# R483 Entry Level Science Resources – Topic P1

These resources are aimed at Entry Level Science students. They have been adapted from the legacy R591 resources published by OUP to meet the requirements of the R483 Entry Level Science specification.

They could also be used as a starting point and a recap of Key Stage 3 content for your lower attaining students studying GCSE Combined Science. OCR Entry Level Science is mapped to both OCR GCSE Combined Science A and OCR GCSE Combined Science B.

The table below shows this mapping for Topic P1.

| **Entry Level ref** | **Entry Level statement** | **GCSE (9–1) Gateway A combined science ref.** | **GCSE (9–1) Gateway A combined science statement** | **GCSE (9–1) 21st Century Science B combined science ref.** | **GCSE (9–1) 21st Century Science B combined science statement** |
| --- | --- | --- | --- | --- | --- |
| ELP1a | Describe how sound waves in air are longitudinal waves. | P4.1e | describe differences between transverse and longitudinal waves, to include direction of travel and direction of vibration | P1.3.3P1.3.4 | describe the difference between transverse and longitudinal wavesdescribe how waves on a rope are an example of transverse waves whilst sound waves in air are longitudinal waves |
| ELP1b | Explain how the motion of the molecules in a gas is related to its pressure e.g. shouting versus whispering. | P4.1f | describe how ripples on water surfaces are used to model transverse waves whilst sound waves in air are longitudinal waves, and how the speed of each may be measured  | P1.3.7 | describe how the speed of ripples on water surfaces and the speed of sound waves in air, may be measured |
| ELP1c | Know that even when whispering voice can be overheard. | P4.1f | describe how ripples on water surfaces are used to model transverse waves whilst sound waves in air are longitudinal waves, and how the speed of each may be measured | P1.3.7 | describe how the speed of ripples on water surfaces and the speed of sound waves in air, may be measured |

| **Entry Level ref** | **Entry Level statement** | **GCSE (9–1) Gateway A combined science ref.** | **GCSE (9–1) Gateway A combined science statement** | **GCSE (9–1) 21st Century Science B combined science ref.** | **GCSE (9–1) 21st Century Science B combined science statement** |
| --- | --- | --- | --- | --- | --- |
| ELP1d | Know that coding a message increases its security. |  |  |  |  |
| ELP1e | Understand that light can be used for communication but requires the use of digital code (e.g. Morse code). | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1f | Know that digital signals are either on (1) or off (0). |  |  |  |  |
| ELP1g | Know that light travels through space at a speed of 300 000 km/s. | P4.2f | recall that light is an electromagnetic wave | P1.3.11 | recall that light is an electromagnetic wave |
| ELP1h | Understand how using light allows messages to be transmitted quickly. |  |  |  |  |
| ELP1i | Understand how light travels along an optical fibre from one end to the other by reflection. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1j | Know that optical fibres transmit data very quickly. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1k | Know that light is not the only method of transmitting a signal digitally there are other examples which use the electromagnetic spectrum. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1l | Know that household remote control devices use infrared radiation. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1m | Know that wireless communication devices use radio waves. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1n | Understand the advantages of wireless technology for radio, mobile telephones and laptop computers | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1o | Know that mobile phones use microwave signals. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1p | Know that sound and images can be transmitted digitally. | P4.2g | give examples of some practical uses of electromagnetic waves in the radio, microwave, infra-red, visible, ultra-violet, X-ray and gamma-ray regions | P1.1.9 | give examples of some practical uses of electromagnetic radiation in the radio, microwave, infrared, visible, ultraviolet, X-ray and gamma ray regions of the spectrum |
| ELP1q | Know that the main reason for switching to digital television and radio is the improved quality of picture and sound. |  |  |  |  |

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