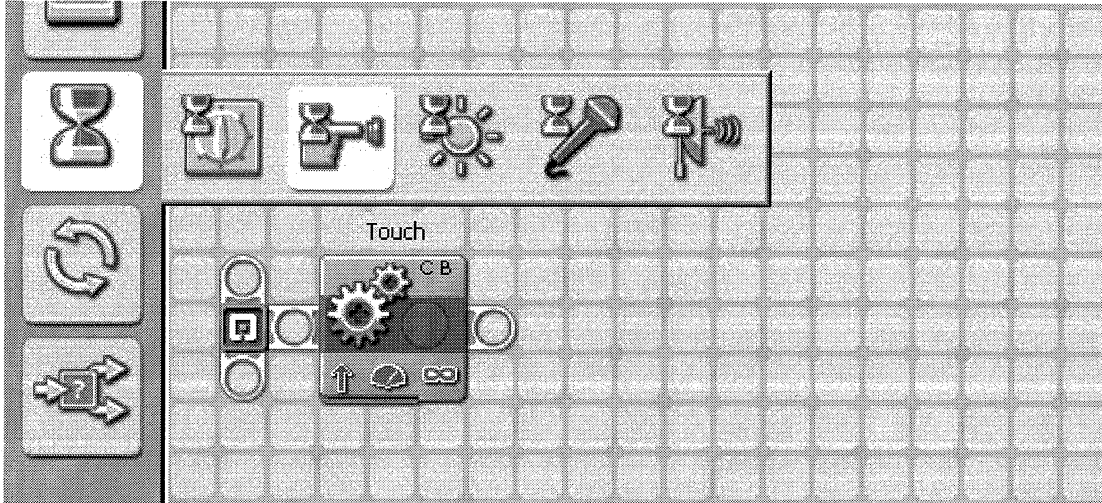
Light sensor reading on white	Light sensor reading on tape

1. Place a move block and set it to unlimited.

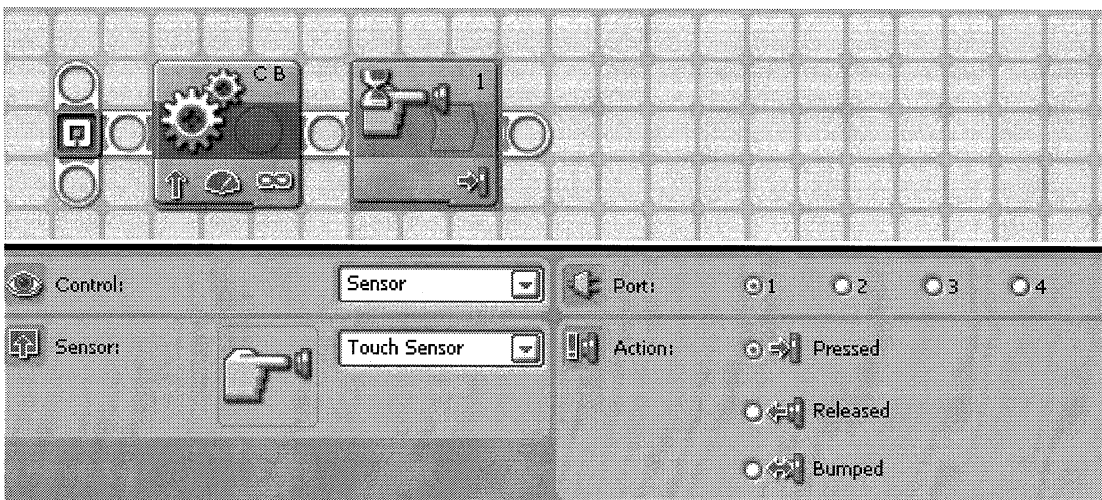
This makes the robot go forward until it is told to do something else by a wait block.

The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.

2. Place your cursor over the wait block symbol and then click on the touch block. It looks like a finger touching a button.



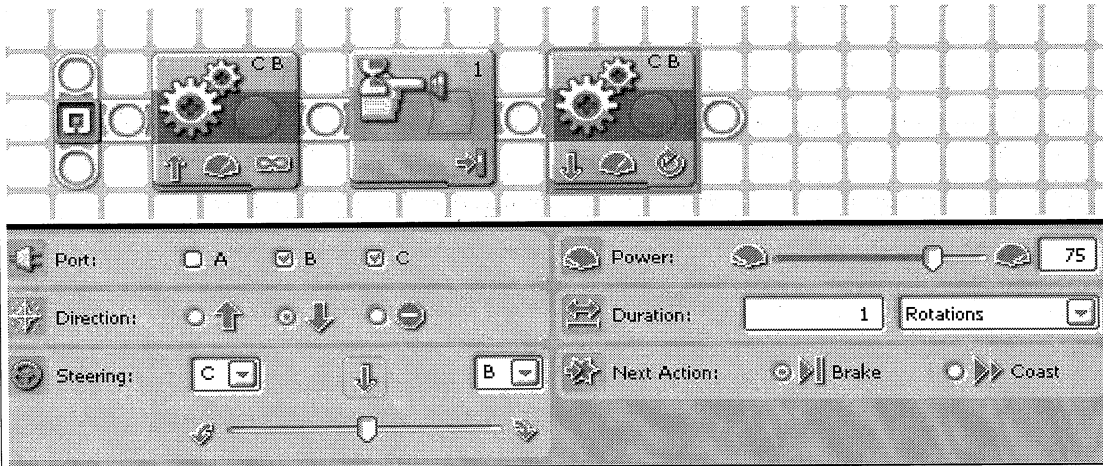
3. Place the wait block. Notice it is set to port 1 (see it on the middle right side of the illustration). You can change it or leave it as it is.



The touch block will stop the unlimited rotations of the motors from the move block when something presses the touch sensor for longer than 1 second. The motors will keep turning until the 1 second is up.

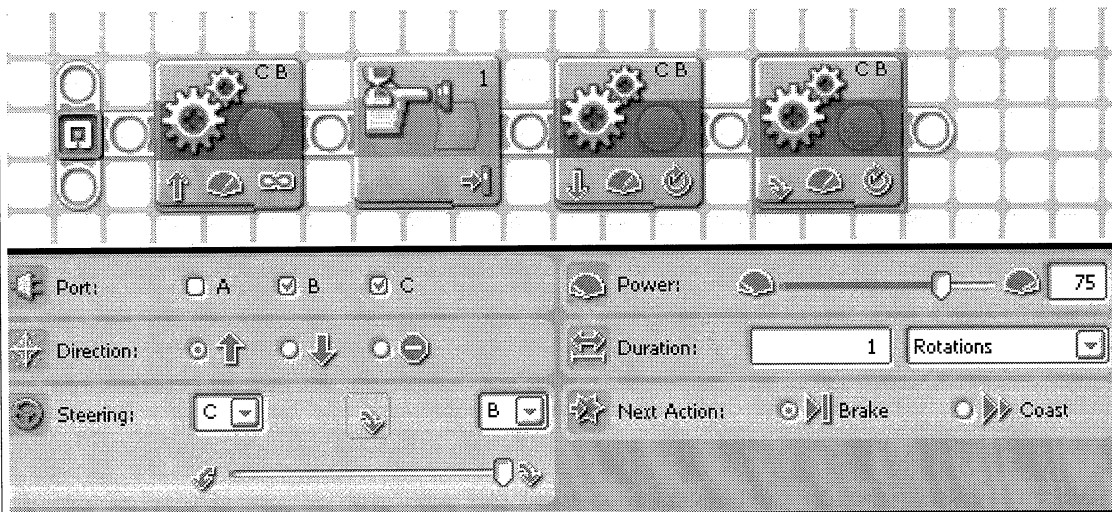
**The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.**

4. Place a move block and set it to reverse and leave it at one rotation.



This will make the robot back up so that when it turns, it will not hit anything and mess up the accuracy of the turn.

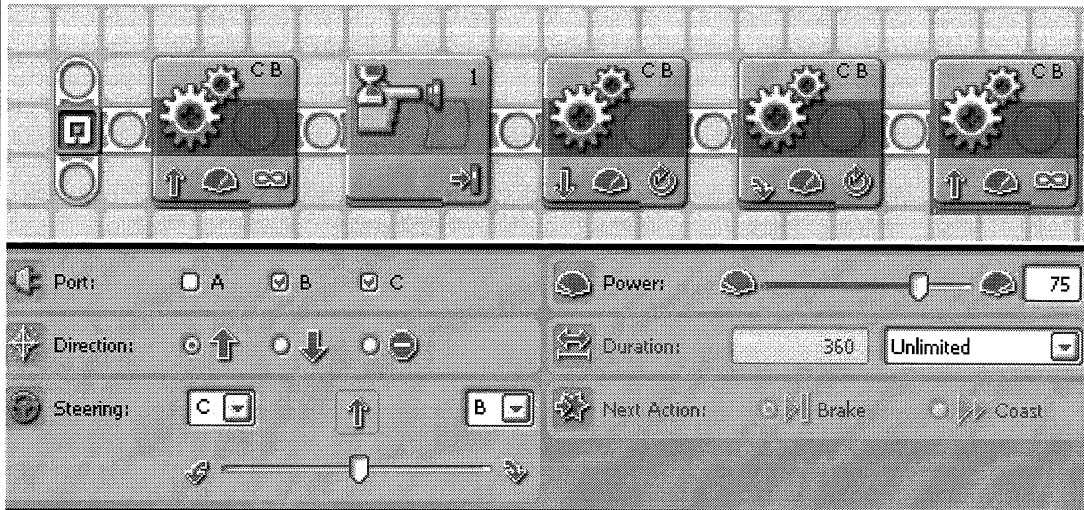
5. Place a move block and slide the steering bar all the way to one side or the other.



This makes the robot turn in one place by making one wheel turn forwards and the other wheel turn backwards.

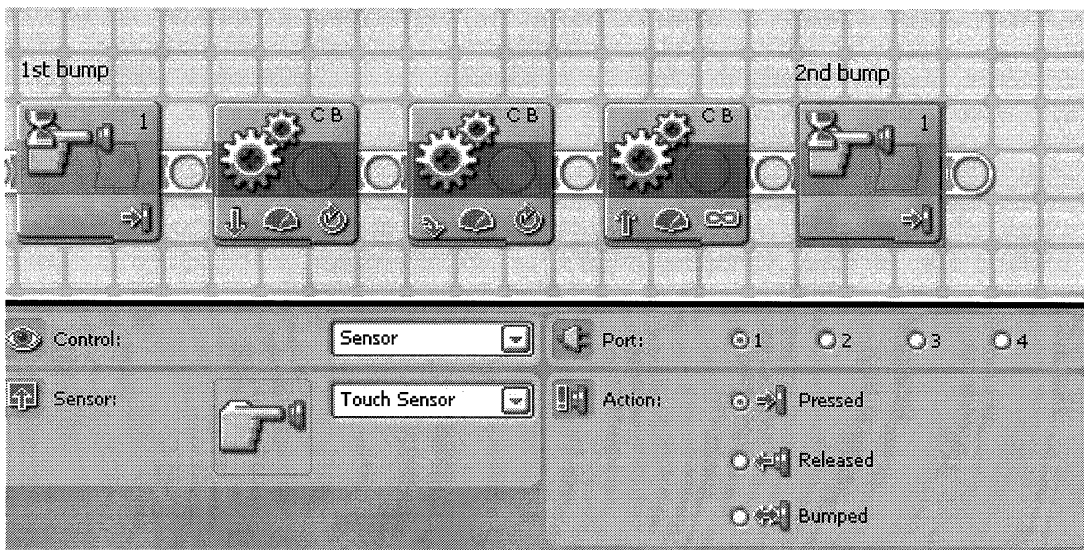
**The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.**

6. Place a move block on the program bar and set it to unlimited.



This makes the robot go forward until it is told to do something else by a wait block.

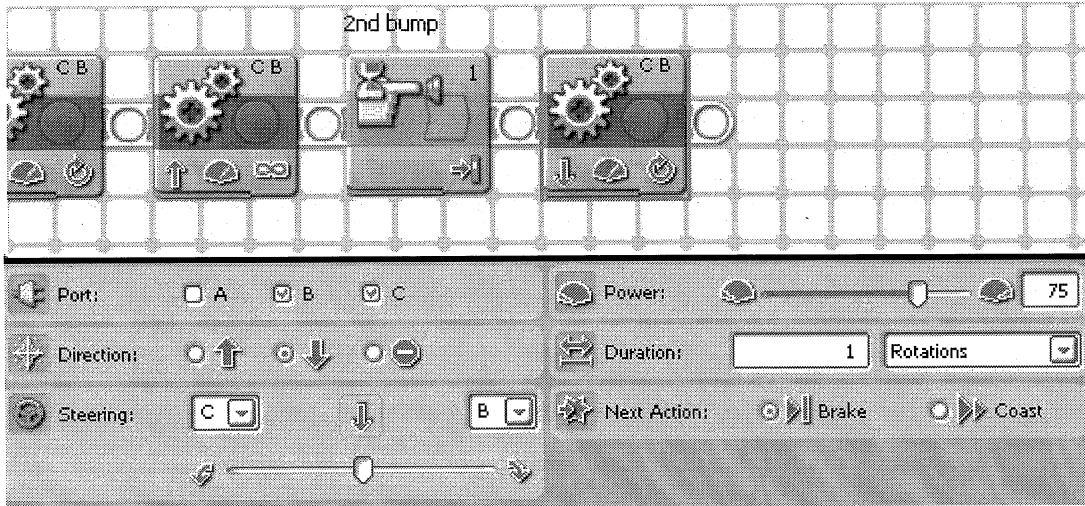
7. Place another touch block and leave it set to port 1.



It is better to set up the sensors so they use the default ports whenever possible so that you will never accidentally forget to change one of the ports and wonder why your program is not going correctly.

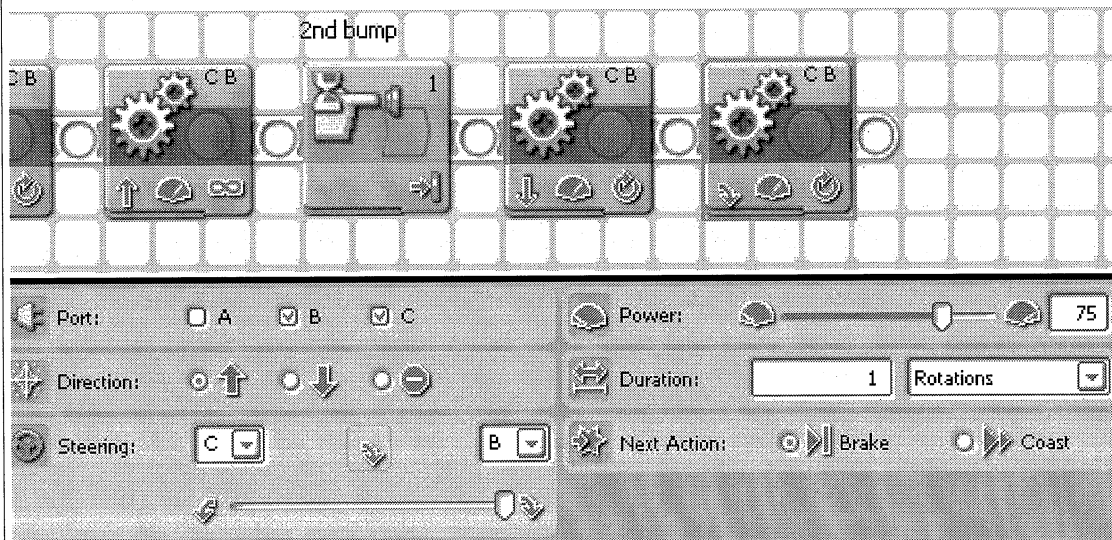
**The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.**

8. Place a move block on the line and set it to go in reverse for one rotation.



This is again to make the robot back up so that it will not hit the wall when it is turning.

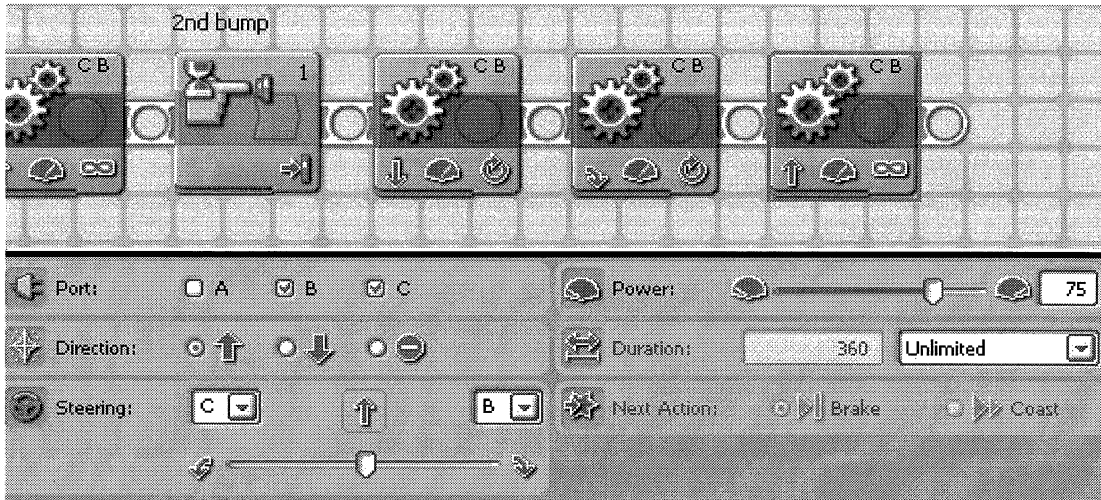
9. Place a move block on the line and set the steering all the way to the side like you did in step 5, Set it to the same side as you did before.



This makes the robot turn.

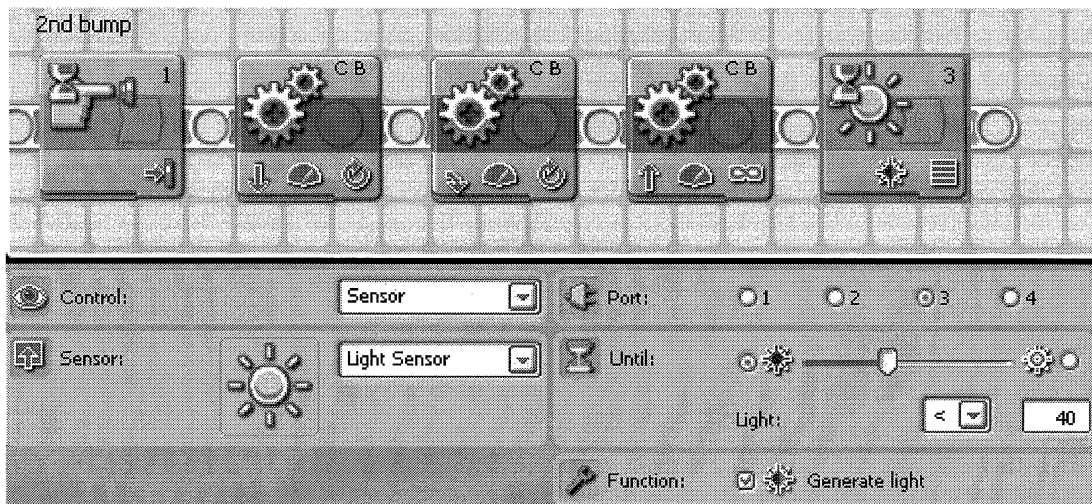
**The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.**

10. Place a move block and set it to unlimited again.



This makes the robot keep going forward until the next wait block tells the robot to move on to the next block in the program.

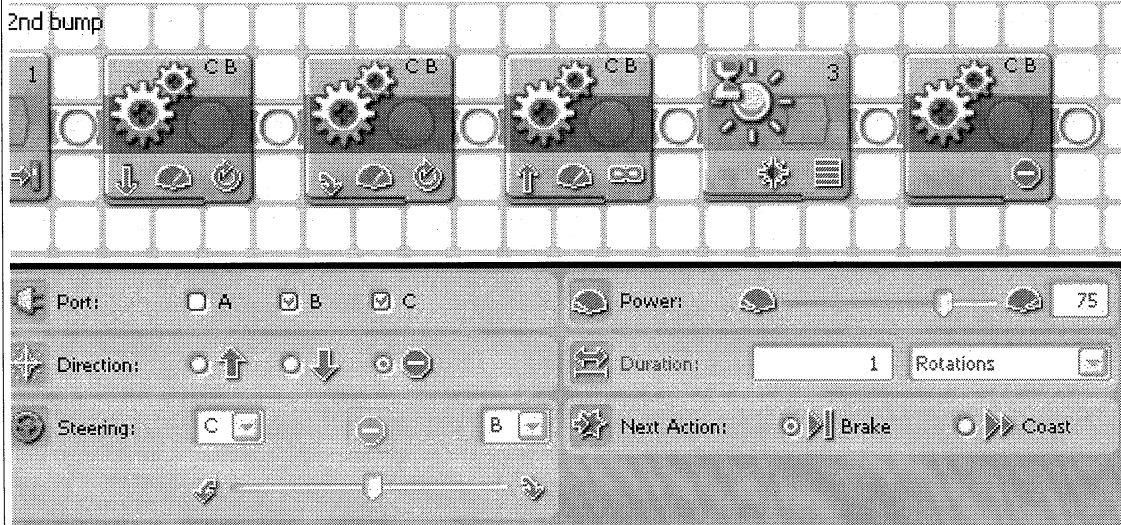
11. Put the cursor over the wait block and pick a light sensor. As you can see, it looks like a sun shining. Place it on the program bar. Set it to less than and 40 or so.



It is best to set the light sensor to about 5 points less than the reading on the white paper. That gives the sensor a little leeway on any differences of the lighting so it won't accidentally trigger the next step when you don't want it to be triggered.

**The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.**

12. Place a move block on the line and set it to stop. You do that by clicking the little radio button on the lower left side by the reverse button.



This block stops the turning of the wheels. It is like putting on the brakes of a car or bike.

**The purchaser has a site license to use and copy these materials only at a single school.
Copyrighted material. Mindstorms Made Easy by Karl B. Peterson.**