

**In the Classroom:**

**Grade Level:** 3-8

**Building Skills:** Turns

**Time:** 45 min

**Programming Skills:** Light sensors

## **Line Follower**



*Make a car that can follow a line.*

### **Challenge**

In this activity, design and construct an NXT car and program it to be able to closely follow a line. Don't let your car stray from the road by using light sensors only.

### **Materials**

- NXT car that can turn
- Solid colored floor
- Tape opposite color of floor

### **Skills Learned**

Learn the to build turning wheels and to program turns with light sensors.



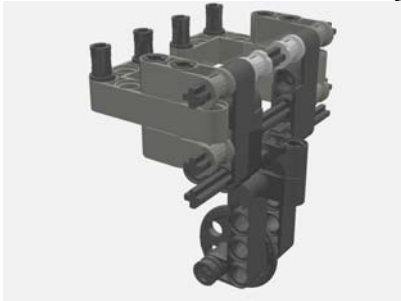
## Procedure

### Building

1. Build a front wheel assembly containing both a light sensor and a wheel capable of turning.



2. Make sure the wheel has a good turning radius.



3. Attach the light sensor and wheel to the front of the NXT car. Wire the light sensor to an input and the motors to the outputs.



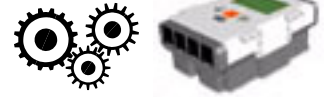
### Hints

Using a skid plate instead of two front wheels helps reduce friction.

Friction reduction allows for ease in turning.

Gearing down will slow down your car and make tighter turns.

The light sensor should be facing down and as close to the floor as possible.



## Programming

1. Choose whether to use ROBOLAB or the LEGO NXT Software to program (follow steps 2 & 3 for ROBOLAB; follow steps 4 & 5 for LEGO NXT Software).

2. Using ROBOLAB INVENTOR 2, program your car to follow a line using a light sensor.



3. Using the LEGO NXT Software, program your car to follow a line using a light sensor. First set to wait for dark.



4. Second, set to wait for light.

