

# Light intensity survey

Light Meter apps are available for Android and Apple devices.

To measure the levels of light in a particular area, we need to use a device called a Light Meter, which measures the intensity of light in the vicinity of the sensor and displays the reading.



When measuring light intensity (or illuminance) in an office or classroom environment, we need to place the light meter on the **working plane**, which in this case is the level of the desks or worktops.

In order to get an accurate assessment of the lighting in a large area, such as a classroom, we need to take multiple readings on the working plane.

Natural light (or daylighting) levels constantly change, so accurately measuring light intensity can be very difficult, therefore in order carry out the survey successfully, we would take readings from different points in the room at the same time.

As the level of natural light is likely to change as you're taking the readings, you should repeat the survey several times and take the averages.

1 Measure the room where you want to carry out the light survey.

2 In the grid below, draw a rough floorplan of the room, including any windows, other sources of light and where you're planning to take the light readings. **Each block below should typically represent 1m<sup>2</sup> of the room.**



3 Place the light meter at a distance of 1m from the main source of light (window), and take down a reading on the table sheet provided. Then move the light meter to 2m from the window and take another reading. Repeat this process until you've reached the opposite wall.

4 Two sets of readings should be taken:

- Blinds/curtains **OPEN** and lights turned **OFF**, to represent **natural** lighting
- Blinds/curtains **CLOSED** and lights turned **ON**, to represent **artificial** lighting

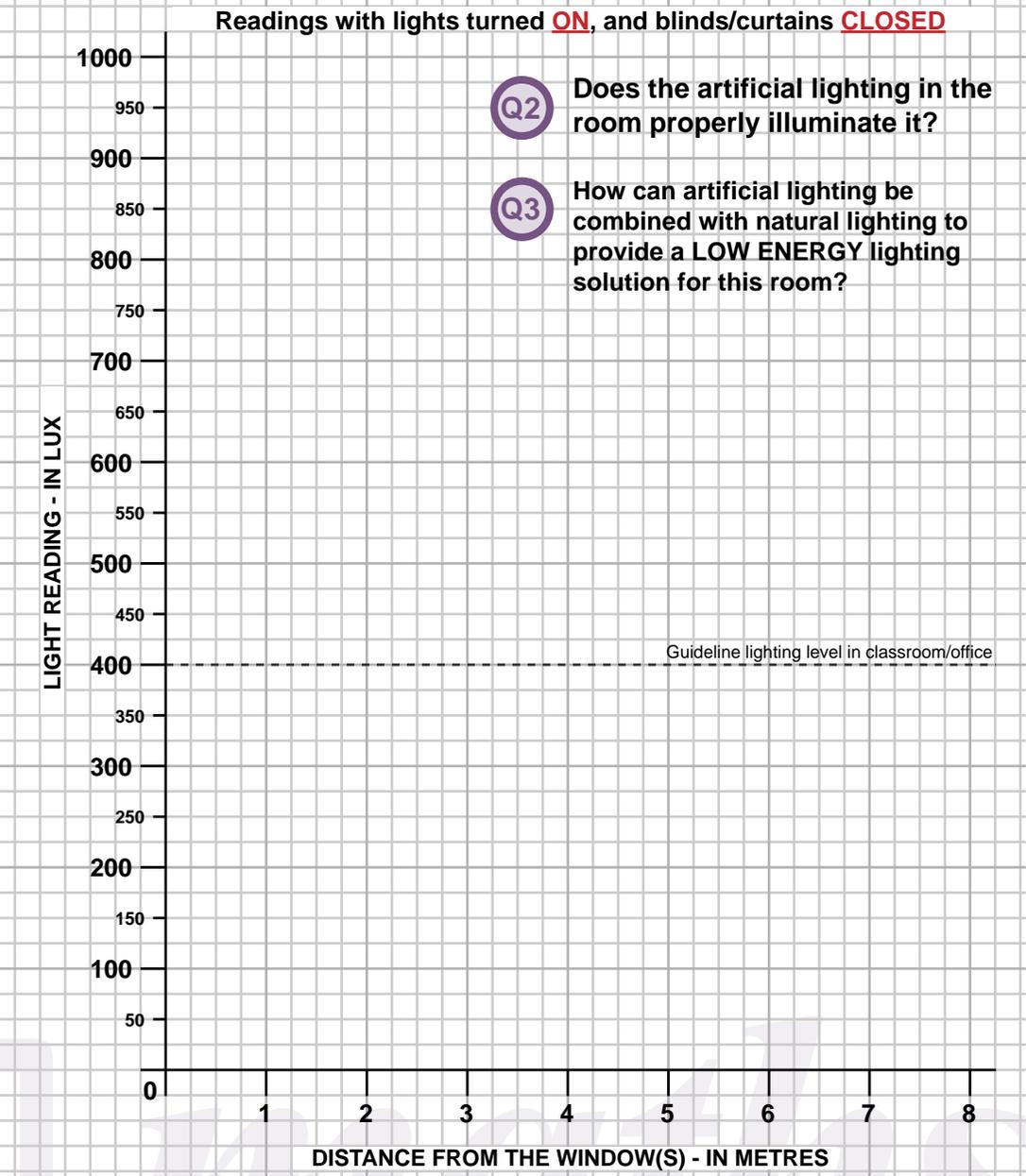
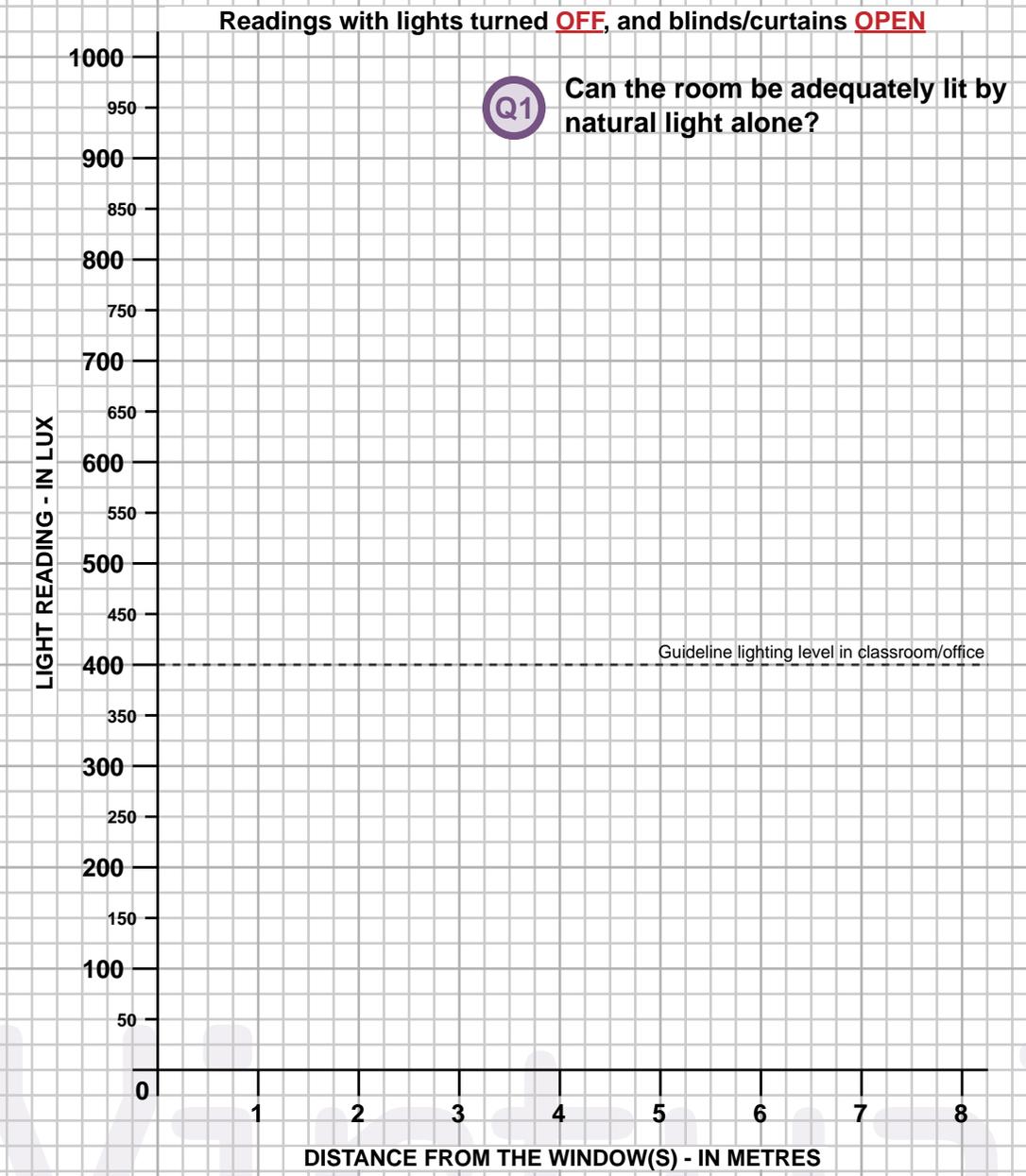
Distance from window(s) (in Metres)	BLINDS/CURTAINS <u>OPEN</u> LIGHTS <u>TURNED OFF</u> Light Reading (in LUX)			BLINDS/CURTAINS <u>CLOSED</u> LIGHTS <u>TURNED ON</u> Light Reading (in LUX)		
	READING 1	READING 2	AVERAGE	READING 1	READING 2	AVERAGE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Distance from window(s) (in Metres)	BLINDS/CURTAINS <u>OPEN</u> LIGHTS TURNED <u>OFF</u> Light Reading (in LUX)			BLINDS/CURTAINS <u>CLOSED</u> LIGHTS TURNED <u>ON</u> Light Reading (in LUX)		
	READING 1	READING 2	AVERAGE	READING 1	READING 2	AVERAGE
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Distance from window(s) (in Metres)	BLINDS/CURTAINS <u>OPEN</u> LIGHTS TURNED <u>OFF</u> Light Reading (in LUX)			BLINDS/CURTAINS <u>CLOSED</u> LIGHTS TURNED <u>ON</u> Light Reading (in LUX)		
	READING 1	READING 2	AVERAGE	READING 1	READING 2	AVERAGE
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						

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5 Plot the readings you've taken on the graphs below and compare the results.



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This table shows some general guidelines for lighting levels in different spaces.

**Q4** Take some averages of the readings you've taken, do they match the guideline levels shown here?

Standard maintained illuminance (lux)	Characteristics of activity/interior	Representative activities/interiors
50	Interiors used rarely, with visual tasks confined to movement and casual seeing without perception of detail	Cable tunnels, indoor storage tanks, walkways
100	Interiors used occasionally, with visual tasks confined to movement, and casual seeing calling for only limited perception of detail	Corridors, changing rooms, bulk stores, auditoria
150	Interiors used occasionally, with visual tasks requiring some perception of detail	Loading bays, medical stores, switchrooms, plant rooms
200	Continuously occupied interiors, visual tasks not requiring perception of detail	Foyers and entrances, monitoring automatic processes, casting concrete, turbine halls, dining rooms
300	Continuously occupied interiors, visual tasks moderately easy, i.e. large details > 10 min. arc and/or high contrast	Libraries, sports and assembly halls, teaching spaces, lecture theatres, packing, gymnasium
500	Visual tasks moderately difficult, i.e. details to be seen are of moderate size (5-10 min. arc) and may be of low contrast; also colour judgement may be required	General offices, engine assembly, painting and spraying, kitchens, laboratories, retail shops, classrooms
750	Visual tasks difficult, i.e. details to be seen are small (3-5 min. arc) and of low contrast; also good colour judgement may be required	Drawing offices, ceramic decoration, meat inspection, chain stores, laboratories
1000	Visual tasks very difficult, i.e. details to be seen are very small (2-3 min. arc) and can be of very low contrast; also accurate colour judgements may be required	General inspection, electronic assembly, gauge and tool rooms, retouching paintwork, cabinet making, supermarkets
1500	Visual tasks extremely difficult, i.e. details to be seen extremely small (1-2 min. arc) and of low contrast; visual aids and local lighting may be of advantage	Fine work and inspection, hand tailoring, precision assembly, hair salon
2000	Visual tasks exceptionally difficult, i.e. details to be seen exceptionally small (<1 min. arc) with very low contrasts; visual aids and local lighting will be of advantage	Assembly of minute mechanisms, finished fabric inspection

**Adapted from:**  
*Environmental design CIBSE Guide A* (London: Chartered Institution of Building Services Engineers) (1999)

**Originally from:**  
*Code for interior lighting* (London: Chartered Institution of Building Services Engineers) (1994)

