

91923R



Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 1 Science 2025

**91923 Demonstrate understanding of science-related  
claims in communicated information**

Credits: Five

### **SAMPLE ASSESSMENT**

This is an example of a partial resource booklet.

RESOURCE BOOKLET

## BlockBlueLight

BlockBlueLight is a business in Aotearoa New Zealand that sells a range of lamps that emit particular types of red light for health purposes. Their prices range from about \$290 to \$6,000. The following information is summarised from their website.

Red Light therapy is also known as photobiomodulation (PBM)- which is a non-invasive therapy that delivers specific frequencies of red and near infrared light to your skin and cells. BlockBlueLight uses only specific red and near infrared wavelengths that have been found to be the most clinically therapeutic, without harmful UV rays or side effects.

Red light therapy offers controlled exposure to beneficial wavelengths of light. It has less risks than exposure to ultra violet (UV) radiation.

Red and infrared LEDs produce non-ionizing forms of radiation. This means red and infrared light therapy devices do not pose the same risks as UV light or X-rays.

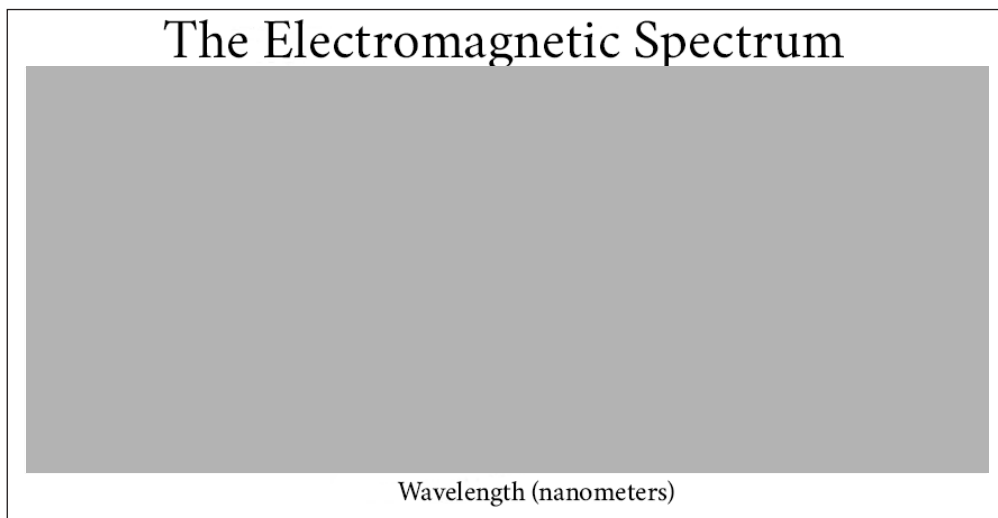


Fig. 1: The human eye can detect the visible spectrum of light which is a very small part of the full electromagnetic spectrum

Within the visible spectrum of light we can see with our eyes, low-energy red light waves fall between 625–750 nanometers (nm). Red light occupies the “long end” of the visible spectrum with wavelengths of 630–700nm whereas infrared sits right next to red light on the electromagnetic spectrum at 800nm to 1000nm. When it comes to red light therapy, the consensus seems to be that the effective “therapeutic window” for light lies within wavelengths of 630–680nm and 800–880nm. Devices that fall outside the recommended wavelengths, such as 600 or 700nm, will not affect your cells.

Red light wavelengths allow the cells of the body (especially skin cells) to produce more energy. Red light boosts energy production in human cells by stimulating photoreceptor proteins called cytochrome C oxidase. This encourages the mitochondria in our cells to break down nitric oxide and efficiently generate more of the energy molecules adenosine triphosphate (ATP).

ATP is the energy currency of the cell. Good ATP production supports health and repair by enabling the cells to perform efficiently and allowing the body to heal. The *BlockBlueLight* red light therapy lamps provide the maximum power of 660nm red light wavelengths

and 850nm infrared light wavelengths to ensure you receive the maximum results possible. This specially targeted level of light wavelengths ensures effective mitochondrial stimulation to increase wound healing, improve collagen production, and reduce skin inflammation.

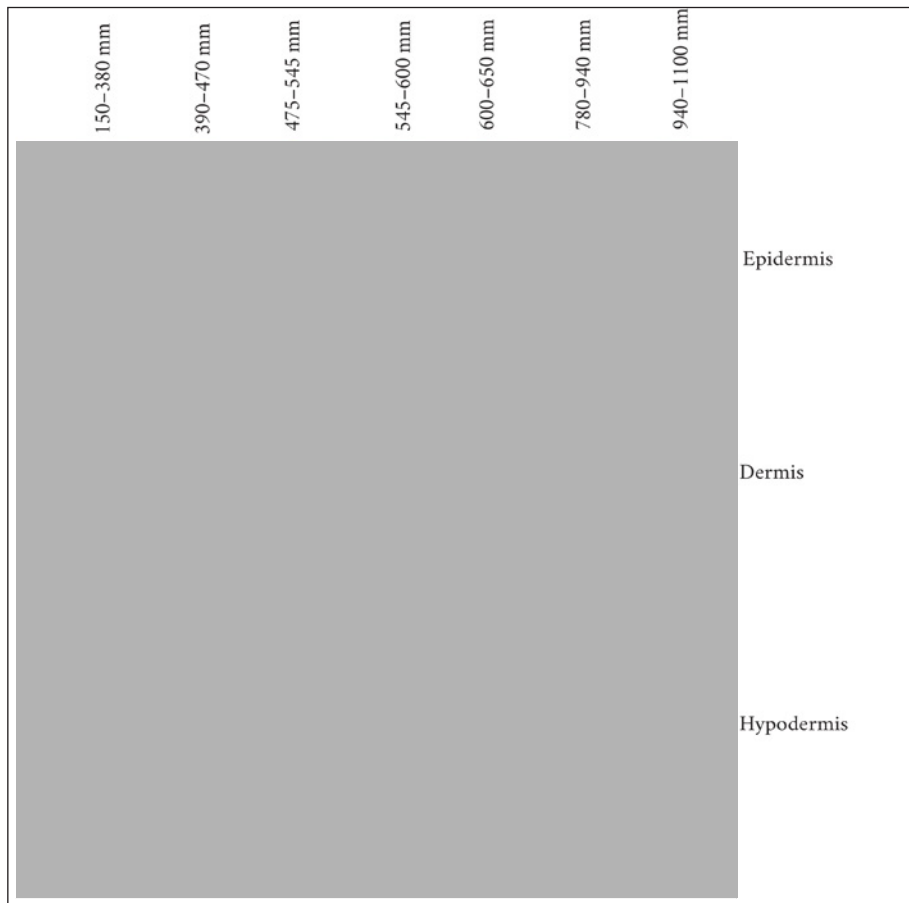


Fig. 2: Cross-section of human skin showing the penetration strength for different wavelengths of light

**Table 1: Skin penetration distances for different wavelengths of light, as illustrated in Figure 2**

Wavelength (nm)	Colour range	Penetration (mm)
150–380	Ultraviolet	Less than 0.1
390–470	Violet to deep blue	About 0.3
475–545	Blue-green	About 0.3 to 0.5
545–600	Yellow to orange	About 0.5 to 1.0
600–650	Red	About 1.0 to 2.0
650–950	Deep red to near infrared	2 to 3
950–1200	Near infrared	1

Source: [blockbluelight.co.nz/collections/red-light-therapy-panels](https://blockbluelight.co.nz/collections/red-light-therapy-panels)  
[blockbluelight.co.nz/blogs/news/benefits-of-red-light-therapy](https://blockbluelight.co.nz/blogs/news/benefits-of-red-light-therapy)  
[blockbluelight.co.nz/blogs/news/red-light-therapy-acne-treatment](https://blockbluelight.co.nz/blogs/news/red-light-therapy-acne-treatment)

**Acknowledgements (images)**

Images from the following sources has been adapted for use in this assessment:

**Figure 1** [sunnexbiotech.com/l/l1.html](http://sunnexbiotech.com/l/l1.html)

**Figure 2** [cdn.shopify.com/s/files/1/1014/4865/files/xm6ALJfTvCGtJvyhmn55\\_Fr1o10MESBOBb1kqyglu\\_9zR2ECKGRqu19H41es76\\_saunaspace-red-light-lllt-therapy-red-light-man-joov-health-wellness-led-infrared-alexfergus-spectrum\\_grande.jpg?v=1571611218](https://cdn.shopify.com/s/files/1/1014/4865/files/xm6ALJfTvCGtJvyhmn55_Fr1o10MESBOBb1kqyglu_9zR2ECKGRqu19H41es76_saunaspace-red-light-lllt-therapy-red-light-man-joov-health-wellness-led-infrared-alexfergus-spectrum_grande.jpg?v=1571611218)