



Accredited



Science in the Workplace

UNIT R074 - How scientists use analytical techniques to collect data

UNIT R075 - How scientific data is used

RESOURCES LINK

VERSION 1 JUNE 2013

WELCOME

Resources Link is an e-resource, provided by OCR, for teachers of the Cambridge National in Science in the Workplace. It provides descriptions of, and links to, a variety of teaching and learning resources that you may find helpful.

In Resources Link you will find details of OCR's own support materials along with information about publisher partner, endorsed and other independent resources.

Where appropriate, we have mapped the resources to the OCR specifications, and provided information about their cost and format.

If you know of other resources you would like to see included here, or discover broken links, please let us know. We would also like to hear from you if have any feedback about your use of these, or other, OCR resources. Please contact us at resourcesfeedback@ocr.org.uk

Types of Resource

OCR Produced Resources

These are resources devised and produced directly by the Resources Development Team at OCR.

Publisher Partner Resources

For many subjects OCR works with a publisher partner to ensure that good quality resources such as textbooks are available for first teaching.

Whilst the publisher partner has access to our subject experts and we quality check and endorse these resources they are produced by, and remain the property of, the publisher partner. There is no financial link between OCR and its publisher partners and we do not pay for the development of, or receive any royalties from, these resources.

Endorsed Resources

These resources were produced entirely independently of OCR, but we have quality checked them for their suitability as a resource to support our qualifications.

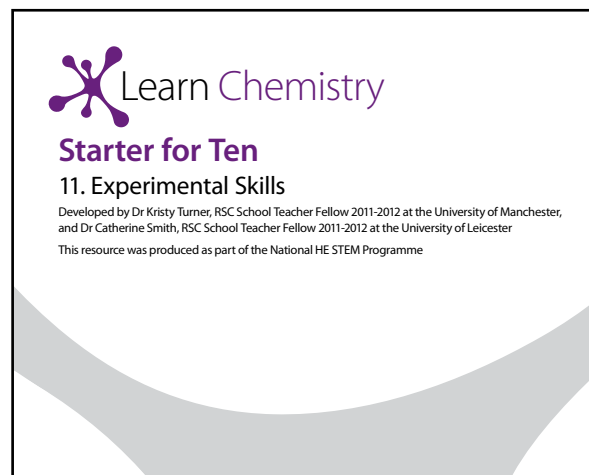
Other Resources

Unless specifically stated these resources are completely independently produced and are not endorsed by OCR. We have looked at them though, and we think they could be useful in supporting our specifications.

We leave it to you, as a professional educator, to decide if any of these resources are right for you and your students, and how best to use them.

You can now [click here](#), if you want to see an index of all resources mapped to subject topics, or alternatively flick the bottom right-hand corner of the page to start browsing.

Experimental skills



Range of worksheets testing experimental skills – difficult.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO1, LO3, LO5 and Unit R075 LO2

Cost: Free

Format: Website
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/001/415/RSC%20Starter%20for%20Ten%20-%2011.%20Experimental%20Skills.pdf?v=1364058866623>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Forensics video



A brief video that introduces forensic analysis.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2, LO3 and R075 LO3

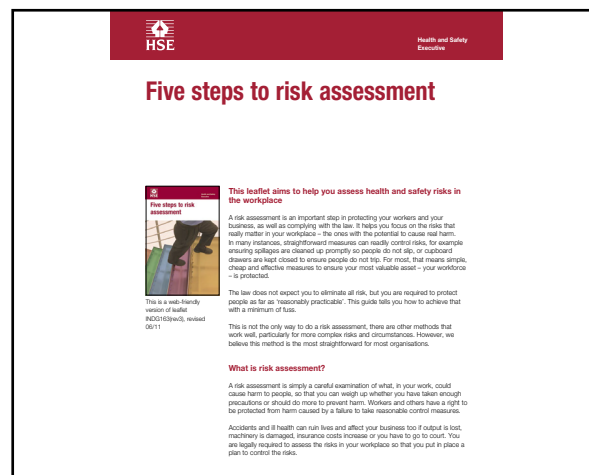
Cost: Free

Format: Video
<http://www.bbc.co.uk/learningzone/clips/crime-scene-investigation/10871.html>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Risk assessments



Information about assessing risk in the workplace.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO1

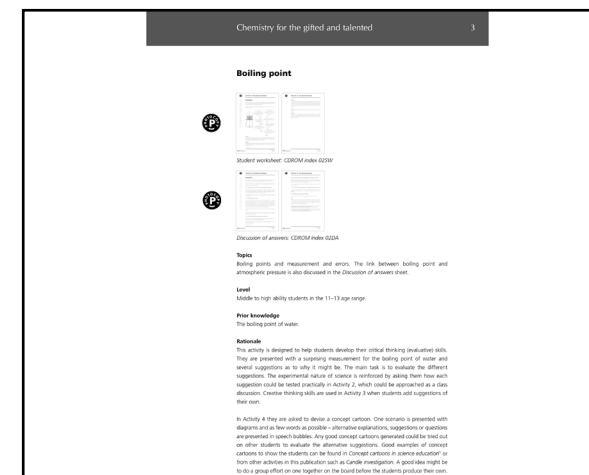
Cost: Free

Format: Website
<http://www.hse.gov.uk/pubns/indg163.pdf>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Quality of data



Worksheet for assessing the quality of data in terms of repeatability and reproducibility and Evaluating the quality and validity of data and procedures used.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO1

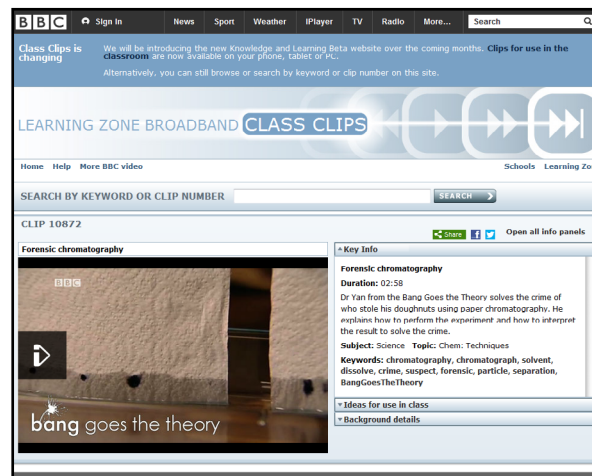
Cost: Free

Format: PDF
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/639/2.%20boiling%20point.pdf>

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Forensic chromatography



Video about the use of chromatography for forensics - video experiment.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

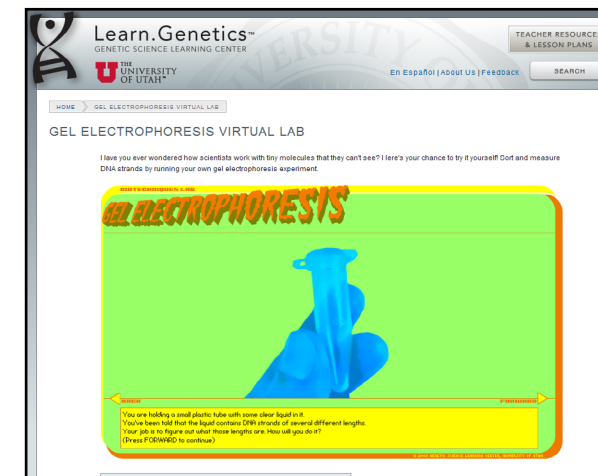
Cost: Free

Format: Website
<http://www.bbc.co.uk/learningzone/clips/forensic-chromatography/10872.html>

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Gel electrophoresis



A brief video clip detailing the workings of gel electrophoresis.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

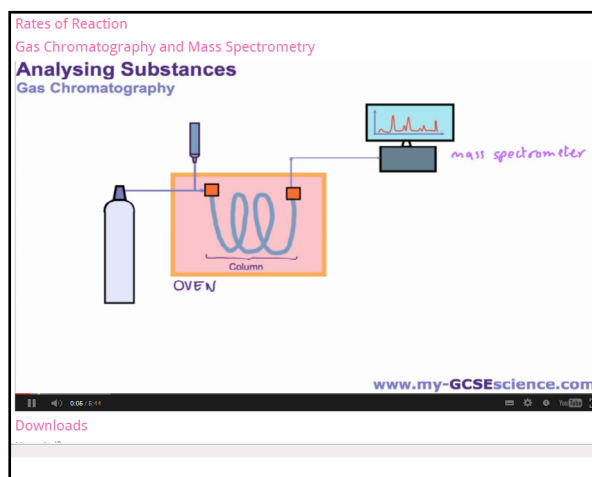
Cost: Free

Format: Website
<http://learn.genetics.utah.edu/content/labs/gel/>

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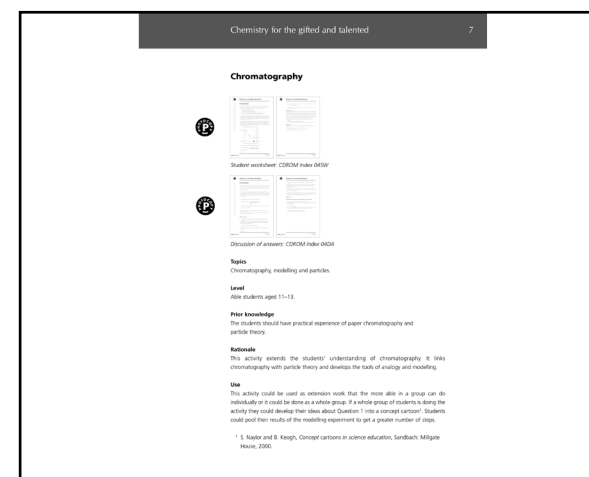
resourcesfeedback@ocr.org.uk

Gas chromatography and mass spectrometry



Website video explaining gas chromatography and mass spectrometry.

Chromatography activity - developing understanding



Worksheet activity to develop understanding of chromatography.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

Cost: Free

Format: Website
<http://www.my-gcse-science.com/revision/additional/gas-chromatography-and-mass-spectrometry>

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Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

Cost: Free

Format: PDF
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/642/4.%20chromatography.pdf?v=1363886492010>

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Chromatography - introduction to a separation method

Classic chemistry experiments	
179	
RS•C	
71.	'Smarties' chromatography
Topic	Separation.
Timing	30 min.
Description	Students separate the dyes in Smarties food colouring using chromatography paper with water solvent.
Apparatus and equipment (per group)	<ul style="list-style-type: none"> Smarties Distilled water 200 ml Beaker Two pieces of paper Chromatography paper (approximately 200 mm x 100 mm).
Teaching tips	<p>Take care to avoid smudging: small intense spots are best. The paper must be labelled (upward).</p> <p>Small bottles of liquid food colouring can be purchased from supermarkets. These are more visible and can be used as an alternative to Smarties.</p> <p>Marked chromatography paper (Whatman) is the best for this experiment.</p>
Background theory	Students should have a basic understanding of chromatography theory. This experiment can be a useful introduction to this separation method.
Safety	Not eating in the laboratory.
Answers	<ol style="list-style-type: none"> Some dyes are mixtures and separate on the paper; other dyes are single substances. Some dyes are more soluble in water: some dyes adhere to the paper more strongly. It is possible to identify all the dyes using a list of R_f values. Smarties dyes are regularly changed. A table of R_f values for dyes could be used, also access to the Smarties tube or packet.

Description of chromatography activity using smarties.

Chromatography - separating pigments in a leaf

Classic chemistry experiments	
9	
RS•C	
4.	Chromatography of leaves
Topic	Separation of mixtures, extraction.
Timing	30 min.
Description	Students use chromatography to separate the pigments present in a leaf.
Apparatus and equipment (per group)	<ul style="list-style-type: none"> Motor and pencil Chromatography paper Test pigments: Use the type of test pigments usually fitted to Universal Indicator bottles that do not allow spilling - eg Galleis. 100 ml Beaker Small capillary tube to transfer drops of liquid onto chromatography paper.
Chemicals (per group)	<p>Propanone (Highly flammable)</p> <p>Sand</p> <p>Cut-up leaves or leaves and skeletons.</p>
Teaching tips	This works well if a very concentrated solution is prepared. Use cut up leaves, a pinch of sand, and a few drops of solvent. Some separation may occur at stage 6.
Background theory	Different substances have different attractions to the paper.
Safety	Wear eye protection. Avoid naked flames.
Answers	<ol style="list-style-type: none"> Two. Green and yellow. Yellow, orange, red, blue, green.

Method for using chromatography to separate the pigments in leaves.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

Cost: Free

Format: Website
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/525/cce-71.pdf?v=1363886693189>

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Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

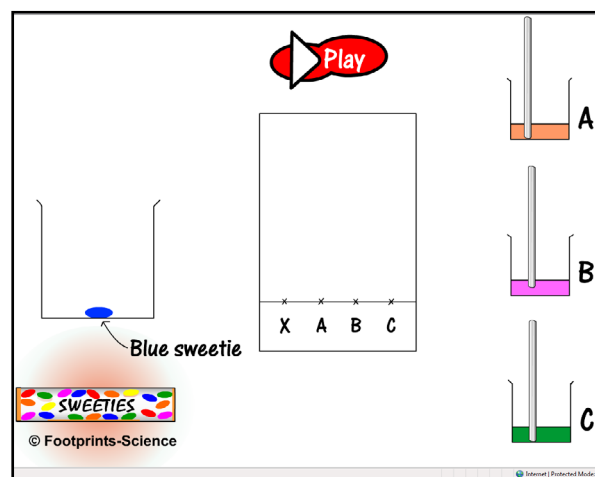
Cost: Free

Format: Website
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/458/cce-4.pdf?v=1363886777102>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Chromatography - animation



Animation illustrating chromatography technique.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

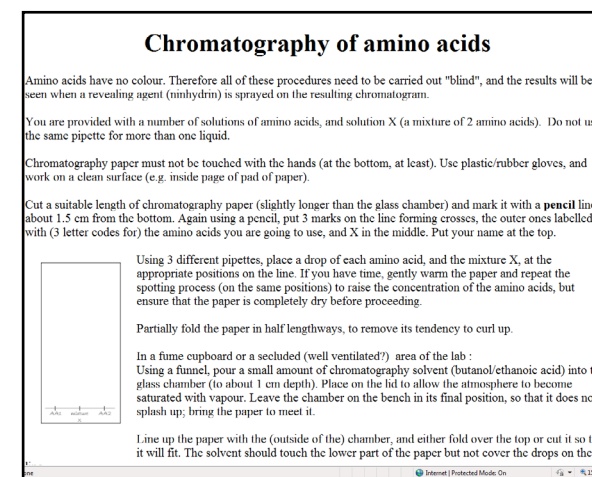
Cost: Free

Format: Animation
<http://www.footprints-science.co.uk/flash/chromatography.swf>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Chromatography of amino acids



Method for the chromatography of amino acids.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

Cost: Free

Format: Website
http://www.biotopics.co.uk/as/amino_acid_chromatography.html

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Chromatography - analysing colours

teachers' notes **C3.1**

C3. Using chromatography to analyse the colours in jelly babies

Pupils use chromatography to investigate the composition of the colours extracted from jelly babies in activity C2.

SAFETY NOTE AND TECHNICIANS NOTES:
TO PREPARE DILUTE AMMONIA SOLUTION: DILUTE ONE PART CONCENTRATED AMMONIUM HYDROXIDE R.D. 0.588 WITH 99 PARTS WATER.
THE CONCENTRATED AMMONIUM HYDROXIDE IS CORROSIVE WITH A HARMFUL VAPOUR; YOU MUST USE SAFETY GOGGLES; MIXING MUST BE DONE IN A FUME CUPBOARD.
ABOUT 20 CM³ OF DILUTE AMMONIA SOLUTION IS NEEDED FOR EACH COLOUR REMOVAL.
USE THE DILUTE AMMONIA SOLUTION IN A WELL VENTILATED ROOM.

Safety notes and hints for pupils
Care must be taken when heating the coloured solution to evaporate the liquid. It is easy to heat the solution to dryness. Pupils must be aware that even when they stop heating the solution, evaporation continues to occur.
Heating ammonia solution may produce potentially dangerous fumes. It is advisable to use the finest tubing as possible to spot the liquids onto the chromatography paper.
There are a number of waiting times in this experiment and it is advisable to have activities such as preparing the chromatography paper or others to occupy the pupils.
The results will obviously depend on the sweets used. Tesco's own brand give good results.

KS3 and 4 science (possibly technology, but access to laboratory facilities is advised)
Timing - 60 - 70 minutes
Two pupil activity sheets C3 accompany this activity.
Requirements
For removing the dye from the wool:
• lengths of dyed wool made in C2
• dilute ammonia solution (see box)
• 50 cm³ or 100 cm³ beakers
• stirring rods or longie
• hot plates or water baths
• stopclocks
• safety goggles
For chromatography:
• chromatography or filter paper (if single chromatograms are to be run this needs to be about 12 cm x 3 cm; if you would like to test all the colours at the same time, then appropriately larger pieces are needed)
• solvent - dilute ammonia solution (see box) volume required will depend upon the containers you use as chromatography tanks (use the ammonia solution in a well ventilated room)
• melting point tubes or similar for spotting the coloured liquids
• beakers, or similar, of a suitable size to act as chromatography tanks

Method for using chromatography to analyse the colours found in jelly babies.

Mass spectrometry

Learn Chemistry

Starter for Ten

10. Analysis

Developed by Dr Kristy Turner, RSC School Teacher Fellow 2011-2012 at the University of Manchester, and Dr Catherine Smith, RSC School Teacher Fellow 2011-2012 at the University of Leicester
This resource was produced as part of the National HE STEM Programme

Worksheet and answers about mass spectrometry.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

Cost: Free

Format: PDF
<http://www.understandingfoodadditives.org/activities/C3.pdf>

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Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO2

Cost: Free

Format: PDF
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/001/414/RSC%20Starter%20for%20Ten%20-%202010%20%20Analysis.pdf?v=1370422058920>

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Introduction to X-rays video



Video about the use of X-rays.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO3

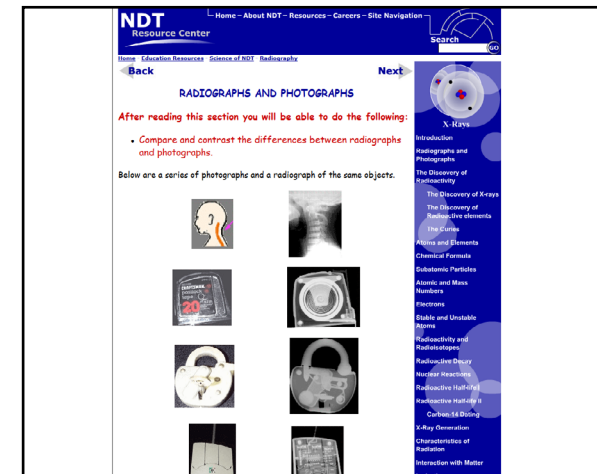
Cost: Free

Format: Website
<http://www.bbc.co.uk/learningzone/clips/x-rays/4553.html>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Uses of X-rays to see hidden objects



Uses of X-rays to see hidden objects - the differences between photographs and radiographs.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO3

Cost: Free

Format: Website
<http://www.ndt-ed.org/EducationResources/HighSchool/Radiography/radiographsphotos.htm>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Magnification



Animation explaining magnification.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO3

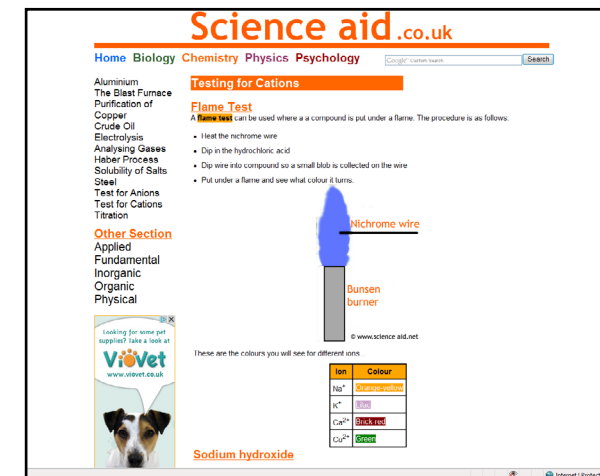
Cost: Free

Format: Website
<http://www.cellsalive.com/howbig.htm>

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Flame tests



Description of how to carry out a flame test and the results.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

Cost: Free

Format: Website
<http://scienceaid.co.uk/chemistry/applied/testcations.html>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Flame tests demonstration

RSC Advancing the Chemical Sciences

Flame colours – a demonstration 80

This demonstration experiment can be used to show the flame colours given by alkali metal, alkaline earth metal, and other metal salts. This is a spectacular version of the flame test experiment that can be used with chemists and non-chemists alike. It can be extended as an introduction to atomic spectra for post-16 students.

Lesson organisation

This experiment must be done as a demonstration. It takes about ten minutes if all is prepared in advance. Preparation includes making up the spray bottles and conducting a risk assessment. Your employer's risk assessment must be customised by determining where to spray the flame to guarantee the audience's safety. Use a fume cupboard unless you are sure of an alternative space.

Apparatus and chemicals

Eye protection
Access to fume cupboard (unless a safe alternative space is available)
Trigger pump operated spray bottles (see note 1)
Bunsen burner
Heat resistant mat(s)
Hand-held spectrosopes or diffraction gratings (optional)
Samples of the following metal salts (no more than 1 g of each) (see note 2):
Sodium chloride (Low hazard)
Potassium chloride (Low hazard) (see note 3)
Lithium chloride (Harmful) (see note 3)
Copper sulfate (Harmful, Danger to the environment)
Ethanol (Highly flammable), approx 10 cm³ for each metal salt
or DKA (distilled denatured alcohol) (Highly flammable, Harmful)

Demonstration for flame tests.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

Cost: Free

Format: PDF
<http://www.rsc.org/learn-chemistry/content/flerepository/CMP/00/000/839/CFNS%20Experiment%2080%20-%20Flame%20colours%20-%20a%20demonstration.pdf>

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Flame tests activity

CREATIVE CHEMISTRY
www.creative-chemistry.org.uk

16 visitors online

General • Activities • GCSE • A Level • Molecules • Fun Stuff

Flame tests

What's it all about?

When solutions of metals are heated in a Bunsen burner flame, they give off characteristic colours. For example, sodium makes the flame turn bright orange – this is the same orange colour made by sodium street lamps and many fireworks. You can be an analytical chemist or forensic scientist in this activity, by finding out what colour flames different metals make, and working out the identity of some unknown metal solutions.

What is here?

You can:

- Download the A-level from this topic (this is identical to the one we use, including the students' worksheets in colour), or
- View the notes below. These are divided into:
 - Student notes
 - Teacher notes
 - Teacher notes

Student notes

First make sure that you have a clean flame test wire. Do this by holding the metal loop in the hottest part of the Bunsen burner flame. If it is clean, there should be no change in the colour of the flame when the metal loop is put in it. If it is not clean, clean it by dipping it into the concentrated and provided, then holding the loop in the Bunsen burner flame. Repeat this cleaning until there is no more change in the colour of the flame.

The next job is to do your flame tests. Dip the flame test loop into one of the known test solutions, then hold the metal loop in the hottest part of the Bunsen burner flame. Make a note of the colour of the flame on your Flame Test Chart (see the one below).

barium	calcium	copper	lead	potassium	sodium

Clean the flame test wire, then test another known test solution. Keep going until you have recorded the colour of all of the known solutions.

Get your results checked, then flame test the four unknown solutions and make a note of their colour.

Worksheet method for flame tests.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

Cost: Free

Format: Website
<http://www.creative-chemistry.org.uk/activities/flametests.htm>

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Flame tests (wooden splint method)

RSC | Publishing line
Chemical Sciences

Flame tests (wooden splint method) 79

Teachers have traditionally used nichrome wire for carrying out flame tests. The main problems with this method are:

- the need to use concentrated hydrochloric acid (Corrosive, refer to CLEAPSS Hazard 07a). This presents a considerable hazard that often deters teachers from using the procedure with students,
- the problems of contamination of wires which are then difficult to clean,
- the cost of regularly renewing wires.

Lesson organisation

The method described in this experiment is intended for students to carry out and avoids the need for the use of concentrated hydrochloric acid. It also avoids the cost and contamination problems associated with the use of nichrome or platinum wires. A class arrangement for the procedure would make classroom management much easier than if every group of students have to collect and test all the solutions at their own workstation. The time taken will depend on the number of tests to be carried out, but 30 minutes should be sufficient.

Apparatus and chemicals

Eye protection

Bunsen burners
Heat resistant mat
Boiling tube racks
Boiling tubes
Wooden splints
Distilled water

A selection from solutions of the following salts, each no more than 0.5 mol dm⁻³

Lithium chloride (Harmful, see note 3)
Sodium chloride (Low hazard)
Potassium chloride (Low hazard) (see note 3)
Rubidium chloride (Low hazard)
Caesium chloride (Low hazard)
Calcium chloride (Irritant)
Strontium chloride (Irritant)
Barium chloride (Harmful at the concentration used)
Copper chloride (Harmful, Danger to the environment)

Method for flame tests.

Flame colours

CHEMICAL
making the chemical connection

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Exciting Electrons

Exciting Electrons using LIGHT

When metals or metal salts are heated in a flame, the flame becomes highly coloured. These colours are due to the electrons in the metal atoms getting excited!

Fireworks are made up of metal salts - they take advantage of the different colours that are produced when metal atoms are heated.



Lithium (left), sodium (middle) and copper (right) salts give pink, yellow and green flame colours.

What's the Chemistry?

The heat of the flame causes electrons in the metal atom to rise up to higher energy levels. This "excited state" is unstable. As the electron falls back to its original energy level ("ground state"), it releases the energy as LIGHT.

Why do different metals cause different flame colours?

Different metal atoms have different separations between their ground and excited states ("energy gap"). They emit different amounts of energy when electrons fall from the excited state to the ground state.

Information about metals producing colours when heated in a flame.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

Cost: Free

Format: PDF
[http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/838/cfns%20experiment%2079%20-%20flame%20tests%20\(wooden%20splint%20method\).pdf?v=1364648453376](http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/838/cfns%20experiment%2079%20-%20flame%20tests%20(wooden%20splint%20method).pdf?v=1364648453376)

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Unit R074 LO4

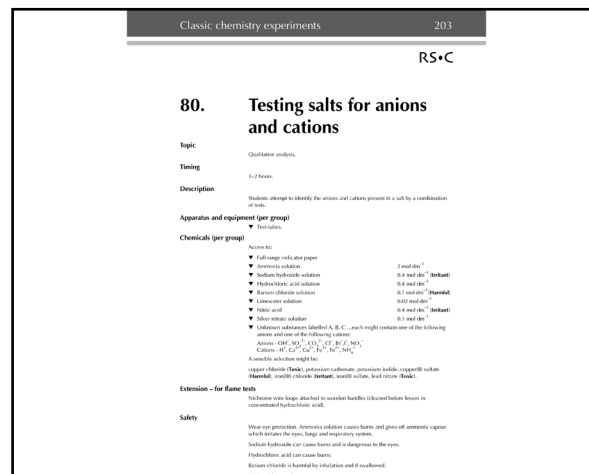
Cost: Free

Format: Website
<http://www.chemicalconnection.org.uk/chemistry/topics/view.php?topic=3&headingno=5&lang=en>

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Testing salts for anions and cations



Method for testing salts for anions and cations.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

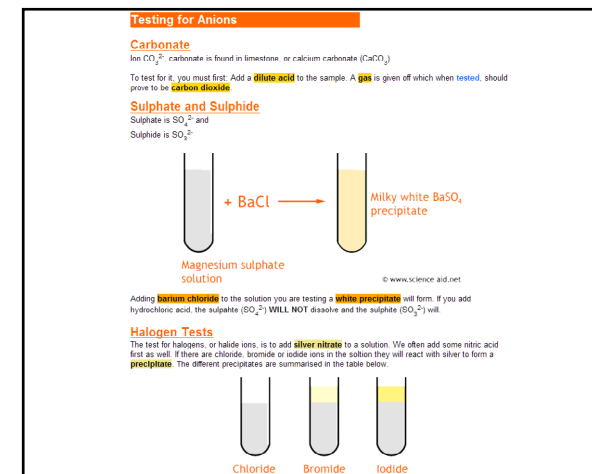
Cost: Free

Format: Website
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/534/cce-80.pdf?v=1364648589268>

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Testing for anions



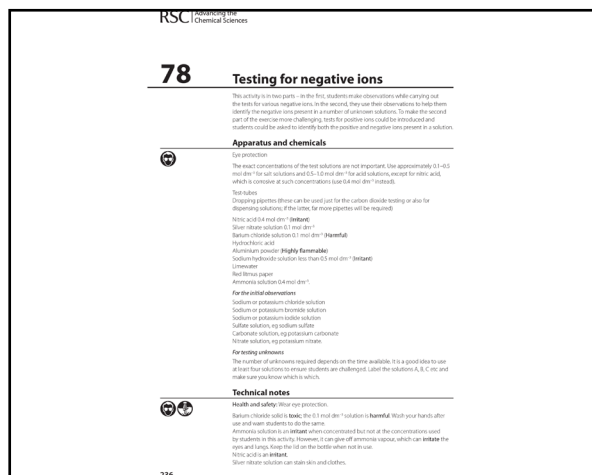
A description of how to carry out tests for anions and the results.

Supports:	Level 1/2 Cambridge National in Science in the Workplace Unit R074 LO4
Cost:	Free
Format:	Website http://scienceaid.co.uk/chemistry/applied/testanions.html

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Testing for negative ions



Method for testing for negative ions.

Testing for ions – revision



A series of questions that can be used as a revision source for testing for ions.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

Cost: Free

Format: Website
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/837/cfns%20experiment%2078%20-%20testing%20for%20negative%20ions.pdf>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO4

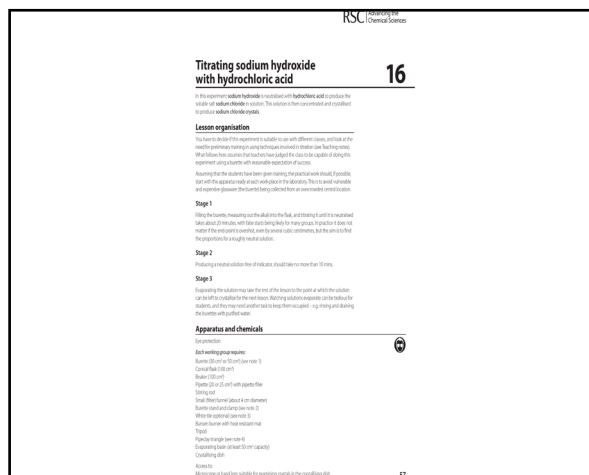
Cost: Free (for this activity)

Format: Website
<http://www.absorblearning.com/chemistry/demo/units/LR1106.html#Introduction>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

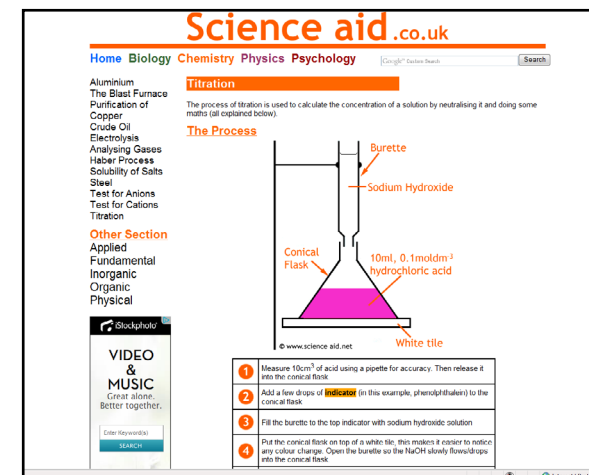
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Titration of sodium hydroxide with hydrochloric acid



Experimental method for the titration of sodium hydroxide with hydrochloric acid.

Titration



An explanation of how to carry out a titration.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO5

Cost: Free

Format: DF
<http://www.rsc.org/learn-chemistry/content/flerepository/CMP/00/000/502/cce-48.pdf?v=1364057359835>

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Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R075 LO5

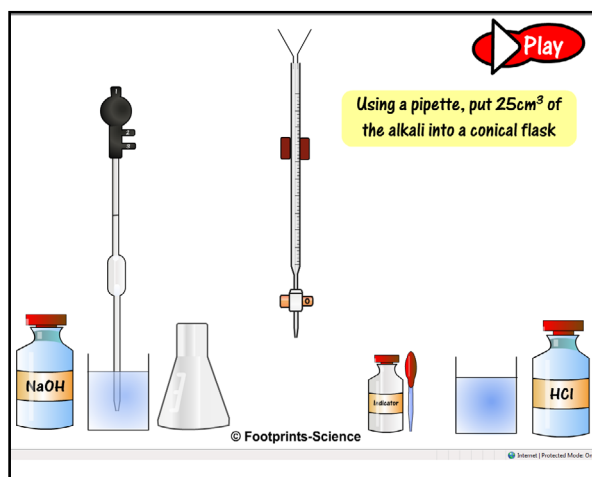
Cost: Free

Format: Website
<http://scienceaid.co.uk/chemistry/applied/titration.html>

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Titration - animation



Animation explaining titration.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO5

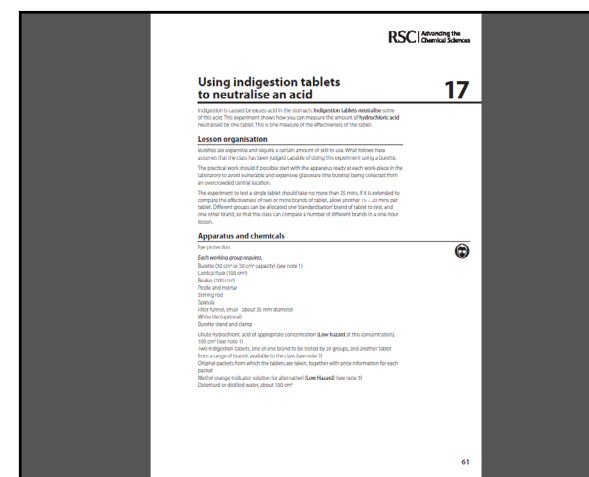
Cost: Free

Format: Animation
<http://www.footprints-science.co.uk/flash/titration.swf>

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Titration - indigestion tablet experiment



Titration using indigestion tablets to neutralise an acid.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO5

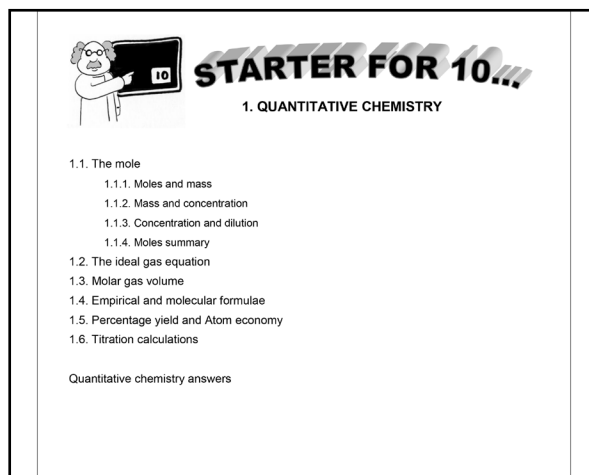
Cost: Free

Format: PDF
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/776/cfns%20experiment%2017%20-%20using%20indigestion%20tablets%20to%20neutralise%20an%20acid.pdf?v=1364057543384>

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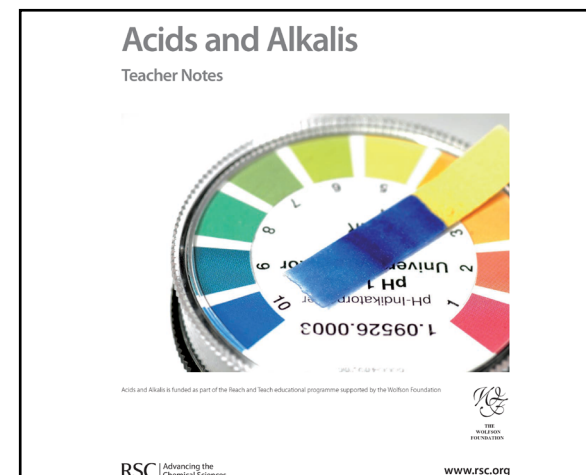
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Titration calculations



Titration calculations activity – section 1.6.

Acids and alkalis



Notes and worksheets on acids and alkalis.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO5

Cost: Free

Format: PDF

<http://www.rsc.org/learn-chemistry/content/flerepository/CMP/00/001/406/RSC%20Starter%20for%20Ten%20-%201.%20Quantitative%20Chemistry.pdf?v=1364059065991>

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Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO5

Cost: Free

Format: PDF

<http://www.rsc.org/learn-chemistry/content/flerepository/CMP/00/000/947/Acids%20and%20Alkalis.pdf>

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Scientific method - revision

What is **Science**?

Science is a **method** which we use to try to understand how things work. **Science** is by far the **best method** we have available. That is why so many people have spent so long working in science. The **scientific method** has had an **enormous impact** on the world in which we live. The fact that you are reading this now on a computer is **proof** of the **extraordinary power** of **science**.

So, what is the **scientific method** and how can we use it?

Revision pages about scientific method.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R075 LO1, LO2, LO4

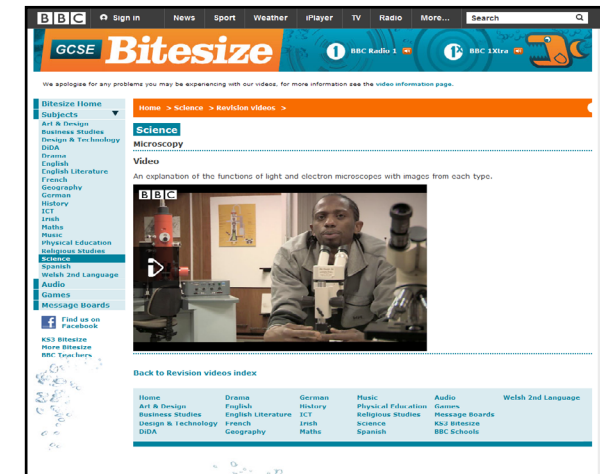
Cost: Free

Format: Website
<http://www.gcscscience.com/hsw1.htm>

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Electron microscopy



A brief video clip detailing the workings of an electron microscope.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R074 LO3 and R075 LO1

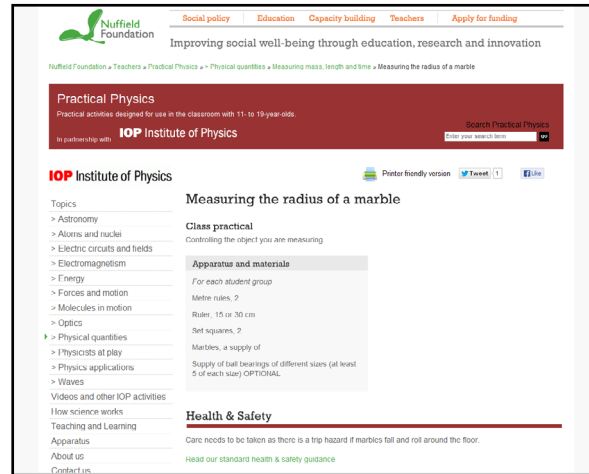
Cost: Free

Format: Website
http://www.bbc.co.uk/schools/gcsebitesize/science/videos/microscopy_video1.shtml

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Measuring the radius of a marble



Experiment looking at controlling the object you are measuring.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R075 LO1

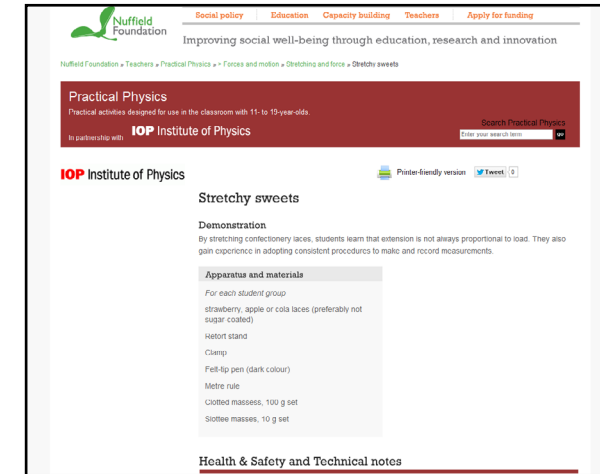
Cost: Free

Format: Website
<http://www.nuffieldfoundation.org/practical-physics/measuring-radius-marble>

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Stretchy sweets



Practical where learners can gain practice in using consistent methods in obtaining results.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R075 LO1

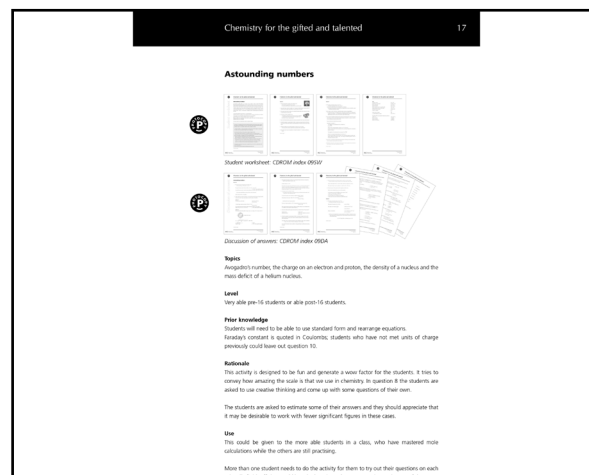
Cost: Free

Format: Website
<http://www.nuffieldfoundation.org/practical-physics/stretchy-sweets>

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Astounding numbers



Worksheets practicing the communication of science.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R075 LO4

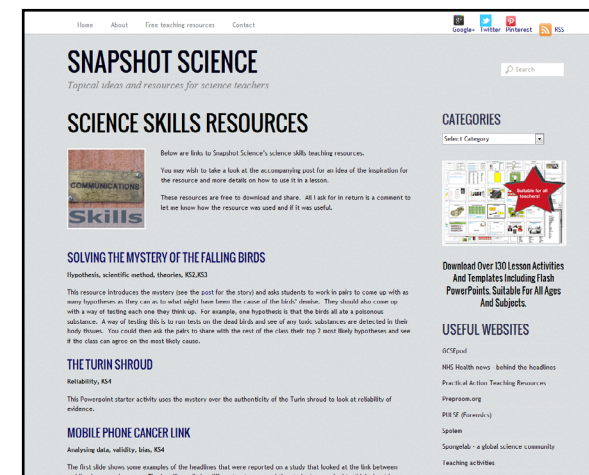
Cost: Free

Format: PDF
<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/649/9.%20astounding%20numbers.pdf?v=1364649650075>

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Analysing data, validity, bias



This website has a number of activities based on scientific analysis which address validity, reliability and evaluating.

Supports: Level 1/2 Cambridge National in Science in the Workplace
Unit R075 LO3

Cost: Free

Format: Website
<http://snapshotscience.co.uk/science-skills-resources/>

If you know of any resources that you think should appear here, or if you identify broken links please let us know. We would also like to hear from you with your feedback about your use of any of the resources listed here. Please contact us at

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Resources Index

Click on a resource to go to the appropriate page.

- Experimental skills
- Forensics video
- Risk assessments
- Quality of data
- Forensic chromatography
- Gel electrophoresis
- Gas chromatography and mass spectrometry
- Chromatography activity – developing understanding
- Chromatography – introduction to a separation method
- Chromatography – separating pigments in a leaf
- Chromatography - animation
- Chromatography of amino acids
- Chromatography – analysing colours
- Mass spectrometry
- Introduction to X-rays video
- Uses of X-rays to see hidden objects
- Magnification
- Flame tests
- Flame tests demonstration
- Flame tests activity
- Flame tests (wooden splint method)
- Flame colours
- Testing salts for anions and cations
- Testing for anions
- Testing for negative ions

Resources Index

Click on a resource to go to the appropriate page.

- Testing for ions – revision
- Titration of sodium hydroxide with hydrochloric acid
- Titration
- Titration - animation
- Titration Indigestion tablet experiment
- Titration calculations
- Acids and alkalis
- Scientific method - revision
- Electron microscopy
- Measuring the radius of a marble
- Stretchy sweets
- Astounding numbers
- Analysing data, validity, bias