

## Sample Assessment Schedule – 2025

### Science: Demonstrate understanding of science-related claims in communicated information (91923)

#### Sample Evidence

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> <li>The source is <i>BlockBlueLight</i>, which is a New Zealand business.</li> <li>They publish this information to tell people about the health benefits of their lamps.</li> </ul> <p><b>Claims examples:</b></p> <ul style="list-style-type: none"> <li>Red light improves health.</li> <li>The best wavelengths for health benefits are 630–680 (and / or 800–880) nm.</li> <li>Red light gives you more energy.</li> <li>Red light makes our mitochondria work better.</li> <li><i>BlockBlueLight</i> lamps give the best possible benefits.</li> <li>Red light is safer to use than UV light.</li> </ul> <p><b>Science conventions:</b></p> <ul style="list-style-type: none"> <li>Nanometres is shortened to nm.</li> <li>Adenosine triphosphate is shortened to ATP.</li> <li>UV means ultraviolet.</li> <li>Table has column headings.</li> <li>Skin diagram has tidy labels.</li> <li>Spectrum diagram uses the number 10 with powers e.g. <math>10^{-14}</math>.</li> <li>The electromagnetic spectrum uses colour to give us more information.</li> <li>The colour spectrum has regular spacing of 100 nm between each number.</li> </ul> <p><b>Science language:</b></p> <p>Wavelength, molecules, cells, power, nanometres, nitric oxide, radiation, non-ionizing, X-rays, electromagnetic, photoreceptor, proteins, cytochrome C oxidase, collagen, inflammation.</p>	<ul style="list-style-type: none"> <li>The diagram shows us how far the therapeutic wavelengths travel in skin. This helps to visualise what the red light is doing compared with other colours of light.</li> <li>The colour spectrum has regular spacing of 100 nm numbers so we can more easily see approximate values. For instance, though it doesn't start at 400, we can figure out that going left on the spectrum the blue starts at about 375 nm. This makes the claim look stronger and more science based.</li> <li>Red light is compared with ultraviolet and X-rays as forms of radiation. Most people would think radiation was dangerous but here they're saying red light is a safe radiation. This could be to get the reader's attention or to make them feel safe about red-light therapy.</li> <li>The author states that red light is "low-energy". This matches with what I know about light waves and the diagram given, where red light is the longest light wave that is visible to our eyes, and therefore lower in energy than the UV waves that have a much shorter wavelength. It must take a lot of energy to 'ionise' (turn atoms into ions) molecules, so it seems likely that their claim that red light is less harmful than UV light is also correct because red light has comparatively less energy.</li> </ul>	<ul style="list-style-type: none"> <li>The values of 630–680 nm and 800–880 nm are given as therapeutic wavelengths. The table tells us that these are in the deep-red and near-infrared colour ranges. However, the word "near" isn't used in the information, only the table, so it's not clear what this might mean. The paragraph with "ATP" and "cytochrome C oxidase" sounds very sciencey but the average person might not know what those words mean. This could sound like convincing science if you didn't know any better, which would make the claim seem stronger.</li> <li>They say that light such as 600 or 700 nm won't affect your cells, but the cross-section shows that light still penetrates quite far. They aren't really explaining why specific wavelengths help or do nothing. On the surface that looks okay, but it doesn't make the claim any stronger. Although the language and conventions being used are correct, the way in which they are being used could be improved to better support their claim. For example, though they state that red light is a "non-ionizing form of radiation", they do not clearly explain why that would be a problem to the reader. Instead, they seem to be using a scary-sounding science phrase and then stating that their products don't have this problem. This, combined with the conflict of interest of the author making money by selling me their product, makes me feel like I need more information about the dangers of UV light before I completely believe their claim.</li> </ul>

**Sufficiency Statement**

<b>N1</b>	<b>N2</b>	<b>A3</b>	<b>A4</b>	<b>M5</b>	<b>M6</b>	<b>E7</b>	<b>E8</b>
The response does not include enough evidence to show understanding.	The response demonstrates little understanding. One part of the required response may be completely missing or several parts may be weak.	The response shows understanding and describes the science-related claims although some descriptions may be partial or weak.	The response securely shows understanding and describes the science-related claims.	The response explains the science-related claims, although some parts of the explanation may be weak.	The response securely explains the science-related claims.	The response examines the science-related claims, although some parts of the discussion may be partial or weak.	The response securely examines the science-related claims.

**N0** = No response; no relevant evidence.

The marker will determine a grade using their professional judgment based on a holistic examination of the evidence provided.