The Case of the mysterious behavior of some chemical elements

VK3886 VD
EI 13 min 1998 Landmark Media
Chemistry Solved By Sherlock Olmos Series - Details how the Periodic Table of the Elements is used in chemistry. Examines how chemical elements are structured and explains why they react in certain ways. Sherlock investigates how electrons change and explores the characteristics of hydrogen, flourine gas, and the noble gases.

Chemical structure; Periodic Table of Elements; Chemistry–Study and teaching–Middle School; Chemical elements; Chemical reactions; Chemistry–Study and teaching–Elementary

Chemical bonding

DK0768 DV
H 18 min 2000 Films Media Group
Standard Deviants: Chemistry series - "An atom with eight electrons in its valence shell is a happy atom." Section one of this program makes sense of Lewis structures and resonance structures while addressing the Octet Rule and its exceptions. In section two, "Professor Einsteinium" and elements of Atomic Mass University-AMU-study electronegativity and ionic and covalent bonding, while section three focuses on bond energy and reaction enthalpy. (540)

Chemical bonds; Electronegativity; Chemical structure; Enthalpy; Chemistry–Study and teaching–High School

Chemical equations and atomic molecular mass

DK0769 DV
H 20 min 2000 Films Media Group
Standard Deviants: Chemistry series - Can a barbershop quartet introduce the subject of stoichiometry? They do in this program, which in section one presents the Law of Conservation of Mass and how to balance equations. Section two explains the difference between the mass number and atomic mass, what an isotope is, and how to work with atomic mass units to find the average atomic mass. (540)

Isotopes; Atomic mass; Stoichiometry; Equations; Chemistry–Study and teaching–High School

Chemistry in action

DK0117 DV
IMH 83 min 2005 Visual Learning Company
Chemistry in Action Series - Series combines live action and computer animation to explore the chemical properties of matter. Program one introduces the Periodic Table to illustrate how chemical elements are classified by atomic structure and grouped according to similar properties. Program two explains the process of chemical bonding and describes the role of atomic structure in the bonding process. Program three demonstrates how chemical reactions occur and illustrates different types of reactions that include decomposition, synthesis and replacement reactions. Program four defines chemical compounds and describes their atomic structure. Identifies the chemical properties of acids and bases, carbon compounds and hydrocarbons. Each program concludes with a ten-question video quiz. (540)

Acids and Bases; Hydrocarbons; Chemistry–Study and teaching–Middle School; Atoms; Periodic Table of Elements; Periodic law; Electrons; Molecules; Matter–Properties; Chemistry–Study and teaching–High School; Chemistry–Study and teaching–Elementary

Chemistry in Action Series

For descriptions see individual titles:
Chemistry in action [DK0117]

Chemistry Solved By Sherlock Olmos Series

Sherlock Olmos, a curious child, thinks that science and math must be investigated. The mysteries of the Periodic Table of the elements are solved using his impressive investigative skills.
For descriptions see individual titles:
The Case of the mysterious behavior of some chemical elements [VK3886]
The mysterious case of chemistry [VK3884]
The mysterious case of the periodic table of the elements [VK3101]

Elementary Science Series

For descriptions see individual titles:
Exploring the building blocks of matter [DK1077]
Forming bonds [DK1082]

The Elements

DK0883 DV
IMH 52 min CA 2004 Discovery Education
This program travels from the time of the ancient Greeks to the modern day to see how scientists have identified the elements that are the building blocks of all materials. Poet Roger McGough, in inspired dramatic fashion, traces the evolution of chemistry from the Greeks to the present day. In Part One, McGough reveals the madness of mercury, the folly of gold and the shadowy art of alchemy. Part Two explores how early scientists turned alchemy into chemistry, ultimately building this new discipline around the periodic table.

Periodic Table of Elements; Chemistry–Study and teaching–Middle School; Chemical elements; Chemistry–Study and teaching–High School; Chemistry–Study and teaching–Elementary; Closed Captioned

Elements, compounds and mixtures

DK0974 DV
IM 23 min CA 1999 Library Video Co
Physical science in action series - Explores the world's purest forms of matter, such as water, carbon dioxide, and salt. Explains how these limited elements combine in mixtures, compounds, and solutions to form entirely new substances. Examines the properties of chemical elements and illustrates chemical bonding. Gives examples of heterogeneous and homogeneous mixtures, demonstrating how chemical compounds and mixtures differ. Also discusses how scientists use the Earth's elements to benefit humanity. (546)

Science–Study and Teaching (Elementary); Science–Study and teaching (Middle School); Chemistry–Study and teaching–Middle School; Organic compounds; Mixtures; Chemical elements; Inorganic compounds; Surface chemistry; Chemicals; Solution (Chemistry); Spanish language materials–Bilingual; Matter–Properties; Chemistry–Study and teaching–High School; Chemistry–Study and teaching–Elementary; Closed Captioned

Elements "placemat-sized" poster set

PS0055 PS
IMH 2006 Films Media Group
10"x20" laminated "placemat" version of the periodic table of the elements featured in Popular Science magazine. Includes additional information on its reverse, such as melting and boiling points, densities, and descriptions of the images used to represent the elements.

Chemical elements; Chemistry–Study and teaching–Middle School; Chemistry–Study and teaching–High School; Chemistry–Study and teaching–Elementary

Exploring the building blocks of matter

DK1077 DV
EI 14 min 2009 Visual Learning Company
Elementary Science Series - Explores the features of atoms, the building blocks of matter, including early ideas about the structure of matter and the atomic theory. Also looks at sub-atomic particles: protons, neutrons and electrons. Investigates the structure of different types of atoms highlighting how structure influences the characteristics of atoms and

elements. Briefly discusses how elements are organized into the Periodic Table of Elements. (541.042)

Chemistry–Study and teaching–Elementary; Physical sciences–Study and teaching (Elementary); Atoms; Atomic theory; Chemical elements; Matter–Properties

Forming bonds

DK1082 DV
EI 14 min 2009 Visual Learning Company
Elementary Science Series - Explores the fascinating ways that atoms join together to form bonds. Begins by reviewing the three major types of sub-atomic particles: protons, neutrons and electrons. Explains how valence electrons play an important role in bond formation. Discusses the process by which ionic bonds form, how covalent bonds occur, and the nature of metallic bonds. (541.39)

Physical sciences–Study and teaching (Elementary); Chemical elements; Chemical bonds; Matter–Composition; Chemistry–Study and teaching–Elementary

The mysterious case of chemistry

VK3884 VD
EI 13 min 1998
Chemistry Solved By Sherlock Olmos Series - Explores the history of chemistry and its ancient beginnings by Greek alchemists who tried to transform simple metals into gold and silver. Explains the fundamental properties of matter, the nature of chemical elements, and how chemical reactions occur.

Equations; Chemical elements; Reasoning; Chemical reactions; Chemistry–History; Periodic law; Metals–Analysis; Alchemy; Matter–Properties; Chemical structure; Chemistry–Study and teaching–Elementary

The mysterious case of the periodic table of the elements

VK3101 VD
IM 12 min 1997 Landmark Media
Chemistry Solved By Sherlock Olmos Series - Explains how the Periodic Table of the Elements is structured as Sherlock Olmos investigates this scientific knowledge and its use in chemistry. Explores electrons and valences and the physical and chemical properties of some elements.

Matter–Constitution; Periodic Table of Elements; Chemical elements; Qualitative reasoning; Chemistry–Study and teaching–Middle School; Electrons; Atomic weights; Periodic law; Chemical reactions; Chemistry–Study and teaching–Elementary

MythBusters Series

Is it fact or fiction? Special effects experts Adam Savage and Jamie Hyneman take urban legends and put them to the scientific test. The concepts presented in each video will have students looking at science in a whole new way.

Closed Captioned

MythBusters : chemical changes

DK0765 DV
IMH 14 min CA 2007 Discovery Education
Some people claim that cola can clean up everything from blood stains to engine grease. Others point to the soft drink's corrosive properties. Is cola really that versatile? Adam and Jamie put ten cola myths to the test. (540)

Chemical reactions; Chemistry–Study and teaching–Middle School; Urban folklore; Cola drinks; Science–Experiments; Chemistry–Study and teaching–Elementary; Closed Captioned

MythBusters : chemical reactions

DK0760 DV
IMH 16 min CA 2007 Discovery Education
If you're sprayed by a skunk, what's the best way to get rid of the awful smell? The MythBusters investigate the chemical reactions behind a skunk spray odour. (540)

Chemistry–Study and teaching–Middle School; Skunks–Habits and Behavior; Urban folklore; Science–Experiments; Chemical reactions; Chemistry–Study and teaching–High School; Chemistry–Study and teaching–Elementary; Closed Captioned

The Periodic table

DK1001 DV
IM 23 min CA 2004 Library Video Co
Physical science in action series - Students will learn about key information included on the table, such as atomic number, atomic mass and chemical symbol. They'll learn about the creator of the original periodic table, Dimitri Mendeleev, and discover how he grouped elements together based on their similar properties. The arrangement of the modern table is covered in depth, including a look at the periods, groups and the various families of elements. Kids are introduced to the concept of electron shells and how they are involved in the bonding of atoms, and why some elements are highly reactive while others are very stable. Includes fun visuals, colorful graphics and a hands-on activity, which demonstrates that different elements have different chemical properties. (546)

Science–Study and Teaching (Elementary); Science–Study and teaching (Middle School); Chemistry–Study and teaching–Middle School; Electrons; Science–Experiments; Spanish language materials–Bilingual; Chemical structure; Chemical elements; Periodic law; Mendeleyev, Dmitry Ivanovich,–1834-1907; Chemical bonds; Chemistry–Study and teaching–Elementary; Closed Captioned

Periodic Table: Structures of Atoms Interactive Tutorial

K00312 KD
H 2008 Benchmark Media
This kit contains 1 DVD with 3 segments and 3 CDs meant to be used as tutorials. DVD chapters: 1. Discoveries of Atomic Structures(6 min); 2. Atomic Numbers & Mass Numbers, (5 min); Electron Shell Configurations(7 min). Students may then use the CDs as interactive self-guiding tutorials. CD Content: Elements and Atoms (20 to 30 minutes); Atomic Structure (20 to 30 minutes); Group 1 and Group VII, A Closer Look at (20 to 30 minutes). TUTORIAL INSTRUCTIONAL DESIGN These self-tutorial programs allow students to control the pace of their learning, and include: lesson objectives; doing experiments completely under student control; continous interactive activities involving graphics, pop-up labels, animation, and pop-on explanatory text; intermittent testing for accurate observation and comprehension with immediate feedback as to whether the answers are correct or not for the student's self-assessment; a summary; and a final quiz with feedback. Any part of the tutorial can be repeated. The successful completion of a tutorial is itself convincing proof of the student's thorough understanding of the content.

Atoms; Chemistry–Study and teaching–High School

Physical science in action series

This video series moves beyond the basics of physical science to explore phenomena such as volume, density, atoms & molecules, the periodic table, forces, friction and more. Fast-paced visuals and exciting experiments provide real-life examples that demonstrate key physics concepts in a practical way students will understand and enjoy.

Closed Captioned
For descriptions see individual titles:
Elements, compounds and mixtures [DK0974]
The Periodic table [DK1001]

The Reactivity of elements

DK0391 DV
MH 14 min 1998 Benchmark Media
Science Key Concepts Series - In Part 1, lab experiments demonstrate the reactivity of Lithium, Sodium and Potassium. Part 2 considers the halogens Bromine, Chlorine and Iodine in experiments with iron wool, hydrochloric acid and aluminum foil. Part 3 experiments with the metals silver, zinc and magnesium, representative of elements that lie between Group 1 and Group 17 on the Periodic table (546.3)

Science–Study and teaching (Middle School); Periodic law; Science–Study and teaching (High School); Reactivity (Chemistry); Chemical reactions; Chemistry–Study and teaching–Middle School; Chemistry–Study and teaching–High School

Science Key Concepts Series

Each of the 18 programs in this series are 15 minutes and explains three key curricular concepts. Throughout the series, experiments are presented that are often too difficult or dangerous to be conducted in a school lab. Each concept is illustrated with a variety of excellent experiments, explanatory captions, artwork, and computer animation to illuminate what is happening both visibly and at the molecular level. Thought-stimulating questions are interspersed. Science topics are specific to biology, chemistry and physics.

Closed Captioned
For descriptions see individual titles:
The Reactivity of elements [DK0391]

Solution stoichiometry

DK0775 DV
H 33 min 2000 Films Media Group
Standard Deviants: Chemistry series - In this program, stoichiometry goes swimming. The topics of molarity, dilution, acid/base reactions, titration, limiting reagents, and yieldtheoretical, actual, and percentare all carefully examined. Practical problems involving the Molarity Equation give the program a quantitative analysis flavor, while "Cooking with Professor Rowley" and other skits present key stoichiometric concepts with a dash of levity.

Dilution; Volumetric analysis; Stoichiometry; Chemistry, Analytic; Chemical reactions; Chemistry–Study and teaching–High School

Standard Deviants: Chemistry series

Guaranteed to cause a reaction, this potent ten-part series, adapted from the popular series developed for students to enhance their test-taking skills, combines serious academic content with a humorous presentation style to help make chemistry more accessible. Each program skillfully employs elements such as clever mnemonics, high-tech computer graphics, and entertaining vignettes to boost retention and confidence while driving home core concepts through concise explanations and challenging problems. Joining the Standard Deviants Academic Team in the creation of this series are David Rowley, Ph.D., and David Ramaker, Ph.D., both of George Washington University. Correlates to all applicable state and national standards. A viewable/printable instructor's guide is available online. 10-part series, 17-33 minutes each.
For descriptions see individual titles:
Chemical bonding [DK0768]
Chemical equations and atomic molecular mass [DK0769]
Solution stoichiometry [DK0775]
Thermochemistry [DK0776]

Thermochemistry

DK0776 DV
H 17 min 2000 Films Media Group
Standard Deviants: Chemistry series - This program heats things up with a concentrated analysis of thermochemistry, explaining precisely how temperature figures into chemical reactions. Section one covers endothermic and exothermic reactions, the standard enthalpy of formation, and the workings of Hesss Law, while section two explains the concepts of heat capacity, molar heat capacity, and specific heat.

Thermodynamics; Heat; Chemical reactions; Chemistry–Study and teaching–High School; Enthalpy

Workshop safety series

This series is geared towards the beginning high school student who have little or no experience working in a workshop environment. Subjects covered include: Workshop Safety in the Auto Shop, Woodshop, Welding Class, Chemistry Laboratory and Working Around Electricity.

Chemistry Laboratory

DN0107 DV
H 16 min 2006 TMW Media Group
This program gives a first hand look to the ins and outs of alaboratory. From Fume Hoods to Personal Protective Equipment, this program is a must see for students attending a chemistry class for the first time. Since the laboratory has so many hazards associated with it, preventing injuries to students is a must. This program chronicles the workings of a laboratory along with environmental concerns. Subjects Covered Include: Covering proper techniques, Chemical glassware, Protective equipment, Housekeeping and more.

Scientific apparatus and equipment; Safety goggles; Hazardous substances–Safety measures; Safety education; Chemicals–Safety measures; Safety Measures

World of Chemistry Series

Computer technology and special effects place students in a front-row seat to observe many processes, even those that are too dangerous or impractical to experience directly. Working industrial and research chemists of all backgrounds serve as role models. The World of Chemistry is appropriate for students taking high school or college chemistry, from introductory to advanced levels, and is easily applicable to different teaching approaches. It includes physics and Earth science components, and is also valuable for teachers seeking to review the subject matter.

World of Chemistry: Programs 1-14

DK0453 DV
HC CA 1990 Annenberg/CPB
Program Contents on are 2 discs. Programs 1-6 on the first disc, programs 7-14 on the second disc. Comes in 1 package. 1. "The World of Chemistry" The relationships of chemistry to the other sciences and to everyday life are presented. 2. "Color" The search for new colors in the mid 1800s boosted the development of modern chemistry. 3. "Measurement: The Foundation of Chemistry" The distinction between accuracy and precision and its importance in commerce and science are explained. 4. "Modeling the Unseen" Models are used to explain phenomena that are beyond the realm of ordinary perception. 5. "A Matter of State" Matter is examined in its three principal states – gases, liquids, and solids – relating the visible world to the submicroscopic. 6. "The Atom" Viewers journey inside the atom to appreciate its architectural beauty and grasp how atomic structure determines chemical behavior. 7. "The Periodic Table" The development and arrangement of the periodic table of elements is examined. 8. "Chemical Bonds" The differences between ionic and covalent bonds are explained by the use of scientific models and examples from nature. 9. "Molecular Architecture" The program examines isomers and how the electronic structure of a molecule's elements and bonds affects shape and physical properties. 10. "Signals From Within" Chemists' knowledge of the interaction of radiation and matter is the basis for analytical methods of sensitivity and specificity. 11. "The Mole" Using Avogadro's law, the mass of a substance can be related to the number of particles contained in that mass. 12. "Water" The special chemical properties of water are explored, along with the need for its protection and conservation. 13. "The Driving Forces" Endothermic and exothermic reactions are investigated and the role of entropy is revealed. 14. "Molecules in Action" Observing molecules during chemical reactions helps explain the role of catalysts.

Dynamic equilibrium is also demonstrated.

Mole (Chemistry); Water chemistry; Chemistry–Experiments; Closed Captioned; Chemistry–Study and teaching–High School

World of Chemistry: Programs 15-26

DK0454 DV
HC CA 1990 Annenberg/CPB

Program Contents on are 2 discs. Programs 15-20 on the first disc, programs 21-26 on the second disc. Comes in 1 package. 15. "The Busy Electron" The principles of electrochemical cell design are explained through batteries, sensors, and a solar-powered car. 16. "The Proton in Chemistry" Demonstrations explain pH and how it is measured, and the important role of acids and bases. 17. "The Precious Envelope" The earth's atmosphere is examined through theories of chemical evolution; ozone depletion and the greenhouse effect are explained. 18. "The Chemistry of the Earth" Silicon, a cornerstone of the high-tech industry, is one of the elements of the Earth highlighted in this program. 19. "Metals" Malleability, ductility, and conductivity are examined, along with methods for extracting metals from ores and blending alloys. 20. "On the Surface" Surface science examines how surfaces react with each other at the molecular level. 21. "Carbon" The versatility of carbon's molecular structures and the enormous range of properties of its compounds are presented. 22. "The Age of Polymers" How chemists control the molecular structure to create polymers with special properties is explored. 23. "Proteins: Structure and Function" The program examines proteins – polymers built from only 20 basic amino acids. 24. "The Genetic Code" The structure and role of the nucleic acids, DNA and RNA, are investigated. 25. "Chemistry and the Environment" Dump site waste management demonstrates chemistry's benefits and problems. 26. "Futures" Interviews with leaders from academia and industry explore the frontiers of chemical research.

Chemistry–Experiments; Closed Captioned