

Name: \_\_\_\_\_

## Unit D Summary

<b>Chapter 10 Light is part of the electromagnetic spectrum and travels in waves.</b>	
<b>Key Concepts</b>	<b>Chapter Summary</b>
<ul style="list-style-type: none"> <li>Electromagnetic spectrum</li> <li>Wave model of light</li> <li>Sources of light</li> <li>Ray model of light</li> <li>Interactions of light with matter</li> </ul>	<ul style="list-style-type: none"> <li>Several properties of light can be explained using the wave model.</li> <li>White light can be separated into all the colours of the rainbow, with each colour having a different wavelength.</li> <li>The electromagnetic spectrum is split into various parts, some with longer wavelengths than visible light and some with shorter wavelengths than visible light.</li> <li>Light can be produced in many ways.</li> <li>White light may be treated as a combination of three different primary colours that can be combined or separated.</li> <li>The ray model describes how light interacts with matter.</li> <li>Light can be absorbed, reflected, or refracted as it goes from one medium to another.</li> </ul>
<b>Chapter 11 Ray diagrams model the behaviour of light in mirrors and lenses.</b>	
<b>Key Concepts</b>	<b>Chapter Summary</b>
<ul style="list-style-type: none"> <li>Law of reflection</li> <li><math>M = \frac{h_i}{h_o}</math> and <math>M = \frac{d_i}{d_o}</math></li> <li><math>n = \frac{c}{v}</math></li> <li><math>n_1 \sin \theta_1 = n_2 \sin \theta_2</math></li> <li><math>\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}</math></li> </ul>	<ul style="list-style-type: none"> <li>The law of reflection states that the angle of incidence equals the angle of reflection as measured from the normal.</li> <li>Concave mirrors can be used for magnification. Magnification is the measure of how much larger or smaller an image is compared with the object itself.</li> <li>The speed of light is highest in a vacuum and lower in different media.</li> <li>Refraction is the bending of light as it crosses the boundary between two media.</li> <li>Snell's law relates the angles of incidence and refraction of a light ray to the indices of refraction of the two media.</li> <li>Total internal reflection occurs when light reflects completely off the wall within a denser medium rather than passing through into a less dense medium</li> <li>Images can be virtual or real depending on how they were reflected or refracted by mirrors or lenses.</li> <li>The thin lens equation relates the distance of the object from the lens, the distance of the image from the lens, and the focal length of the lens.</li> </ul>

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**Unit D Summary (continued)****Chapter 12 Optical devices help us see farther and more clearly than we can with unaided eyes.**

<b>Key Concepts</b>	<b>Chapter Summary</b>
<ul style="list-style-type: none"><li>• Human vision</li><li>• Correcting human vision problems</li><li>• Use of cameras</li><li>• Microscopes and telescopes</li><li>• Laser light</li><li>• Photonics</li></ul>	<ul style="list-style-type: none"><li>• Human vision can be corrected using lenses.</li><li>• Laser vision correction involves reshaping the cornea and has both advantages and disadvantages.</li><li>• Widespread use of cameras has raised concerns over privacy.</li><li>• Microscopes and telescopes make use of lenses and mirrors.</li><li>• Photonics, the technology of using photons of light, has many applications that benefit society.</li></ul>