

## 5.2B Investigating Light Brightness using LEGO NXT Software.

Data Logging light brightness change using a light sensor on a car

### Aim

To see how bright the light from a torch is as you move away from it in a dark room.

### Equipment

a torch (preferably the one you made)  
metre rule  
A car (such as LEGO Mindstorms NXT)  
Light Sensor attached to car  
Software for examining data



### Sample Method (using NXT Software)

#### Programming

##### With a Car

1. You can build a simple car (*See 5.2C Make a Single motor car*)
2. Use Mindstorms NXT Data logging Experiment (*sample screen shown*) to read the Light sensor on Port 1 and to collect light data for 5s sampling 5 per second. Download the program.
3. Go to “Create a Data logging Program” in the Tools Menu. This will set up a data logging block in the program mode.
4. Create a program for the car to move away from the torch for 5s while it is datalogging (*Sample program shown*).



#### Experiment

4. Set up the Torch in as dark a room as possible (e.g. on the floor of a back room) or use a blanket over some desks.
5. Start with your car and Light Sensor (pointing at the light) close and run away from the torch. It should run for 5 seconds to go into the darker area.
6. When complete upload the data to your computer and analyse. If it's not smooth you could run it again and upload another dataset.

## Results

Go to data logging window and upload the results. (You can do it more than once).  
Draw a sketch of the graph here:

What does the graph show about the light changing?

Sample graphs

