# THE ASSOCIATION OF THE BRITISH PHARMACEUTICAL INDUSTRY

The Association of the British Pharmaceutical Industry (ABPI) represents companies in Britain that research, develop, manufacture and market prescription medicines. Britain is a world leader in pharmaceuticals, five of the world's top 25 best selling medicines were developed in the UK and over 80% of the medicines and vaccines supplied to the National Health Service are produced by ABPI member companies.

The pharmaceutical industry is constantly developing new, safer and more effective treatments for many diseases which affect people all over the world.

The Association and its member companies actively support the study of science in schools, colleges and universities by providing information on real life applications of science and technology.

# BP

BP is of one of the world's largest petroleum and petrochemical groups. BP's main activities are the exploration and production of crude oil and natural gas; refining, marketing, supply and transportation; and BP believes education is the key to the future - not manufacturing and marketing of petrochemicals. The company is a global leader in the manufacture and use of solar photovoltaic products.

BP has well-established operations in Europe, North and South America. Australasia and Africa.

only for business, but for society as a whole. As such, BP continues to support the partnership of business and education working together.

# **CHEMICAL INDUSTRY EDUCATION CENTRE**

In 1988, the Chemical Industry Education Centre, CIEC, was established as a joint venture between the University of York and the Chemical Industries Association (CIA), the UK trade association for the chemical industry. It aims to enhance understanding of the chemical industry principally by providing exciting balanced science teaching and learning resources and parallel programmes of professional development for teachers and industrialists.

The CIA was born in 1965, by bringing together a trade association and an employers' federation.

Large and small chemical companies from all parts of the United Kingdom pay membership fees to CIA, whose purpose it is to support the UK chemical industry in maintaining its successful operation and development.

The University of York has an excellent international and national reputation for science education in terms of research work and curriculum developments, typified by the Salters' GCSE Science Course and the Advanced Chemistry Course.

# **ROYAL SOCIETY OF CHEMISTRY**

The Royal Society of Chemistry is the UK Professional Body for chemical scientists and an international Learned Society for the chemical sciences with 46,000 members world-wide. It is a major international publisher of chemical information, supports the teaching of the chemical sciences at all levels and is a leader in bringing science to the public.

The RSC's object, as stated in its Royal Charter, is 'the general advancement of chemical science and its application'. Arising from this, the RSC makes a

significant effort to help teachers and students, at all levels of education, by its various activities.

There are six divisions of the RSC catering for specialist interests. The Education Division has around 4,000 members which enables chemistry teachers to be continually involved with curriculum developments and abreast of the latest teaching methods and learning aids.

There are also 35 Local Sections of the RSC which cater for the local needs of members and organise schools' lectures, careers talks and local competitions.

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BP

ron Carbon Nitrogen Oxygen Fluorine Neon Sodium Magnesium Aluminiur

# **CHEMICAL INDUSTRY EDUCATION CENTRE**

# **ROYAL SOCIETY OF CHEMISTRY**

# THE ASSOCIATION OF THE BRITISH PHARMACEUTICAL INDUSTRY

The Association of the British Pharmaceutical Industry (ABPI) provides paper and web based resources for teachers and students to enhance study of science, business studies and manufacturing in schools and colleges. The ABPI also provides information on careers in the pharmaceutical industry and routes into these areas of work.

Career information: www.abpi-careers.org.uk Life enhancing careers – a career in the pharmaceutical industry.

# **Curriculum resources:**

Interactive web resources sponsored by ABPI are available on www.schoolscience.co.uk Information on other materials sponsored by ABPI may be obtained from:

Publications Department ABPI, 12 Whitehall, London SWIA 2DY Tel: 020 7930 3477 Fax: 020 7747 1411 Web: www.abpi.org.uk

BP has been working with teachers for over 35 years For further information or to order any BPES to develop and produce educational materials about BP and its industry for schools and colleges.

The materials support the following curriculum areas:

- Science
- Citizenship
- Business studies
- Design and technology
- Geography

resources contact:

BP Educational Service (BPES) PO Box 105, Rochester, Kent, ME2 4BE BPES Helpline: +44 (0) 871 472 3020

Fax: +44 (0) 871 472 3021 Email: bpes@bp.com Web: www.bp.com/bpes

# **CHEMICAL INDUSTRY EDUCATION CENTRE**

# The Centre:

- offers a specialist research and consultancy service to industry and schools.
- designs, publishes and distributes teaching and learning resources which illustrate industrial applications of science and technology defined by the various UK curricula and which include stimulating, interactive activities.
- contributes to public understanding of science, for example, by working with science museums and hands-on centres and by arranging interactive displays at science festivals.
- trains science and technology teachers and industrialists to use the CIEC publications and to work together effectively.

Chemical Industry Education Centre Department of Chemistry University of York Heslington York YO 10 5DD Tel: 01904 432523 Fax: 01904 434460 Email: ciec@york.ac.uk Web: www.ciec.org.uk

# **ROYAL SOCIETY OF CHEMISTRY**

# **Activities for teachers include:**

- Industry Study Tours
- Symposia on the latest chemical techniques
- Summer Schools
- Management Workshops

# **Activities for students include:**

- Chemistry at Work exhibitions
- Summer Schools
- International Chemistry Olympiad competition
- Top of the Bench competition

# Available resources include:

- Careers posters, broadsheets and booklets
- Schools and Colleges Publications Service
- Curriculum materials

Updated 8/2008

For further details of the ways in which the

Royal Society of Chemistry can help support teaching chemistry in schools and colleges,

please contact:

The Education Department Royal Society of Chemistry

**Burlington House** 

**Piccadilly** 

London WII 0BA

Tel: 020 7440 3344

Fax: 020 7287 9825

Email: education@rsc.org

Web: www.rsc.org or www.chemsoc.org/learnnet

Registered charity No. 207980



# THE PERIODIC TABLE OF ELEMENTS

KEY

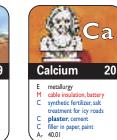


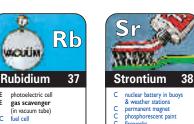
- lubricant additive, glass
  - aircraft brakes golf clubs (watch) spring spark-free tools













synthetic fertilizer

gamma radiation source atomic clock infra-red lamp rocket fuel additive





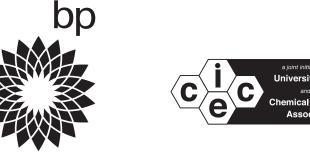


Barium 5<u>6</u>

filler, pigment for paper fireworks, X-ray photo or digestive system mud used in oil drilling r 137.33

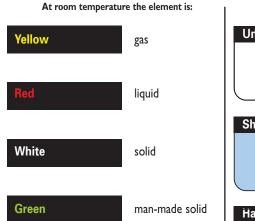


Medicines for a RSC | Advancing the Chemical Sciences Healthy Future

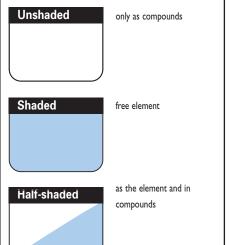


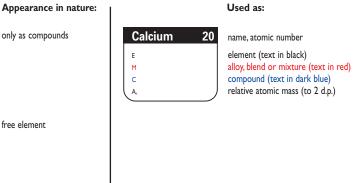






Iron





© Association of the Dutch Chemical Industry (VNCI)



Ga 🥡

1 car bearings
1 motor in grand prix car
2 glass coating
Ar 114.82

Gallium



Carbon

water and air purificatio tyre colourant, in steel diamond, pencil plastics, fibres natural gas, petrol, oil 12.01



organ pipe antifouling paint opalescent glass, enamel 118.71



Phosphorus 15

synthetic fertilizer, w.c. cl

toothpaste food acidity regulator antioxidant, emulsifier lubricant additive 31.00

Antimony

shotgun pellet fire retardant infra-red detector 121.75



Te

Tellurium 52

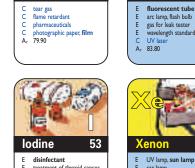
percussion cap steel for work on lat

resistance wire vulcanization of rubber 127.60

combustion steel production respiration water purification 16.00

Sulfur

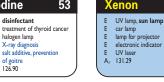
fireworks battery, sulfuric acid production vulcanization of rubber

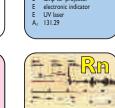


water additive toothpaste additive non-stick coating

water disinfection

hydrochloric acid plastic (PVC)

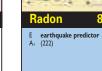




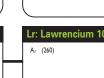
E inflating balloons, airship
E leak detector, laser
E welding blanket gas
E nuclear reactor coolant
M in atmosphere for deep div
A<sub>r</sub> 4.00

neon light
fog light, tv tube
E barcode reader
E voltage probe
E laser
A<sub>r</sub> 20.12

E light bulb filling
E gas discharge tube
E geiger counter, laser
E welding blanket gas
E gas chromatography
A<sub>r</sub> 39.95









Yttrium

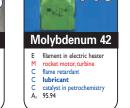
anthanum 57

Zirconium 40 percussion cap fake diamond furnace bricks



welding rod
orthopaedic implants
92.91

Vanadium 23



welding electrode lamp filament, tv

Chromium 24

catalyst for methanol production camouflage paint, laser cassette and video-tapes 52.00





Ruthenium 44



Cobalt

Rhodium

M catalytic converter
M aircraft spark plug
A<sub>r</sub> 102.91

gamma radiation source
razor blades
permanent magnet
pigment
pigment
58.93



Nickel



Pd

Palladium 46



🌎 Au

Copper

Ag





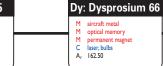


thermometer
street light
sun lamp, energy-saving bulb
dental filling
Ar 200.59

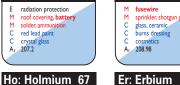
coating (galvanising) battery, gutter car parts, brass

Cadmium 48

light meter pigment in enamel, ceramic and oil paint r 112.41











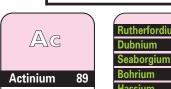
At















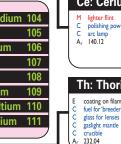
Hafnium 72

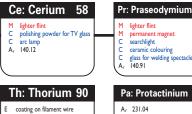
nuclear submarine

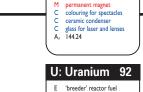
control rods in nuclear

gas scavenger for vacuum



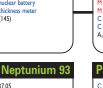






oven filament

Nd: Neodymium 60











glass colouring 164.93

Er: Erbium 68

Tm: Thulium 69

C transistor, diode