2 · Waves and Electricity

Pearson Edexcel · International A-Level · Physics · Vocabulary in context

Word	Example
Waves /weɪvz/	**Waves** carry energy without carrying the material along.
amplitude /'æmplɪtju:d/	Loud sounds have a large **amplitude**.
Equilibrium /ˌi:kwɪ'lɪbrɪəm/	A pendulum swings either side of its **equilibrium** position.
period /'pɪərɪəd/	The **period** of the wave is 0.02 s. 0.02 s
frequency /'fri:kwənsi/	A **frequency** of 50 Hz means 50 waves every second. 50 Hz 50
wavelength /'weɪvleŋθ/	The **wavelength** is the distance from one crest to the next.
wave speed /weɪv spi:d/	The **wave speed** is 340 m/s. 340 m/s
transverse wave /træns'vɜ:s weɪv/	Light is a **transverse wave**.
longitudinal wave /ˌlɒŋgɪ'tju:dɪnl weɪv/	Sound is a **longitudinal wave**.
compressions /kəm'preʃnz/	Sound has **compressions** where particles are close together.
rarefactions /ˌreərɪ'fækʃnz/	Sound has **rarefactions** where particles are spread out.
wavefront /'weɪvfrʌnt/	A **wavefront** joins points on a wave that move together.

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Word	Example
Phase /feɪz/	Two points one wavelength apart are in **phase**.
Superposition /ˌsu:pəpə'zɪʃn/	**Superposition** means adding the waves where they meet.
Interference /ˌɪntə'fɪərəns/	**Interference** of two waves can make them bigger or cancel them.
Coherent sources /kəʊ'hɪərənt 'sɔ:sɪz/	Two loudspeakers on one signal are **coherent sources**.
path difference /pæθ 'dɪfrəns/	The **path difference** is one wavelength, so the waves add.
standing wave /'stændɪŋ weɪv/	A guitar string makes a **standing wave**.
node /nəʊd/	A **node** on the string does not move.
antinode /ˌæntɪ'nəʊd/	The string moves most at an **antinode**.
tension /'tenʃn/	The **tension** in the rope holds up the lamp.
mass per unit length /mæs pɜ: 'ju:nɪt leŋθ/	A thick string has a large **mass per unit length**.
two-beam oscilloscope /tu: bi:m ɒ'sɪləskəʊp/	A **two-beam oscilloscope** shows two signals at once.
Intensity /ɪn'tensɪti/	**Intensity** is the power falling on each square metre.
Refraction /rɪ'frækʃn/	**Refraction** bends light as it enters water.
normal /'nɔ:ml/	The **normal** is a line at 90° to the surface. 90°

Word	Example
refractive index /rɪˈfræktɪv ˈɪndeks/	Glass has a **refractive index** of 1.5. 1.5
Total internal reflection /ˈtəʊtl ɪnˈtɜːnl rɪˈflekʃn/	**Total internal reflection** keeps light inside an optical fibre.
critical angle /ˈkrɪtɪkl ˈæŋgl/	The **critical angle** for glass is about 42°. 42°
Plane polarisation /pleɪn ˌpəʊləraɪˈzeɪʃn/	**Plane polarisation** makes light vibrate in only one plane.
Diffraction /dɪˈfrækʃn/	**Diffraction** makes waves spread out after a narrow gap.
Huygens' construction /ˈhaɪdʒnz kənˈstrʌkʃn/	**Huygens' construction** builds the next wavefront from many tiny waves.
diffraction grating /dɪˈfrækʃn ˈgreɪtɪŋ/	A **diffraction grating** splits white light into colours.
order /ˈɔːdə/	The second-**order** bright line is further from the centre. 2
de Broglie wavelength /də ˈbrəʊli ˈweɪvleŋθ/	A fast electron has a short **de Broglie wavelength**.
transmitted /trænˈsmɪtɪd/	Some light is reflected and the rest is **transmitted** into the glass.
pulse-echo /pʌls ˈekəʊ/	A **pulse-echo** scan times how long the echo takes.
Photons /ˈfəʊtɒnz/	**Photons** of blue light carry more energy than photons of red light.

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Word	Example
photoelectric effect /ˌfəʊtəʊɪˈlektrɪk ɪˈfekt/	In the **photoelectric effect**, light knocks electrons out of a metal.
work function /wɜːk ˈfʌŋkʃn/	A metal's **work function** is the energy needed to free an electron.
threshold frequency /ˈθreʃəʊld ˈfriːkwənsi/	Below the **threshold frequency**, no electrons come out.
electronvolt /ɪˈlektrɒnvəʊlt/	One **electronvolt** is a very small amount of energy.
discrete energy levels /dɪˈskriːt ˈenədʒi ˈlevlz/	Electrons in an atom can only have **discrete energy levels**.
Current /ˈkʌrənt/	**Current** is the charge passing a point each second.
Potential difference /pəˈtenʃl ˈdɪfrəns/	**Potential difference** is the energy for each coulomb of charge.
Ohm's law /əʊmz lɔː/	**Ohm's law** says current is proportional to voltage.
Charge conservation /tʃɑːdʒ ˌkɒnsəˈveɪʃn/	**Charge conservation** means current into a junction equals current out.
Energy conservation /ˈenədʒi ˌkɒnsəˈveɪʃn/	**Energy conservation** means the e.m.f. equals the total p.d. around a loop.
Electrical power /ɪˈlektrɪkl ˈpaʊə/	**Electrical power** is current times potential difference.
Resistivity /ˌriːzɪˈstɪvəti/	Copper has a low **resistivity**, so it makes good wires.
drift velocity /drɪft vəˈlɒsɪti/	The electrons move slowly along the wire at the **drift velocity**.

Word	Example
potential divider /pə'tenʃl dɪ'vaɪdə/	Two resistors in a **potential divider** share the voltage.
negative-temperature-coefficient thermistor /'negətɪv 'temprɪtʃə ˌkəʊɪ'fɪʃənt 'θɜ:mɪstə/	A **negative-temperature-coefficient thermistor** has less resistance when it is hot.
light-dependent resistor /laɪt dɪ'pendənt rɪ'zɪstə/	A **light-dependent resistor** has a low resistance in bright light.
Electromotive force /ɪˌlektrəʊ'məʊtɪv fɔ:s/	A 1.5 V cell has an **electromotive force** of 1.5 V. 1.5 V 1.5 V
Internal resistance /ɪn'tɜ:nl rɪ'zɪstəns/	**Internal resistance** makes a battery warm when it gives current.

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