Tufts | Center for Engineering
UNIVERSITY | Education and Outreach

Find the Hidden Letter - RCX

|	
Suggested Time	60 minutes
Age	8 - 13
Challenge	In this activity, use an RCX car equipped with a light sensor to determine the hidden letter (under a table or in another room). The letter will be determined using light sensor collected data on 3 passes over the letter.
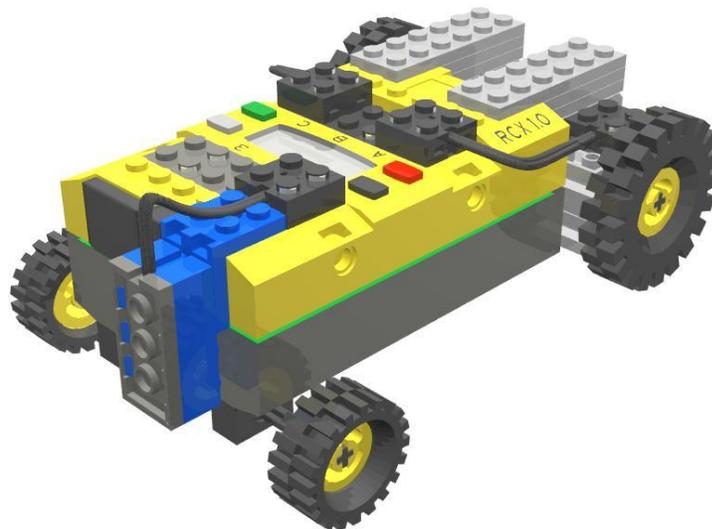
Topics	Gears, Graphing, Data Collection & Analysis
Subjects	Math & Science
Programming Themes	Light Sensor Data Collection
Related Math & Science Concepts	• Gears
Materials	• RCX Car • Light Sensor • Printout of a letter OR tape to draw a letter

**Tufts** UNIVERSITY | Center for Engineering Education and Outreach

Building Instructions

1. Build an RCX car equipped with a light sensor. Make sure that the car drives as straight as possible. You may want to gear the car down.
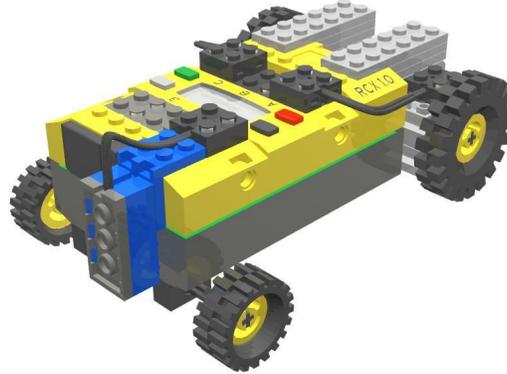

Programming Instructions

1. Using ROBOLAB INVESTIGATOR, program the RCX to collect light readings for a given period of time (you may have to tweak the number of readings and the time the car travels).
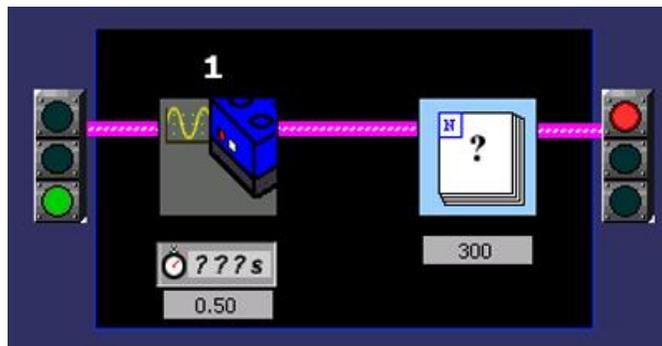
2. Collect and upload your data. Plot your results.
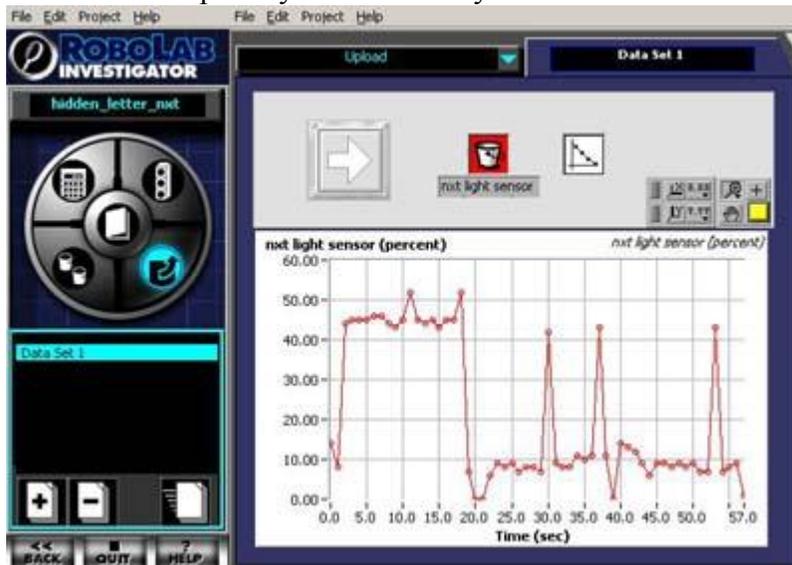
Classroom Management

1. Students should be introduced to INVESTIGATOR before doing this activity.
2. Hide a letter in another room or under a table.
3. Each student or team of students should have an RCX car with an attached light sensor. The light sensor should be pointing down and as close to the floor as possible.
4. Program the car in Investigator (Level 2) to collect light data while it drives forward. The car should drive slowly. It is helpful if the car is geared down.
5. Each student or team will take several passes at the letter. They should keep track of where they start the car each time they take data.
6. After each trial, data should be uploaded from the RCX (in the Upload Area of Investigator).
7. With each attempt, students should get a clearer idea of which letter the car is driving over.
8. Run through an example letter with the class so that they understand how to read the graphs to "find" the letter.
9. Have each student or team, tell which letter they think is hidden and explain, with the help of their graphs, their rationale.