

Scheme of Learning: Waves

Topic Sequence:

1	2	3	4	5	6	7	8	9
Acids & Alkalis	Motion & Pressure	Photosynthesis & Respiration	Metals & Materials	Waves	Inheritance & Evolution	Earth & Atmosphere	Space	Ecosystems & Interdependence

Topic Overview:

Light and sound have been introduced at KS2 with student covering the concepts of sound being produced by vibrations and that light travels in straight lines.

In this topic we cover:

Water waves

Sound waves – properties, production and detection

Light waves – transmission (including the ray model), properties, detection and colour

Lesson Sequence:

The topic starts with a general look at waves including the key vocabulary needed for later in the topic. It moves on to focus on the properties of sound waves, the human ear and applications such as microphones and loudspeakers.

The second part of the topic looks at light in more detail, including ray diagrams for reflection and refraction, the human eye, a pinhole camera, lenses and colour.

Please note: some of the lessons will take more than the 1 hour lesson slot. Please account for this in your advanced planning.

Sequence of Lessons:

1	Properties of waves
2	Sound waves
3	Hearing
4	Controlling sounds
5	Using sound
6	Light
7	Ray diagrams – reflection
8	Ray diagrams – refraction
9	Detecting light
10	Colour
11	Assessment

Resources:

1	Slinky, wave diagram worksheet
2	String telephones, loudspeaker, CRO and sig. gen., pitch and volume worksheet
3	Ear model, loudspeaker, CRO and sig.gen., ear diagram worksheet and how we hear worksheet
4	Wooden blocks, trundle wheel (or tape measures), microphone worksheet
5	Card template, scissors, tape, half toilet roll tubes, 2m lengths of insulated copper wire, homemade speaker demo
6	LDR, desk lamp, multi-meter, leads, selection of materials e.g. paper, card, plastic, tracing paper, wood etc
7	Ray box, slit, power supply, mirror
8	Ray box, slit, power supply, glass block, convex lenses, demo of mug and coin trick
9	Pin hole camera, convex lenses, light source, eye diagram sheet, parts to functions sheet, possible eye dissection
10	Prisms, filter glasses
11	Quiz sheet Assessment sheet

Supportive Reading:

Comprehension activity	TBC
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Assessment:

Knowledge:	20 question multiple choice quiz
Application of Knowledge:	Extended writing task evaluating the use of an energy resource