Year 13 Science: Physics applied to a context: fibre-optic broadband

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Find the critical angle for light going from glass (n = 1.50) into water (n = 1.33).

2. Find the speed of light in glass with n = 1.50.

3. Find the energy of a photon of wavelength 1310 nm. Use h = 6.63×10^{-34} J s.

4. Explain why a fibre's cladding must have a lower refractive index than its core.

5. How long does light take to travel 25.0 km along a fibre core with n = 1.468?

Fix the mistake

6. Correct this statement: "Total internal reflection happens when light goes from the cladding into the core."

7. Correct this statement: "The critical angle is measured from the surface of the boundary."

8. Correct this statement: "Light travels through the fibre at 3.00×10^{8} m s^{-1}."

9. Correct this statement: "My report lists refraction, photons and dispersion, so it is comprehensive."