

Combined Science - Physics - Key Stage 4 - Waves

Electromagnetic Spectrum - Part 1

Worksheet

Miss Walrond



OAK
NATIONAL
ACADEMY



Q1

Look at the list of electromagnetic waves.

gamma
infrared
visible light
microwave
radio
ultraviolet
X-rays

radio	increasing frequency 
infrared	
ultraviolet	
gamma	

Complete the table. Put the waves in order of **increasing** frequency. Four have been done for you. **[2]**

OCR, Gateway Physics A, Paper B751/01, June 2014



Answers



Q1. Answers

1. Radio

Microwave

Infrared

Visible light

Ultraviolet

X-rays

Gamma

3 correct = 2 marks, 1 correct = 1 mark



In lesson questions



The Electromagnetic Spectrum

- Transverse waves
- They can travel through a vacuum
- Travel at the same speed in a vacuum
- Transfer energy from one place to another



Independent Task - The EM Spectrum

Sort these parts of the EM spectrum

- a. In order from longest wavelength to shortest wavelength
- b. In order from highest frequency to lowest frequency

- Microwaves
- Visible
- Radio
- X-rays
- Ultraviolet
- Gamma
- Infrared



Independent Task - The EM Spectrum Uses

Copy and complete the table with at least **one** use for each part of the EM spectrum.

EM Spectrum	Use
Radio	
Microwave	
Infrared	
Visible	
Ultraviolet	
X-rays	
Gamma	



Independent Task - Examination question

Look at the diagram of the electromagnetic spectrum.

Radio	Microwave	Infra-red	Visible light	Ultra-violet	X-rays	Gamma-rays
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- i. Name a wave that has a longer wavelength than red light. **[1]**
- ii. Name a wave that has a higher frequency than violet light. **[1]**
- iii. State two uses of gamma-rays. **[2]**

Answers as discussed in this slide have not been seen or verified by OCR.
OCR, Gateway Physics A, Paper J249/02, June 2018



Answers



Review: Independent Task - The EM Spectrum

Sort these parts of the EM spectrum

- a. In order from longest wavelength to shortest wavelength

Radio, microwaves, infrared, visible, ultraviolet, x-rays, gamma

- b. In order from highest frequency to lowest frequency

Gamma, x-rays, ultraviolet, visible, infrared, microwaves, radio



Review - Independent Task - The EM Spectrum Uses

EM Spectrum	Use
Radio	Television and Radio transmission
Microwave	Satellite communication, mobile phone communication, heating food
Infrared	Electrical heaters, cooking food, night vision cameras, remote controls and fibre optic communication
Visible	Fibre optic communication and lasers
Ultraviolet	Security markings, energy efficient light bulbs and washing powders
X-rays	Imaging inside the body
Gamma	Killing cancer cells and sterilising equipment and food



Review: Independent Task - Examination question

Look at the diagram of the electromagnetic spectrum.

Radio	Microwave	Infra-red	Visible light	Ultra-violet	X-rays	Gamma-rays
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i. Name a wave that has a longer wavelength than red light. **[1]**

Radio, infrared or microwave

ii. Name a wave that has a higher frequency than violet light. **[1]**

Ultraviolet, x-rays or gamma

iii. State two uses of gamma-rays. **[2]**

Any two from: killing cancer cells, sterilising instruments, scanning metals, irradiating food

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