AQA Chemistry
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.

Chemistry 1
11.1 How do rocks provide building materials?

LESSON KIT:
Limestone

Overview:
Simulate the decomposition of CaCO3 and produce slaked lime

Find it in:
Crocodile Chemistry - Rocks and metals

Chemistry 1a
11.2 How do rocks provide metals and how are metals used?

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Investigate reactions and physical properties for a range of metals

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Reactivity of metals

Overview:
Order the reactivities of common objects, like an iron nail and a lead bullet

Find it in:
Crocodile Chemistry - Rocks and metals

LESSON KIT:
Ores & purification

Overview:
Extracting different metals from their ores

Find it in:
Crocodile Chemistry - Rocks and metals

Chemistry 1a
11.3 How do we get fuels from crude oil?

LESSON KIT:
Acid rain

Overview:
Make acid rain and then see its effect on limestone

Find it in:
Crocodile Chemistry - Acids, bases & salts

Chemistry 1b
11.6 What are the changes in the Earth and its atmosphere?

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate combustion reactions, including complete and incomplete combustion of carbon, and production of sulfur and nitrogen oxides

Find it in:
Crocodile Chemistry - Parts library - Chemicals

Chemistry 2
12.1 How do sub-atomic particles help us to understand the structure of substances?

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Investigate reactions and physical properties for a range of covalent, ionic and metallic substances, and view atomic animations

Find it in:
Crocodile Chemistry - Parts library - Chemicals

Chemistry 2
12.2 How do structures influence the properties and uses of substances?

LESSON KIT:
Boiling & melting

Overview:
Graph the temperature of water as it changes state

Find it in:
Crocodile Chemistry - Classifying materials

LESSON KIT:
Elements & compounds

Overview:
Look at the particles that make up different substances

Find it in:
Crocodile Chemistry - Classifying materials

LESSON KIT:
Atomic animations

Overview:
Study how the atomic structure of substances changes in simple reactions

Find it in:
Crocodile Chemistry - Classifying materials

LESSON KIT:
States of matter

Overview:
How the particles in different solids, liquids and gases behave

Find it in:
Crocodile Chemistry - Classifying materials

LESSON KIT:
Ionic, covalent & metallic

Overview:
Investigate some of the properties of solids with different bonding

Find it in:
Crocodile Chemistry - Classifying materials

Chemistry 2
12.3 How much can we make and how much do we need to use?

LESSON KIT:
Moles & masses

Overview:
Finding the mass of one mole of a substance, for different ionic compounds

Find it in:
Crocodile Chemistry - Equations & amounts

LESSON KIT:
Balanced equations

Overview:
Study different reactions and write balanced equations

Find it in:
Crocodile Chemistry - Equations & amounts

LESSON KIT:
Empirical formulae

Overview:
Produce different metal oxides, then find their empirical formulae

Find it in:
Crocodile Chemistry - Equations & amounts

Chemistry 2
12.4 How can we control the rates of chemical reactions?

LESSON KIT:
Concentration & rate

Overview:
Study the effect of using different concentrations in reactions

Find it in:
Crocodile Chemistry - Reaction rates

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Graph data from any simulated reactions, to monitor the factors influencing their rate

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Gunpowder & explosions

Overview:
Fast explosions - using gunpowder as an example

Find it in:
Crocodile Chemistry - Reaction rates

LESSON KIT:
Temperature & rate

Overview:
Measure the rate for a reaction at different temperatures

Find it in:
Crocodile Chemistry - Reaction rates

LESSON KIT:
Catalysts & rate

Overview:
How catalysts affect reaction rate

Find it in:
Crocodile Chemistry - Reaction rates

LESSON KIT:
Measuring reaction rate

Overview:
Different ways to measure how fast reactions take place

Find it in:
Crocodile Chemistry - Reaction rates

LESSON KIT:
Defining reaction rate

Overview:
Different measures of reaction rates

Find it in:
Crocodile Chemistry - Reaction rates

LESSON KIT:
Surface area & rate

Overview:
React fine, medium and coarse CaCO3 powder with acid

Find it in:
Crocodile Chemistry - Reaction rates

Chemistry 2
12.5 Do chemical reactions always release energy?

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Graph data from any simulated reactions, to monitor the amount of energy released or taken in

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Reversible reactions

Overview:
Simulate examples of reversible reactions

Find it in:
Crocodile Chemistry - Equations & amounts

LESSON KIT:
Increasing yield

Overview:
Ways of moving equilibrium in reversible reactions

Find it in:
Crocodile Chemistry - Equations & amounts

LESSON KIT:
Yield calculation

Overview:
How to calculate the yield of reversible reactions at equilibrium

Find it in:
Crocodile Chemistry - Equations & amounts

Chemistry 2
12.6 How can we use ions in solutions?

LESSON KIT:
Electrolysis variables

Overview:
Study the effects of varying concentration, voltage & electrodes

Find it in:
Crocodile Chemistry - Electrochemistry

LESSON KIT:
Ions in solution

Overview:
Test ionic substances to see if they conduct when solid, molten or dissolved

Find it in:
Crocodile Chemistry - Water & solutions

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate electrolysis experiments - control the electrodes, the electrolyte and its concentration, and the voltage.

Find it in:
Crocodile Chemistry - Parts library - Chemicals

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate electrolysis experiments - control the electrodes, the electrolyte and its concentration, and the voltage.

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Soluble & insoluble salts

Overview:
Look at different types of salt and how they are produced

Find it in:
Crocodile Chemistry - Acids, bases & salts

LESSON KIT:
Electrolysis of seawater

Overview:
Simulate electrolysis of seawater, and compare it to pure water

Find it in:
Crocodile Chemistry - Electrochemistry

LESSON KIT:
Electroplating

Overview:
Electroplate metal objects with copper, silver, lead and zinc

Find it in:
Crocodile Chemistry - Electrochemistry

LESSON KIT:
Purifying copper

Overview:
Electrolysis in a factory setting, with impure and pure electrodes

Find it in:
Crocodile Chemistry - Electrochemistry

LESSON KIT:
Making salts

Overview:
Simulate reactions that are used to produce specific salts

Find it in:
Crocodile Chemistry - Acids, bases & salts

LESSON KIT:
Basic electrolysis

Overview:
Simple electrolysis of CuCl2, dilute HCl and PbBr2

Find it in:
Crocodile Chemistry - Electrochemistry

Chemistry 3

13.1 How was the periodic table developed and how can it help us understand the reactions of elements?

LESSON KIT:
Halogen trends

Overview:
How the properties of chlorine, bromine and iodine differ from each other

Find it in:
Crocodile Chemistry - The periodic table

LESSON KIT:
Halogen displacement

Overview:
Set up reactions to displace less reactive halide ions from their compounds

Find it in:
Crocodile Chemistry - The periodic table

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate reactions between sodium, potassium or lithium and a range of other substances, including water, acids and oxygen

Find it in:
Crocodile Chemistry - Parts library - Chemicals

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate reactions between halogens and a range of other substances, including alkali metals and other halogen compounds

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Transition metal trends

Overview:
Simulate reactions involving transition metals and observe trends

Find it in:
Crocodile Chemistry - The periodic table

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Test physical properties for a range of substances and compounds, such as melting and boiling points or conductivity

Find it in:
Crocodile Chemistry - Parts library - Chemicals

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Investigate reactions and physical properties for a range of metals

Find it in:
Crocodile Chemistry - Parts library - Chemicals

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate reactions of metals, including displacement reactions and reactions with acids and oxygen, comparing reactivities

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Alkali metal trends

Overview:
Study the differences between potassium, sodium and lithium

Find it in:
Crocodile Chemistry - The periodic table

Chemistry 3

13.2 What are strong and weak acids and alkalis? How can we find the amounts of acids and alkalis in solutions?

LESSON KIT:
Titration curves

Overview:
Graph data from acid-alkali titrations, varying concentration

Find it in:
Crocodile Chemistry - Acids, bases & salts

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate reactions between strong and weak acids and alkalis, changing concentrations and volumes at will

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Indicators & pH scales

Overview:
How pH is measured using indicators and indicator charts

Find it in:
Crocodile Chemistry - Acids, bases & salts

LESSON KIT:
Definition of acid & base

Overview:
Investigate the difference between an acid and a base

Find it in:
Crocodile Chemistry - Acids, bases & salts

LESSON KIT:
Neutralisation

Overview:
React acids and alkalis, and view atomic animations

Find it in:
Crocodile Chemistry - Acids, bases & salts

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate titration reactions between strong and weak acids and alkalis, changing concentrations and volumes at will

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Titration

Overview:
Simulate a classic titration reaction and find the endpoint

Find it in:
Crocodile Chemistry - Acids, bases & salts

LESSON KIT:
Dissociation

Overview:
The difference between strong and weak acids and alkalis

Find it in:
Crocodile Chemistry - Acids, bases & salts

Chemistry 3
13.3 What is in the water we drink?

LESSON KIT:
Solubility

Overview:
Add salts to water until no more can dissolve, to investigate their solubility

Find it in:
Crocodile Chemistry - Water & solutions

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Simulate experiments with solutions of ionic compounds, investigating solubility, saturation and separation

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Water purification

Overview:
Model methods of removing different impurities from water

Find it in:
Crocodile Chemistry - Water & solutions

LESSON KIT:
Fractional distillation

Overview:
Simulate the lab separation of ethanol and water

Find it in:
Crocodile Chemistry - Water & solutions

LESSON KIT:
Extracting salt

Overview:
Boil a bucket of seawater to extract the salt from it

Find it in:
Crocodile Chemistry - Water & solutions

LESSON KIT:
Hard & soft water

Overview:
Simulate chemical reactions used to soften hard water

Find it in:
Crocodile Chemistry - Water & solutions

LESSON KIT:
Filtering coffee

Overview:
Separate the solids from coffee using filtration

Find it in:
Crocodile Chemistry - Water & solutions

LESSON KIT:
Fizzy drinks

Overview:
Investigate how carbon dioxide makes drinks fizzy and decreases pH

Find it in:
Crocodile Chemistry - Water & solutions

Chemistry 3
13.4 How much energy is involved in chemical reactions?

LESSON KIT:
Reaction energies

Overview:
Simulate reactions to study the role of energy

Find it in:
Crocodile Chemistry - Energy

LESSON KIT:
Fuels & food

Overview:
How much energy is in fuels and foods

Find it in:
Crocodile Chemistry - Energy

LESSON KIT:
Exothermic & endothermic

Overview:
Look at reactions that take in and give out energy

Find it in:
Crocodile Chemistry - Energy

FREE-FORMAT SIMULATION:
Chemistry simulation

Overview:
Graph data from any simulated reactions, to monitor the amount of energy released or taken in

Find it in:
Crocodile Chemistry - Parts library - Chemicals

LESSON KIT:
Products of burning

Overview:
Simulate combustion reactions and investigate the products

Find it in:
Crocodile Chemistry - Energy

LESSON KIT:
Coal fires

Overview:
How the combustion of coal is used to produce energy

Find it in:
Crocodile Chemistry - Energy

Chemistry 3
13.5 How do we identify and analyse substances?

LESSON KIT:
Nitrate and sulfate ions

Overview:
How to identify different nitrate and sulfate ions in solutions

Find it in:
Crocodile Chemistry - Identifying substances

LESSON KIT:
Unknown substances

Overview:
Use the simulation to identify a set of unknown substances

Find it in:
Crocodile Chemistry - Identifying substances

LESSON KIT:
Halides

Overview:
Identifying halides using the standard silver nitrate test

Find it in:
Crocodile Chemistry - Identifying substances

LESSON KIT:
Gases

Overview:
Test gases using litmus, flaming and glowing splints and Ca(OH)2

Find it in:
Crocodile Chemistry - Identifying substances

LESSON KIT:
Carbonates

Overview:
Test for carbonates using dilute hydrochloric acid

Find it in:
Crocodile Chemistry - Identifying substances

LESSON KIT:
Flame tests

Overview:
Flame tests for different metal chlorides & carbonates

Find it in:
Crocodile Chemistry - Identifying substances

LESSON KIT:
Fireworks

Overview:
How different metals give fireworks their colour

Find it in:
Crocodile Chemistry - Rocks and metals