

AQA Physics

Crocodile Clips lesson kits

The sections of the syllabus for which there are relevant Crocodile Physics and Crocodile Chemistry lesson kits are listed below. Under each heading, we've listed the lesson kit title [in bold], where you'll find it in the software and a brief description of the resource.

Because Crocodile Physics and Crocodile Chemistry are simulators, they will help you to cover other areas of the syllabus, too, and there are plenty of other experiments you can simulate. This is just a list of the lesson kits that are currently available.

Physics 1a

11.3 Why are electrical devices so useful?

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
Simulate circuits to investigate power dissipation at different transmission voltages

Find it in:
Crocodile Physics - Parts library - Electronics

Physics 1b

11.5 What are the uses and hazards of the waves that form the electromagnetic spectrum?

FREE-FORMAT SIMULATION:
Optics & Waves simulation

Overview:
Simulate experiments in reflection and refraction of EM waves, using both ray diagrams and wave models, in different media

Find it in:
Crocodile Physics - Parts library - Optics & Waves

LESSON KIT:
EM spectrum

Overview:
Comparing wavelengths for different parts of the spectrum

Find it in:
Crocodile Physics - Waves

LESSON KIT:
Absorption of Xrays

Overview:
Test different thicknesses of different materials

Find it in:
Crocodile Physics - Waves

LESSON KIT:
Reflection & refraction

Overview:
Study sound, water and light entering different materials

Find it in:
Crocodile Physics - Waves

Physics 1b

11.7 What do we know about the origins of the Universe and how it continues to change?

LESSON KIT:
Doppler shift

Overview:
Study the Doppler effect with a passing fire engine

Find it in:
Crocodile Physics - Waves

Physics 2

12.1 How can we describe the way things move?

FREE-FORMAT SIMULATION:
Force and Motion simulation

Overview:
Simulate experiments with projectiles and moving vehicles, with control over velocity, gravity, mass and friction

Find it in:
Crocodile Physics - Parts library - Force and Motion

LESSON KIT:
Velocity-time graphs

Overview:
Plot velocity graphs for the motion of different cars and lorries

Find it in:
Crocodile Physics - Describing motion

LESSON KIT:
Acceleration

Overview:
Determine acceleration from a velocity-time graph

Find it in:
Crocodile Physics - Describing motion

LESSON KIT:
Distance-time graphs

Overview:
Plot distance graphs of the motion of different cars and lorries

Find it in:
Crocodile Physics - Describing motion

Physics 2

12.2 How do we make things speed up or slow down?

LESSON KIT:

Resultant forces

Overview:

Tugs towing an oil tanker

Find it in:

Crocodile Physics - Force & acceleration

LESSON KIT:

Newton's 2nd law

Overview:

Accelerate space shuttles of different masses

Find it in:

Crocodile Physics - Force & acceleration

FREE-FORMAT SIMULATION:

Force and Motion simulation

Overview:

Simulate experiments accelerating masses, using one or more driving forces or gravity, and plot graphs of their motion

Find it in:

Crocodile Physics - Parts library - Force and Motion

LESSON KIT:

Newton's 1st law

Overview:

Demonstrate effects of a force using a space shuttle

Find it in:

Crocodile Physics - Force & acceleration

LESSON KIT:

Newton's 3rd law

Overview:

Simulate a tractor tug-of-war and identify force pairs

Find it in:

Crocodile Physics - Force & acceleration

Physics 2

12.3 What happens to the movement energy when things speed up or slow down?

LESSON KIT:

Kinetic energy

Overview:

Model the motion of different vehicles and graph KE

Find it in:

Crocodile Physics - Energy & motion

LESSON KIT:

Work done

Overview:

Demonstrate work done in launching a model space shuttle

Find it in:

Crocodile Physics - Energy & motion

FREE-FORMAT SIMULATION:

Force and Motion simulation

Overview:

Graph the kinetic and potential energy of moving bodies - such as bouncing balls or projectiles - in simulated experiments

Find it in:

Crocodile Physics - Parts library - Force and Motion

Physics 2

12.4 What is momentum?

LESSON KIT:
Momentum conservation

Overview:
Collide different fruit to investigate conservation of momentum

Find it in:
Crocodile Physics - Energy & motion

LESSON KIT:
Change in momentum

Overview:
Calculate driving force from the rate of change of momentum

Find it in:
Crocodile Physics - Energy & motion

FREE-FORMAT SIMULATION:
Force and Motion simulation

Overview:
Investigate momentum using simulated collisions between balls; you can control their masses, velocities and the material they're made from

Find it in:
Crocodile Physics - Parts library - Force and Motion

LESSON KIT:
Momentum definition

Overview:
Roll bowling balls of different masses to learn about momentum

Find it in:
Crocodile Physics - Energy & motion

FREE-FORMAT SIMULATION:
Force and Motion simulation

Overview:
Simulate experiments to show how applying a force changes the momentum of different moving bodies

Find it in:
Crocodile Physics - Parts library - Force and Motion

Physics 2

12.6 What does the current through an electrical circuit depend on?

LESSON KIT:
LDR & thermistor

Overview:
Construct circuits to investigate changing resistance

Find it in:
Crocodile Physics - Circuits

LESSON KIT:
Series circuits

Overview:
Investigate currents and voltages around a series circuit

Find it in:
Crocodile Physics - Circuits

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
A range of resistors, power supplies and other components allows potential divider circuits to be modelled

Find it in:
Crocodile Physics - Parts library - Electronics

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
A range of resistors, power supplies and other components allows DC circuits to be simulated and analysed

Find it in:
Crocodile Physics - Parts library - Electronics

LESSON KIT:
Ohm's law

Overview:
Build circuits and plot graphs to demonstrate Ohm's law

Find it in:
Crocodile Physics - Circuits

LESSON KIT:
I-V profiles

Overview:
Graph current against voltage for resistors, bulbs, diodes & LDRs

Find it in:
Crocodile Physics - Circuits

LESSON KIT:
Basic circuits

Overview:
Introduces basic circuit building - switches, bulbs & lamps

Find it in:
Crocodile Physics - Circuits

LESSON KIT:
Parallel circuits

Overview:
Investigate currents and voltages in a parallel circuit

Find it in:
Crocodile Physics - Circuits

Physics 2

12.7 What is mains electricity and how can it be used safely?

LESSON KIT:
AC and DC

Overview:
Graph voltage and current in AC and DC circuits

Find it in:
Crocodile Physics - Electrical energy

LESSON KIT:
Transformers

Overview:
Make circuits with transformers that have different turns ratios

Find it in:
Crocodile Physics - Electrical energy

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
Build and simulate AC circuits, generators and motors

Find it in:
Crocodile Physics - Parts library - Electronics

LESSON KIT:
Fuses

Overview:
Choose the correct fuse to protect household appliances

Find it in:
Crocodile Physics - Electrical energy

Physics 2

12.8 Why do we need to know the power of electrical appliances?

LESSON KIT:

Electrical energy

Overview:

Link household appliances with different power consumptions

Find it in:

Crocodile Physics - Electrical energy

LESSON KIT:

Power

Overview:

Common household appliances relate power to voltage & current

Find it in:

Crocodile Physics - Electrical energy

LESSON KIT:

Cost of energy

Overview:

Monitor power use in a model house with 16 appliances

Find it in:

Crocodile Physics - Electrical energy

Physics 3

13.1 How do forces have a turning effect?

LESSON KIT:

Toppling tractors

Overview:

Investigate the stabilities of bodies with different shapes

Find it in:

Crocodile Physics - Force & acceleration

Physics 3

13.2 What keeps bodies moving in a circle?

LESSON KIT:

Circular motion

Overview:

Whirl bowling balls on strings, varying mass and string length

Find it in:

Crocodile Physics - Force & acceleration

FREE-FORMAT SIMULATION:

Force and Motion simulation

Overview:

Simulate experiments involving circular motion, such as a ball on a string, and investigate the effect of changing the force, the mass and the angular velocity

Find it in:

Crocodile Physics - Parts library - Force and Motion

Physics 3

13.4 What do mirrors and lenses do to light?

FREE-FORMAT SIMULATION:

Optics simulation

Overview:

Simulate experiments using mirrors, investigating their effect on rays, beams and images

Find it in:

Crocodile Physics - Parts library - Optics

LESSON KIT:

Lenses

Overview:

Concave & convex lenses, and the images they produce

Find it in:

Crocodile Physics - Optics

LESSON KIT:

Telescopes

Overview:

Standard, reflecting, Newtonian and Galilean telescopes

Find it in:

Crocodile Physics - Optics

LESSON KIT:

Magnifying glass

Overview:

The effects of different magnifying glasses

Find it in:

Crocodile Physics - Optics

LESSON KIT:

Magnification

Overview:

Use concave mirrors and convex lenses to magnify images

Find it in:

Crocodile Physics - Optics

LESSON KIT:

Camera

Overview:

How a camera lens focuses an image onto a film or CCD

Find it in:

Crocodile Physics - Optics

LESSON KIT:

Convex & concave

Overview:

Study mirrors and the different images they form

Find it in:

Crocodile Physics - Optics

LESSON KIT:
Periscope

Overview:
Position mirrors at different angles to model periscopes

Find it in:
Crocodile Physics - Optics

LESSON KIT:
Plane mirror reflection

Overview:
Move objects to investigate the rays & images produced

Find it in:
Crocodile Physics - Optics

FREE-FORMAT SIMULATION:
Optics simulation

Overview:
Simulate experiments using converging and diverging lenses, investigating their effect on rays, beams and images

Find it in:
Crocodile Physics - Parts library - Optics

FREE-FORMAT SIMULATION:
Optics simulation

Overview:
Simulate experiments using prisms, investigating how they refract rays and beams of light - including splitting white light

Find it in:
Crocodile Physics - Parts library - Optics

Physics 3 **13.5 What is sound?**

FREE-FORMAT SIMULATION:
Waves simulation

Overview:
Investigate how sound waves pass through different media

Find it in:
Crocodile Physics - Parts library - Waves

LESSON KIT:
Loudness and pitch

Overview:
Vary the frequency and amplitude of a sound wave

Find it in:
Crocodile Physics - Waves

LESSON KIT:
Speed of sound

Overview:
Sound waves travelling through different materials

Find it in:
Crocodile Physics - Waves

Physics 3

13.6 What is ultrasound and how can it be used?

LESSON KIT:
Ultrasound

Overview:
Model how bats and submarines use sound waves to 'see'

Find it in:
Crocodile Physics - Waves