

OCR Gateway - Physics B

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.

Energy for the home **P1a - Heating houses**

LESSON KIT:

Boiling & melting

Overview:

Graph the temperature of water as it changes state

Find it in:

Crocodile Chemistry - Classifying materials

Energy for the home **P1f - Wireless signals**

LESSON KIT:

Plane mirror reflection

Overview:

Move objects to investigate the rays & images produced

Find it in:

Crocodile Physics - Optics

Energy for the home **P1g - Light**

LESSON KIT:

Loudness and pitch

Overview:

Vary the frequency and amplitude of a sound wave

Find it in:

Crocodile Physics - Waves

LESSON KIT:

Wave formula

Overview:

Investigate how water wavelength varies with frequency

Find it in:

Crocodile Physics - Waves

Living for the future P2b - Generating Electricity

FREE-FORMAT SIMULATION:
Electronic simulation

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

Find it in:
Crocodile Physics - Parts library - Electronics

Living for the future P2c - Fuels for Power

LESSON KIT:
Electrical energy

Overview:
Link household appliances with different power consumptions

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

LESSON KIT:
Power

Overview:
Common household appliances relate power to voltage & current

Find it in:
Crocodile Physics - Electrical energy

Living for the future P2h - The Big Bang

LESSON KIT:
Doppler shift

Overview:
Study the Doppler effect with a passing fire engine

Find it in:
Crocodile Physics - Waves

Forces for transport P3a - Speed

LESSON KIT:
Distance-time graphs

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

Find it in:
Crocodile Physics - Describing motion

Forces for transport P3b - Changing Speed

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

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:

Acceleration

Overview:

Determine acceleration from a velocity-time graph

Find it in:

Crocodile Physics - Describing 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

Forces for transport P3c - Forces and Motion

LESSON KIT:

Newton's 2nd law

Overview:

Accelerate space shuttles of different masses

Find it in:

Crocodile Physics - Force & acceleration

LESSON KIT:

Newton's 1st law

Overview:

Demonstrate effects of a force using a space shuttle

Find it in:

Crocodile Physics - Force & acceleration

Forces for transport P3e - Energy on the move

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

LESSON KIT:

Kinetic energy

Overview:

Model the motion of different vehicles and graph KE

Find it in:

Crocodile Physics - Energy & motion

Forces for transport P3h - The energy of games and theme rides

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

Radiation for life P4c - Safe Electricals

LESSON KIT:

Fuses

Overview:

Choose the correct fuse to protect household appliances

Find it in:

Crocodile Physics - Electrical energy

LESSON KIT:

Basic circuits

Overview:

Introduces basic circuit building - switches, bulbs & lamps

Find it in:

Crocodile Physics - Circuits

Radiation for life P4d - Ultrasound

LESSON KIT:

Ultrasound

Overview:

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

Find it in:

Crocodile Physics - Waves

Radiation for life P4e - Treatment

FREE-FORMAT SIMULATION:
Waves simulation

Overview:

Simulate experiments to investigate how different electromagnetic waves are absorbed by different media

Find it in:

Crocodile Physics - Parts library - Waves

Space for Reflection

P5b - Vectors and Equations of motions

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

Space for Reflection

P5c - Projectile motion

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

Space for Reflection

P5d - Momentum

LESSON KIT:

Momentum conservation

Overview:

Collide different fruit to investigate conservation of momentum

Find it in:

Crocodile Physics - Energy & motion

LESSON KIT:

Momentum definition

Overview:

Roll bowling balls of different masses to learn about 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:

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

Space for Reflection

P5e - Satellite communication

FREE-FORMAT SIMULATION:

Waves simulation

Overview:

Simulate experiments to investigate how electromagnetic waves are diffracted; you can control the shape and position of obstacles, and the wavelength of the source

Find it in:

Crocodile Physics - Parts library - Waves

Space for Reflection

P5f - Nature of waves

FREE-FORMAT SIMULATION:

Waves simulation

Overview:

Simulate interference between two wave sources, controlling the position, frequency and amplitude of the sources, and viewing cross-sections

Find it in:

Crocodile Physics - Parts library - Waves

Space for Reflection P5g - Refraction of waves

LESSON KIT:
Refraction

Overview:
Measure refraction in different materials, & split white light

Find it in:
Crocodile Physics - Optics

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

Space for Reflection P5h - Optics

LESSON KIT:
Lenses

Overview:
Concave & convex lenses, and the images they produce

Find it in:
Crocodile Physics - 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

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

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

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

LESSON KIT:
Camera

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

Find it in:
Crocodile Physics - Optics

Electricity for gadgets P6a - Resisting

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

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:
Parallel circuits

Overview:
Investigate currents and voltages in a parallel circuit

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

Electricity for gadgets P6b - Sharing

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

LESSON KIT:
LDR & thermistor

Overview:
Construct circuits to investigate changing resistance

Find it in:
Crocodile Physics - Circuits

Electricity for gadgets P6d - Generating

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
Build and simulate AC circuits, generators and motors

Find it in:
Crocodile Physics - Parts library - Electronics

Electricity for gadgets P6e - Transforming

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:
A range of components allows AC and DC circuits to be simulated and analysed

Find it in:
Crocodile Physics - Parts library - Electronics

Electricity for gadgets P6f - Charging

LESSON KIT:
AC and DC

Overview:
Graph voltage and current in AC and DC circuits

Find it in:
Crocodile Physics - Electrical energy

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
A range of components allows AC and DC circuits to be simulated and analysed

Find it in:
Crocodile Physics - Parts library - Electronics

Electricity for gadgets P6g - It's logical

FREE-FORMAT SIMULATION:
Electronic simulation

Overview:
Standard logic gates, a range of digital ICs and digital inputs and outputs available for circuit building

Find it in:
Crocodile Physics - Parts library - Electronics

Electricity for gadgets
P6h - Even more logical

FREE-FORMAT SIMULATION:

Electronic simulation

Overview:

Standard logic gates, a range of digital ICs and digital inputs and outputs available for circuit building

Find it in:

Crocodile Physics - Parts library - Electronics