

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 to 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 that you would like to carry out the light survey in, and draw a rough scale floorplan on the grid provided (see next page) Each square on the grid could represent 1m^2 . An additional grid sheet is attached for larger rooms.
- 2 On the drawing, you need to sketch a grid of where you will be taking readings from in the room. To get accurate results, this should be at 1m^2 intervals.
- 3 As you're taking the readings, write them in the correct place on the drawing.
- 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**

Light intensity survey (contours)

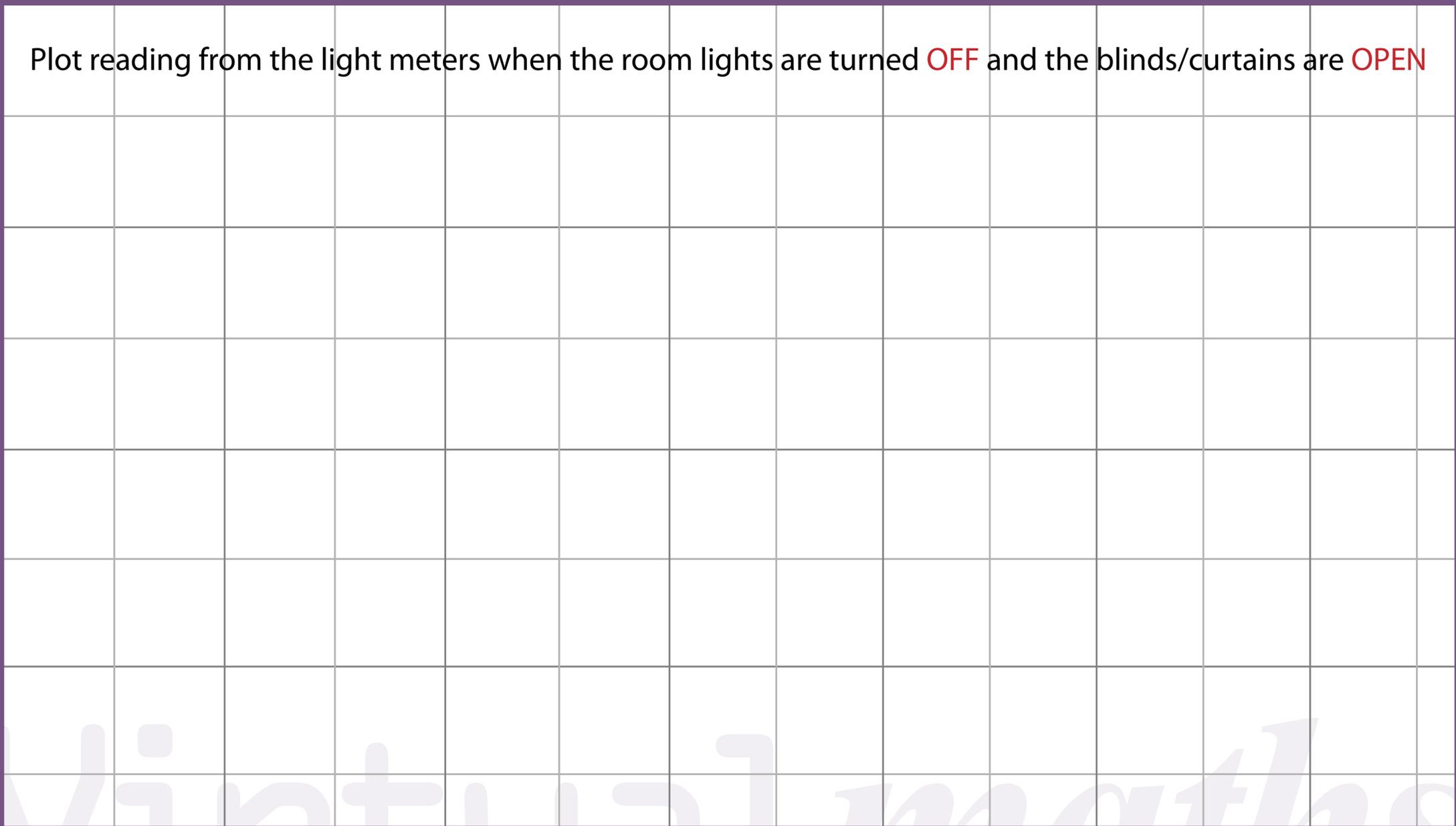
Scale:

___ block(s) = ___ m²

Virtualmaths

www.virtualmaths.org

Plot reading from the light meters when the room lights are turned **OFF** and the blinds/curtains are **OPEN**



Light intensity survey (contours)

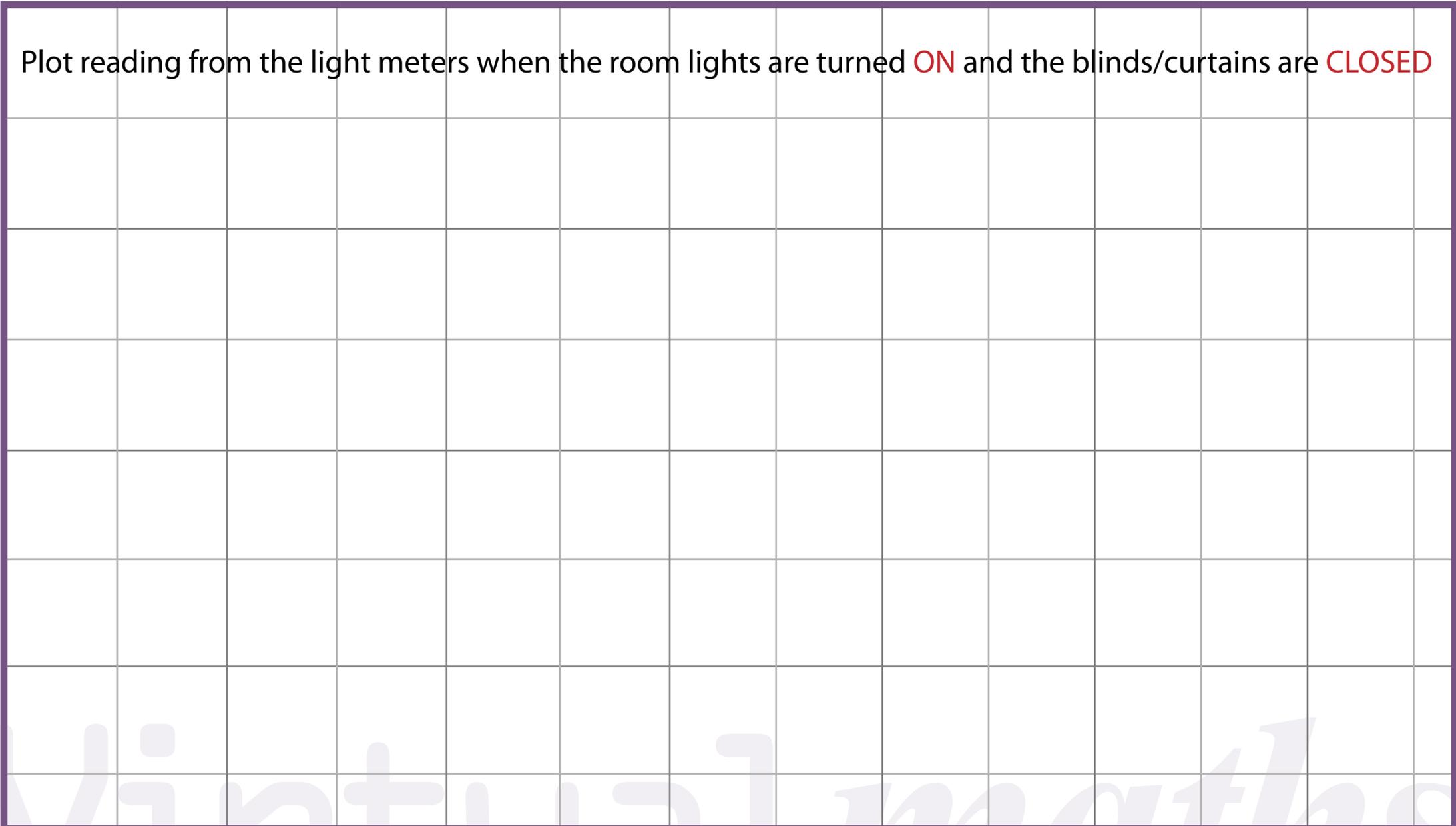
Scale:

___ block(s) = ___ m²

Virtualmaths

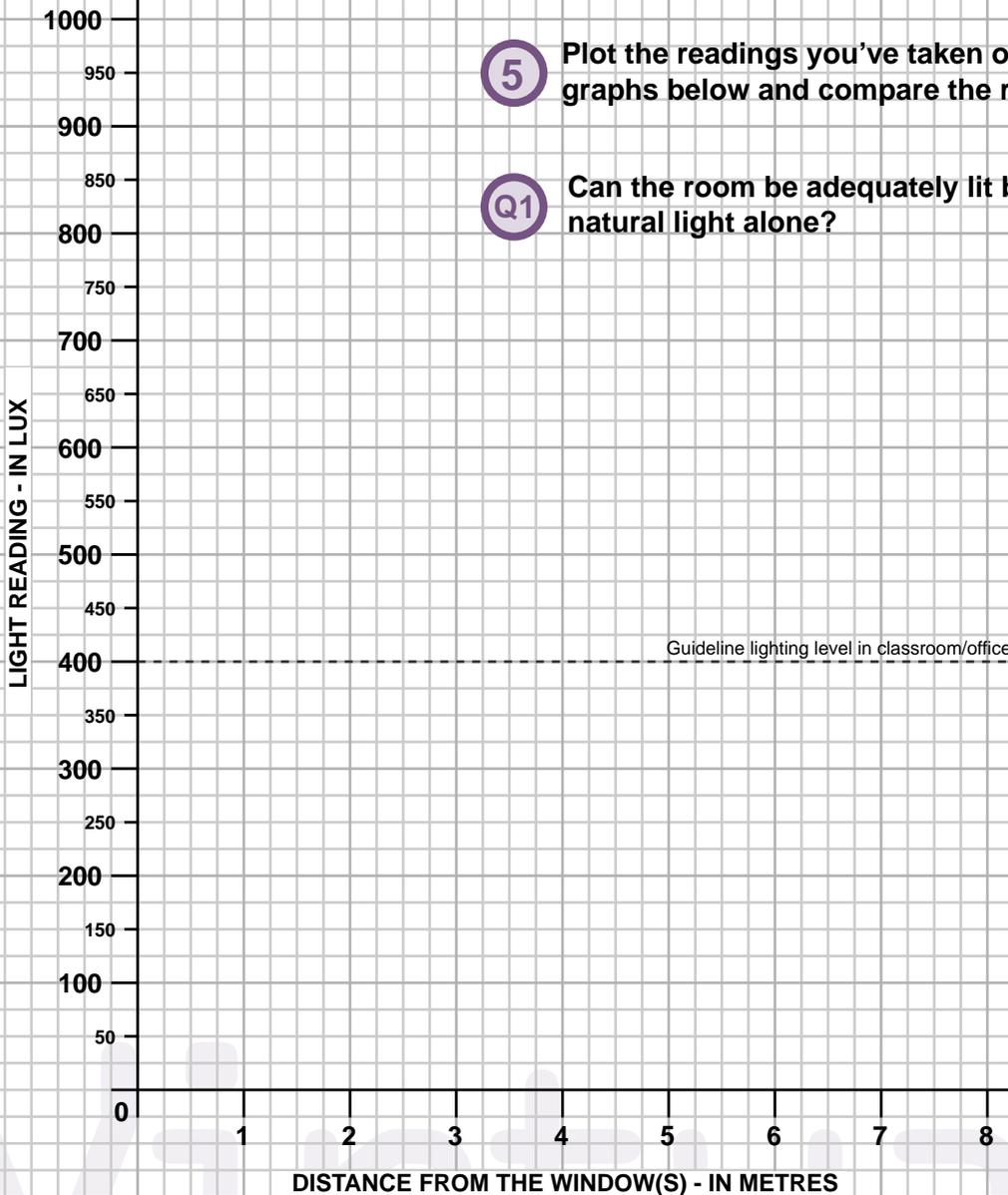
www.virtualmaths.org

Plot reading from the light meters when the room lights are turned **ON** and the blinds/curtains are **CLOSED**

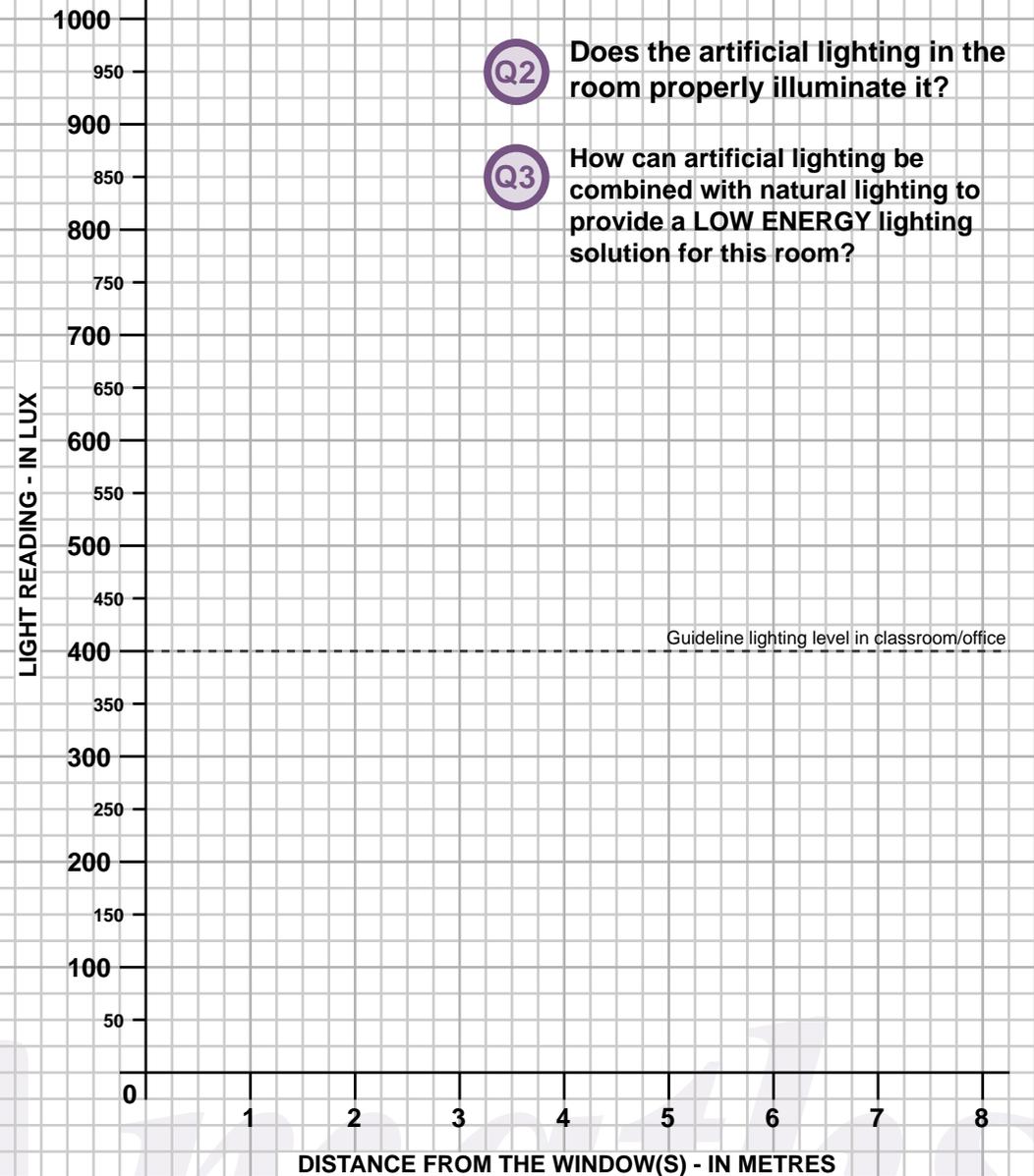


Light intensity survey (contours)

Readings with lights turned **OFF**, and blinds/curtains **OPEN**



Readings with lights turned **ON**, and blinds/curtains **CLOSED**



Light intensity survey (contours)

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



Do your light levels 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)