Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: Physics of the Senses

Graded Unit Reference Number: GA33PHY17

Ungraded Unit Reference Number: UA33PHY17

Module: Physics; Science for Health

Level: Three (3)

Credit Value: Three (3)

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the nature of light and sound	1.1 Explain the difference between the transmission of sound and light
	1.2 Express the relationship between the frequency, wavelength and speed of a wave and use the relationship to solve problems for sound and light
	1.3 Explain refraction and reflection of light and sound
	1.4 Solve problems using the relationship $1\eta2 = \sin\theta_1 / \sin\theta_2 = c_1 / c_2$
2. Understand the role of the eye in colour vision	2.1 Describe the roles of the curved surfaces of the human eye in producing a focused image on the retina
	2.2 Explain the function of rods and cones as transducers
	2.3 Interpret data relating to the trichromatic theory and use this to explain colour vision
3. Understand the role of the ear in hearing	3.1 Describe how the parts of the human ear collect and amplify sound vibrations
	3.2 Explain the role of sensory hairs in the cochlea as transducers

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	3.3	Interpret data relating to the change with age in the frequency range of human hearing
4. Understand the reasons for defects in vision and hearing	4.1	Explain the causes of hyperopia (long sight), myopia (short sight) and astigmatism in humans
	4.2	Explain the correction of hyperopia, myopia and astigmatism using lenses
	4.3	Explain the correction of defects of vision using lasers
	4.4	Describe the physical and neurological reasons explaining impaired hearing
	4.5	Evaluate methods for improving hearing, including analogue and digital aids and implant technology

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