

SP5 Light and the electromagnetic spectrum



Personal learning checklist | 1 of 2

GCSE Edexcel Separate Sciences | Physics Paper 1

Name _____ Class _____ Date _____

Tick one box for each statement. Red: need help. Amber: partly confident.
Green: can do independently.

I can	Red	Amber	Green
Spectrum and calculations			
Describe electromagnetic waves as transverse energy transfers with equal vacuum speed and no required medium.	☐	☐	☐
Order the continuous spectrum and visible colours by wavelength and frequency.	☐	☐	☐
Calculate electromagnetic wavelengths, frequencies and travel times using suitable unit conversions.	☐	☐	☐
Compare wavelength-dependent material interactions and explain speed and wavelength changes in materials (Higher).	☐	☐	☐
Refraction practical			
Trace rays through rectangular glass blocks, drawing normals and measuring angles with controlled technique.	☐	☐	☐
Explain parallel displaced emerging rays and straight normal-incidence rays.	☐	☐	☐
Detection and production			
Describe Herschel's infrared and Ritter's ultraviolet investigations using appropriate detectors.	☐	☐	☐
Explain radio production and reception through oscillations in electrical circuits (Higher).	☐	☐	☐
Describe how radiation emission and absorption can change atoms and nuclei.	☐	☐	☐

My next revision priority _____

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Uses and hazards			
Link radio, microwave and infrared uses to communication, absorption, heating and thermal detection.	☐	☐	☐
Link visible, ultraviolet, X-ray and gamma uses to illumination, fluorescence, imaging and sterilisation.	☐	☐	☐
Explain excessive-exposure hazards and distinguish ionisation from heating, considering frequency, intensity and exposure.	☐	☐	☐
Evaluate protection and medical benefits against radiation risks and explain atmospheric detector limitations.	☐	☐	☐
Reflection and colour			
Draw reflection and refraction rays and compare specular and diffuse reflection.	☐	☐	☐
Explain object colours and filters using wavelength absorption, reflection and transmission.	☐	☐	☐
Explain critical angle, total internal reflection and optical fibres.	☐	☐	☐
Lenses			
Relate lens shape, signed power and focal length and calculate lens power.	☐	☐	☐
Draw converging and diverging lens rays to locate images.	☐	☐	☐
Compare real and virtual images for different lens types and object positions.	☐	☐	☐
Thermal radiation			
Explain how temperature affects emitted radiation and wavelength distribution.	☐	☐	☐
Explain absorbed/emitted power balance and Earth's radiation balance (Higher).	☐	☐	☐
Plan and evaluate surface-radiation investigations using at least four controlled containers.	☐	☐	☐

My next revision priority _____