5.2 Investigating Light Brightness.

Experiment 1 Inside and Outside Investigations

Equipment

Lux(light) meter or light sensor attached to a data logger

(See the last page for light meter possibilities)

Questions

Inside

Where is the brightest spot in the room?
What's the darkest spot in the room?
Turn the lights on does it make much difference?

Outside

How does inside light compare to outside?
Where is the sun brightest?
Does different times of the day make a difference?

Experiment 2 Light brightness and distance (Alternative see 5.2B Data logging Use LEGO NXT Software)

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

Equipment

Torch
metre rule
Light Meter or Light Sensor and data logger

Car Option (Build a LEGO Car with a light sensor attached: See ***Data logging the light using a light sensor on a Car*** next page.)

Experiment

1. 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.
2. Start with your Light meter or sensor (pointing at the light) close to the light (10 cm away. If you have a light meter record reading.

If you have a sensor and data logger, run it for 10s and slowly move away at an even rate to the end of your dark area.

3. For a light meter continue recording data at 10cm intervals up to 2metres.

Results

Distance/ time									
Light Reading									

Draw a line graph (light reading on Y axis and distance on X axis)

a. What does the graph show about the light changing as you move away?

b. Is there limits to the brightness and darkness of the light?

c. How would the graph change with a brighter source of light?

Light Meter possibilities:

Lux Meter App for Iphone, Ipad (some free)

Light meter from Electronic stores
(e.g. Digital Light Meter Jaycar $50)

Light Sensor with Data logger
(e.g. Serrata: Data Harvest VU Logger $330, Vernier GO Link and Light Sensor $200)

LEGO equipment with Light Sensor
(e.g. MTA or Moore Education NXT Mindstorms ~$500)