

## Chem. Study

### Acid Base Indicators

05901,VH VHS Videocassette  
19 min S 1989  
Proton donor-acceptor theory is used to interpret the experimental behavior of acid-base indicators. Experiments and animation show the effects on indicators of changing acidity. Equilibrium constants of four indicators are determined and the indicators arranged in order of decreasing acid strength. The competition among bases for protons is shown by mixing the indicators and showing that each changes color at different total acidity.

Chemistry; Science(CK)

### Acids and Bases

04774,VH VHS Videocassette  
15 min IJ 1996 Films for the Humanities  
*World of Natural Science Series* - This program explains the characteristics of acids and bases, the process of neutralization, and the concept of pH. The high school conservation camp's presenters and scientists explain experiments being done on lake acidification.

Chemistry; Science(CK)

### Age of Polymers

07812,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - How are polymers made and why are they different? How chemists control the molecular structure to create polymers with special properties is explored.

Chemical elements; Chemistry; Polymers; Science(CK)

### All about Acids and Bases

03055,VH VHS Videocassette  
65 min JS 1981 Focus Media, Inc.  
The questions of what makes an acid an acid and a base a base intrigue the learner as they explore the subject of acids and bases. The properties are explored as well as a chemist's definition of each. Neutralization and pH are also explored.

Chemistry; Science(CK)

### The Ascent of Man

*For descriptions see individual titles:*

The Hidden structure, Music of the spheres, Starry Messenger

### Aspirin and the Willow Tree

03797,VH VHS Videocassette  
26 min S 1995 Films for the Humanities  
Humans have used drugs since primitive man discovered that some plants made them see visions, or lessened their pain, or cooled their fever. Once thought magical, the power of plants to affect human behavior is now beginning to be understood in terms of the chemistry of the brain. This series examines both the plants and their effects, and demonstrates how the same plants that heal can also kill.

Biology; Chemistry; Medicine; Science; Science(CK)

### Atom

02681,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Moving through history, this program progresses from the ancient to the modern view of the atom and its applications in new technology. Viewers will journey inside the atom to appreciate its architectural beauty and grasp how atomic structure determines chemical behavior.

Atoms; Chemistry; Matter; Science(CK)

### Atomic Structure and the Periodic Table

05003,VH VHS Videocassette  
18 min IJ 1998 United Learning  
Narrated by Brian A. Jerome.

*Physical Science Series* - A detailed examination of the structure of the atom will expose students to subatomic particles, including protons, neutrons, and electrons. Students will be shown how to compute atomic numbers and learn how isotopes relate to atomic number. They will address such topics

as atomic mass, as well as the electron arrangement of different elements. This information will provide background for understanding the organization of the Periodic Table. The major groups and families of the Table will be covered. The following terminology and concepts are discussed: atomic mass, atomic number, isotope, noble gas, alkali metal, and carbon family.

Atoms; Chemical elements; Chemistry; Science(CK)

### Atomic Structure: Mapping An Invisible World

05866,VH VHS Videocassette  
22 min JS 1996 United Learning  
*Chemistry Essentials Series* - Dynamic animation brings to life the invisible world of the atom and explains how models of the atom have changed over time. The program examines the models of Dalton, Rutherford, Bohr, and contemporary physicists. Also outlined are concepts such as subatomic particles, anti-particles, isotopes, atomic number, mass, and radioactive particles. The program concludes by illustrating how radioactive isotopes are used to detect and fight disease, monitor the flow of pesticides in the environment, and date fossil remains.

Atomic structure; Chemistry; Science(CK)

### Atoms

03411,VH VHS Videocassette  
53 min IJ 1993 Ann Edson

The development of the atom model since the nineteenth century, and what is understood about the components of the atom today, is presented. Isotopes, atomic energy, radioactivity, and the nature of alpha, beta, and gamma rays are explained. Chemical bonding, equipment used to produce nuclear energy, atomic fission and fusion, and present and future uses of the atom are other topics discussed.

Atoms; Chemistry; Molecules; Science(CK)

### Atoms and Compounds

04017,VH VHS Videocassette  
15 min IJ 1993 Aragon Productions

*Young Scientist Series* - Introduces physical and chemical properties and their relationship to atomic structure. Students learn how elements and compounds chemically react. Students contrast chemical reactions with mixtures such as solutions and suspensions.

Chemistry; Science(CK)

### Atoms of fire

2002

### Improving on nature

07307,DV DVD Cassette  
15 min JS 2002 Landmark Media  
Organic chemistry goes industrial with William Perkin exploring carbon's tetrahedral bonds and the discovery of chirality. This video looks at the concept of atoms as 3D objects and 3D structural diagrams and models. There is also a brief look at various synthetic organic compounds developed from natural ones, both achievements and difficulties.

Chemistry; Science(C\*K)

### Basic Chemistry for Biology Students

03340,VH VHS Videocassette  
21 min S 1994 Deerfield Productions

This program uses detailed animation of chemical models to introduce the chemical concepts important to understanding life processes. A two part video that concludes with the analysis and structure of nucleic acids, DNA and RNA.

Chemistry; Science(CK)

### Bill Nye

*For descriptions see individual titles:*

Chemical Reactions

## Chem. Study

### Busy Electron

07809,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - How do chemical reactions produce electricity? The principles of electrochemical cell design are explained. Examples of its use include batteries, sensors, and a solar-powered car.

Chemistry; Electricity; Science(CK)

### Carbon

02689,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Organic chemistry is the study of carbon compounds. The versatility of carbon's molecular structures provides the enormous range of properties of its compounds.

Chemical elements; Chemistry; Polymers; Vocational/Industrial tech/Business(CK)

### Carbon Dioxide & Chemical Reaction Rates

V5411,VH VHS Videocassette  
16 min SA 2002  
*School Chemical Experiments Series* - Experiments covered are Carbon Dioxide: Carbon Dioxide and Carbonic Acid, Formation of Calcium Carbonate, Carbon Dioxide Extinguishing a Flame, Chemical Reaction Rates, The Effects of Surface Area, The Effect of Temperature, and The Effect of Concentration.

High School Proficiency; Chemistry

### The Case of the Mysterious Behavior of Some Chemical Elements

05479,VH VHS Videocassette  
12 min IJ 1997 Landmark Media  
*Chemistry-Solved by Sherlock Olmos Series* - This video continues after the case of the Periodic Table of the Elements. Sherlock decides to dig deeper into dark corners of this "Great House of the Chemical Elements," to investigate the suspicious behavior of some chemical elements.

Chemistry; Chemistry elements; Science; Science(CK)

### The Case of the Periodic Table of the Elements

05478,VH VHS Videocassette  
12 min PI 1996 Landmark Media  
*Chemistry-Solved by Sherlock Olmos Series* - Sherlock uses his famous detective skills to solve how the Periodic Table of the Elements is structured. He investigates this scientific knowledge, including the electrons, valences and the physical and chemical properties of some elements with a touch of humor.

Chemistry; Chemistry elements; Science; Science(CK)

### Chem Study: Physical Science in Action

For descriptions see individual titles:  
Elements, Compounds and Mixtures  
The Periodic Table

### Chemical Bonding

04984,VH VHS Videocassette  
18 min IJ 1998 Altschul Group  
*Physical Science Series* - This video introduces students to the nature of chemical bonding and the characteristics of atoms that allow them to form bonds. The concepts of electron arrangement are highlighted via colorful animation, giving students a foundation upon which to understand bonding. Ionic bonds, covalent bonds, and metallic bonds are addressed, while real-life examples and the characteristics of each type of bond are provided. Concepts and terminology include ionization energy, electron affinity, covalent bonding, ionic bonding, metallic bonding and electronic diagrams.

Chemistry; Science; Science(CK)

### Chemical Bonding and Atomic Structure

02608,VH VHS Videocassette  
23 min JS 1983 Coronet  
*Chemistry Series* - An investigation of metallic, ionic, and covalent bonds as a part of a continuum in bonding that relates to the gradual changes across the periodic table. A

comparison between bond types and their relationships to the observable properties.

Atomic structure; Chemical elements; Chemistry; Science(CK)

### Chemical Bonds

02682,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Elements bond to form compounds by giving, taking, or sharing electrons. The difference between ionic and covalent bonds are explained by the use of scientific models and examples from nature.

Chemical elements; Chemistry; Science(CK)

### Chemical Reactions

04983,VH VHS Videocassette  
19 min IJ 1998 Altschul Group  
*Physical Science Series* - This video explores the characteristics of chemical reactions by analyzing some simple everyday chemical reactions common to students. It also introduces chemical equations and shows students how to balance chemical equations via colorful animation. Synthesis, decomposition, and replacement reactions are described. The energy dynamics of chemical reactions is conveyed via action-oriented graphs, while explaining endothermic and exothermic reaction. By studying the rates of chemical reactions (kinetics), students will investigate the influence that concentration, surface area, temperature, and catalysts have on an actual reaction.

Chemistry; Science; Science-Experiments; Science(CK)

### Chemical Reactions

04857,VH VHS Videocassette  
26 min PIJ 1995 Disney  
*Bill Nye Series* - Bill Nye series. How are new chemicals formed? New chemicals are formed when two old chemicals react with each other. When iron reacts with oxygen, what occurs and what is given off? When iron reacts with oxygen, a chemical reaction occurs and energy is given off. How do our cars run on chemical reactions? Our cars run because gasoline reacts with the oxygen in the air to cause millions of little explosions inside the engine. These explosions cause the engine's parts to move, driving the car.

Chemistry; Science(CK)

### Chemical Reactions

03056,VH VHS Videocassette  
35 min JS 1981 Focus Media, Inc.  
Explains the what and how of chemical reactions, how to represent them as equations, and the energy associated with them. After exploring chemical reactions in everyday things, students are introduced to chemical equations and the accompanying energy changes involved in chemical reactions.

Chemistry; Science(CK)

### Chemistry and the Environment

07814,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Modern chemistry has provided marvelous benefits and products but also challenging chemical waste problems. Examined are the tools, techniques, and frustrations of dump site waste management.

Chemistry; Pollution; Refuse and refuse disposal; Science(CK)

### Chemistry at Work

03256,VH VHS Videocassette  
13 min S 1994 Allegro Productions  
*Science Screen Report Series* - This science screen report surveys the many ways chemistry enhances our daily lives.

Chemistry; Science; Science(CK)

## Chem. Study

### Chemistry at Work

08035,LS Laser disk  
SA 1991 Videodiscovery  
This videodisc supports a full course in chemistry and contains hundreds of computer graphics, film segments, formulas, lab demos and safety techniques. The disc also contains an interactive periodic table.  
Chemistry; Science(CK)

### Chemistry Essentials

*For descriptions see individual titles:*  
Atomic Structure: Mapping An  
Invisible World  
The Periodic Table: Reactions and  
Relationships

### Chemistry in Action

#### Periodic table

07383,DV DVD Cassette  
20 min IJS 2005 VISUAL Learning  
This DVD includes BONDING, REACTIONS, and COMPOUNDS IN CHEMISTRY. Numerous real-life examples of elements are exemplified in the table. Animations and graphics illustrate concepts not easily achieved through other instructional strategies. Specific patterns in the periodic table are highlighted. Terminology includes: atomic structure, atomic number, atomic mass, periods, and families.  
Entire series include on DVD  
Chemistry; Science(C\*K)

#### Bonding

07384,DV DVD Cassette  
20 min IJS 2005 VISUAL Learning  
This DVD includes THE PERIODIC TABLE, REACTIONS, and COMPOUNDS IN CHEMISTRY. The process of chemical bonding is described and illustrated through engaging live action footage, and supported by vivid animations. The role atomic structure plays in the process of bonding is described in. Examples of chemical bonding including ionic bonds, covalent bonds, and metallic bonds are illustrated. Attention is given to describing how specific types of bonds affect the characteristics of matter. Terminology includes: Element, atomic structure, energy level, valence electrons, ionic bonds, crystal lattice, covalent bond, and metallic bond.  
Entire series included on DV  
Atomic structure; Chemical Reactions; Chemical elements; Chemistry; Science(C\*K)

#### Reactions

07385,DV DVD Cassette  
20 min PIJ 2005 VISUAL Learning  
This DVD includes THE PERIODIC TABLE, BONDING, and COMPOUNDS IN CHEMISTRY. Chemicals interacting with each other are one of the most fascinating topics in chemistry. Fireworks, burning flares and rusting all illustrate chemical reactions. The different types of reactions are described, as well as the process of balancing chemical equations. Terminology includes equations, Law of Conservation of Mass, decomposition and synthesis reactions, replacement reactions, and reaction rates.  
Entire series included on DV  
Chemistry; Science(C\*K)

#### Compounds in chemistry

07386,DV DVD Cassette  
20 min IJS 2005 VISUAL Learning  
This DVD includes THE PERIODIC TABLE, BONDING, and REACTIONS. Students will see how chemical compounds are placed into different types of groups so they can be studied easier. Acids and bases are explored, emphasizing their nature and common everyday uses. Carbon compounds are discussed. Colorful animations, vivid graphics, and live action footage help bring compounds

to life for students. Terminology includes: acid, base, pH, salt, carbon, organic, and hydrocarbon.  
Entire series included on DV  
Chemistry; Science(C\*K)

### Chemistry in Action: Out of the Air!

03352,VH VHS Videocassette  
20 min S 1987 Films for the Humanities  
This program illustrates the principles behind the process and the main use in the food industry of liquid nitrogen for rapid freezing. Discusses how air is used as an important industrial raw material.  
Air; Chemistry; Science(CK)

### Chemistry of the Earth

02687,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - The forces that distribute our planet's mineral resources from the interior to the surface are investigated. The program also looks at the elements from the earth and specifically how one of the most common, silicon, has become a cornerstone of the modern high tech industry.  
Chemical elements; Chemistry; Mines and mineral resources; Ozone layer; Science(CK)

### Chemistry Series

*For descriptions see individual titles:*  
Chemical Bonding and Atomic  
Structure  
Mastering Molecules - The  
Chemical Engineer

### Chemistry-Solved by Sherlock Olmos

*For descriptions see individual titles:*  
The Case of the Mysterious  
Behavior of Some Chemical  
Elements  
The Case of the Periodic Table of  
the Elements  
The Mysterious Case of Chemistry

### Chemistry: "The Basics"

03117,VH VHS Videocassette  
15 min JS 1994 Allegro Productions  
*Science Screen Report Series* - This introduction to basic chemistry starts with the atomic structure of matter, then introduces the elements and the periodic table. The 3 states of matter are discussed, as well as chemical formulas, compounds and chemical reactions. Through the use of computer generated animation sequences, we see how 2 atoms of hydrogen combine with an oxygen atom to form a molecule of water. Other animation sequences show the relationships between the orbiting electrons, and the protons and neutrons in the nucleus.  
Chemistry; Science(CK)

### Crystals

04397,VH VHS Videocassette  
11 min JS 1991 Altschul Group  
Crystals play a crucial, if often overlooked, role in scientific discoveries. This program examines the wide variety of crystals and how they are formed. An in-depth look at salt and sugar crystals illustrates the vast chemical and physical differences that crystals possess. Viewers will see why protein crystals grow differently in space, and why larger protein crystals can be extremely beneficial to discovering cures for diseases such as the common cold.  
Chemistry; Crystals; Science(CK)

### Cycle Series

*For descriptions see individual titles:*  
Oxygen Story

### Dr. Dads Ph3

*For descriptions see individual titles:*  
Gas Laws: What Goes up

## Chem. Study

### Elements, Compounds and Atoms

04902,VH VHS Videocassette  
18 min IJ 1998 Altschul Group  
*Physical Science Series* - Through numerous examples, students will learn about elements and the chemical symbols used to represent them. They will also learn how elements combine to form compounds, as well as the difference between atoms and molecules. This video exposes students to the language of chemistry and to the written symbols which are used to represent elements and compounds. The general structure of the atom will be revealed. In addition, some of the major historical scientific contributions made to the understanding of the atom are discussed. A sampling of the concepts and terminology include; element, chemical symbol, chemical formula, atomic modeling, and atomic structure.

Chemistry; Physical sciences; Science(CK)

### Elements, Compounds and Mixtures

05995,VH VHS Videocassette  
23 min JS 2000 Library Video  
*Chem Study: Physical Science in Action Series* - The world contains a limited number of elements - the purest form of matter. But when these elements are combined, the possibilities are limitless! Water, carbon dioxide and salt are just a few examples of how elements can be combined to form entirely new substances. Many of these combinations occur naturally, while others are man-made. Students will learn the difference between compounds and mixtures, and see how scientists are able to combine the Earth's elements to our benefit. An interesting hands-on activity is included. One of the 16 volumes in the Physical Science in Action series in the Schlessinger Science Library. Part of the Schlessinger Science Library in Action Collection. This title correlates to the National Science Education Standards for Physical Science - properties & changes of properties in matter, motions & forces, and transfer of energy.

Chemical elements; Chemistry; Physical sciences; Science(CK)

### Energy Bank

04073,VH VHS Videocassette  
38 min SA 1993 Ann Carol Grossman&Randel F. Cole  
In the context of concern about climate change and air pollution related to energy use and production, The Energy Bank examines the potential of energy efficiency to meet our nation's energy needs. This program concentrates particularly on models for efficiency in electricity consumption. It looks at the Northwest, which pioneered new approaches to conserving electric power in the 1980's and the Northeast, currently on the cutting edge. Successful residential, commercial, and industrial projects are profiled in case studies. The program explores the benefits of energy efficiency for utilities, their customers, and the nation as a whole. It then considers the role of transportation in energy use, and looks at some of the prescriptions being offered to make the transportation sector more efficient. Further it explores the political and institutional impediments that must be overcome to realize the benefits of energy efficiency on a national scale.

Chemistry; Physics; Science(CK)

### Explosion on the Lady Delia

03351,VH VHS Videocassette  
26 min S 1991 Films for the Humanities  
*Periodic Table and the Human Element Series* - As the oil rig supply vessel, "Lady Delia," was being refitted an explosion ripped through the ship. The investigation determined that an error caused the admission of oxygen into the ship, and showed at what point sufficient oxygen was present so that a cigarette could cause an explosion. As it follows, the investigation the program explains the nature of oxygen and of combustion.

Chemistry; Science(CK)

### Fire

04771,VH VHS Videocassette  
20 min IJS 1997 Films for the Humanities  
This program examines the elements of fire - heat, fuel, and oxygen and investigates the interaction of each element. We

see how water deprives fire of heat and oxygen and why water causes certain fires, such as oil fires to spread is discussed, then demonstrated. Additional demonstrations include mixing hydrogen and oxygen to produce water and mixing carbon and oxygen to produce dangerous carbon monoxide.

Chemistry; Science(CK)

### A First Look

*For descriptions see individual titles:*

Solids, Liquids and Gases: A First Look

### Fun with Chemistry

02246,VH VHS Videocassette  
29 min S CABISCO Tele-Productions  
Chemistry is the branch of science that deals with the composition and structure of substances, and the changes they undergo. It is a science that had a far reaching impact on all of us.

Chemistry; Science(CK)

### Futures

02691,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - The basic principles of the World of Chemistry series are reviewed. Interviews with leaders from academia and industry explore the frontiers of chemical research and speculate on the future impact of these investigation.

Chemistry; Pollution; Refuse and refuse disposal

### Gas Laws: What Goes up

03353,VH VHS Videocassette  
15 min I 1995 Louisiana Educational Television Au  
*Dr. Dads Ph3 Series* - Topics explained: When a gas is heated, it expands and its pressure increases. When a gas is compressed, its volume decreases and its temperature increases. When the pressure is decreased, will expand rapidly and the temperature will decrease.

Chemistry; Gases; Matter-Experiments; Science(CK)

### The Hidden structure, Music of the spheres,Starry Messenger

11010,DV DVD Cassette  
JS Ambrose  
*The Ascent of Man Series* - Hidden structure The Shang bronze craftsmen of China and he Samurai sword smith of Japan are the starting point for this journey, which leads from the beginnings of chemistry to Dalton's atomic theory and our knowledge of the elements. Music of the Spheres Traces the evolution of mathematics and explores the relationship of numbers to musical harmony, early astronomy and perspective in painting. It follows the spread of Greek ideas through the courts and bazaars of the Islamic Empire to Moorish Spain and Renaissance Europe. Starry Messenger Here is the story of early attempts to map the forces that move the planets. Dr. Bronowski traces e origins of the scientific revolution through the conflict between and fact and religious dogma, culminating in the trial of Galileo.

Astronomy; Chemistry; Galilei, Galileo 1564-1642; Islam - History Civilizations, Ancient; Planets; Mathematics(CK); Social studies(CK); Science(CK)

### Introducing Chemistry: Formulas and Equations

04459,VH VHS Videocassette  
11 min J 1966 Coronet  
This is the first of three programs for a beginning unit in chemistry. It explains and demonstrates the basic language of chemistry and the symbols used in formulas and equations. Acids, bases, and salts are defined in terms of their formulas. Basic terms encountered include compound, gas, precipitate, and radical as well as the concepts of structural formulas and "balanced" equations.

Chemistry; Science(CK)

**Learning about Science**

For descriptions see individual titles:  
Learning about Water

**Learning about Water**

04614,VH VHS Videocassette  
12 min PI 1997 Stelios Roccas  
*Learning about Science Series* - Water is a major component of the world we live in. Children explore water and its various states and its natural source in rain. The water cycle is explained. Water is shown moving toys, running a grist mill, and generating electricity.

Teachers manual

Chemistry; Precipitation (Meteorology); Water;  
Science(CK)

**Mastering Molecules - The Chemical Engineer**

V1940,VH VHS Videocassette  
13 min JS 1990  
*Chemistry Series* - Examines many of the career opportunities in this growing field and offers added insight into many facets of this unique profession. Also offers students a view of process design and other activities involved in turning laboratory creations into available, safe products.

Careers; Biology; Chemistry

**Materials and Their Properties**

For descriptions see individual titles:  
Rust

**Matter and its Measures**

03749,VH VHS Videocassette  
18 min IJ 1993 Aragon Productions  
*Young Scientist Series* - Introduces the basic properties of matter. Students explore the world of atoms, the building blocks of matter to apply mass, weight, volume and density.

Chemistry; Matter; Science(CK)

**Matter in Action****Solids, liquids, and gases**

06505,VH VHS Videocassette  
20 min IJ 2005 VISUAL Learning  
What are the differences between solids, liquids, and gases? In this program students will investigate real-life examples of the various phases of matter. Colorful animations illustrate how these states differ in the movement of particles. The types of phase changes are graphically displayed. Other terminology includes: plasma, crystalline and amorphous solids, viscosity, freezing, vaporization, evaporation, and condensation.

Chemistry; Liquids; Gases; Solids; Science(C\*K)

**Matter of State**

07804,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Matter is examined in the three principal states-gases, liquids, and solids-relating the visible world to the submicroscopic world that cannot be seen. This program reveals at the molecular level, how changes in matter occur.

Chemistry; Matter; Science(CK)

**Measurement: The Foundation of Chemistry**

07803,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Accuracy and precision are fundamental to modern chemistry. The distinction between the two terms and their importance in establishing measurement standards in commerce and science are explained.

Chemistry; Measurement; Mathematics(CK)

**Metals**

07811,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - The important properties of metals-malleability, ductility, and conductivity are examined. The methods used to extract metals from ores and to blend

metals to form alloys with improved physical characteristics are covered.

Chemistry; Metals; Vocational/Industrial tech/  
Business(CK)

**Mixtures and Solutions**

04900,VH VHS Videocassette  
19 min IJ 1998 Altschul Group  
*Physical Science Series* - This program discusses the different ways in which matter is classified by using visual images from the natural world, the home, and the laboratory. Students will learn about mixtures through detailed examples of the three different types of mixtures; colloids, suspensions, and solutions. They will witness the creation of solutions and consider the concepts of solubility and rate of dissolving. The following terminology and concepts relating to solutions are addressed-homogeneous and heterogeneous mixtures, solute, solvent, saturated solutions, and unsaturated solutions.

Chemistry; Physical sciences; Science(CK)

**Modeling the Unseen**

02680,VH VHS Videocassette  
29 min S 1997 Annenberg/CPB Collection  
*World of Chemistry Series* - Scientific investigators need to explain things beyond the realm of ordinary perception. The models used by scientists often represent flights of intuition and invention. Focusing on some examples of models used in chemistry this program emphasizes one classic example that explains the behavior of genes.

Chemistry; Measurement; Mathematics(CK)

**Mole**

07807,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - One of the most significant concepts in chemistry, the mole is the foundation on which quantitative chemistry rests. Using Avogadro's law, it is possible to relate the mass of a substance to the number of particles (atoms or molecules) contained in that mass. The mole allows chemists to count by weighing.

Chemistry; Science(CK)

**Molecular Architecture**

07806,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - The shape and physical properties of a molecule are determined by the electronic structure of its elements and their bonds. How living organisms distinguish between similar molecules (isomers) is revealed.

Chemistry; Molecules; Science(CK)

**Molecular Motions**

05902,VH VHS Videocassette  
14 min S 1989  
Many properties of matter such as fluidity, vaporization and rates of chemical reactions indicate that molecular motion must be occurring and that the freedom of motion increases in going from the solid to the liquid to the gaseous state. The concepts of translational, rotational, and vibrational molecular motions allow the interpretation of the observed properties. The use of animation and dynamic models makes clear how the observed properties depend on the types of motion occurring at the molecular level.

Chemistry; Molecules; Science(CK)

**The Mysterious Case of Chemistry**

05480,VH VHS Videocassette  
11 min PI 1997 Landmark Media  
*Chemistry-Solved by Sherlock Olmos Series* - Since the beginning of time humans have used chemical reactions without understanding what they were. By mixing elements, alchemists produced chemical reactions which have produced new compounds. With all of the trials at mixing elements to create new compounds, the science of chemistry began to take shape.

Chemistry; Chemistry elements; Science; Science(CK)

## Chem. Study

### Neuroscience: Human Memory

05132,VH VHS Videocassette  
17 min IJS 1998 Allegro Productions  
Narrator, J.J. Wilson; editor, M.B.Chaney.  
*Science Screen Report Series* - Looks at how and where the brain stores information, short-term and long-term memory, and how memory is linked to learning.

Biology; Brain; Chemistry; Memory; Physiology;  
Science(CK)

### Nova

*For descriptions see individual titles:*  
Poison in the Rockies

### On the Surface

02688,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - How does the surface of a substance differ from its bulk? Surfaces react with each other at the molecular level and are unique in the way in which they behave catalytically in chemical reactions. The chemistry of surfaces falls into the province of a special brand of chemistry-surface science.

Chemistry; Metals; Molecules; Vocational/Industrial  
tech/Business(CK)

### Oxygen Story

04895,VH VHS Videocassette  
15 min JS 1995 Altschul Group  
*Cycle Series* - The most common element of the planet, oxygen, is key to the survival of most organisms. This video consists of a combination of live-action video taken in a wide variety of interesting locations and computer graphics accompanied by an engaging narration to teach about oxygen and the oxygen cycle. Opening with a discussion of the oxygen atom, the video moves on to an explanation of photosynthesis as a source of atmospheric oxygen and to explain the dynamics of oxidation reactions. The relationship between photosynthesis and respiration is explained. The video ends with a discussion of how the oxygen cycle recycles oxygen atoms.

Chemistry; Oxygen; Science(CK)

### Oxygen, What a Gas!

04069,VH VHS Videocassette  
28 min JSA 1991 MediCinema LTD  
The production brings to life for students: the composition of the atmosphere; the discovery of oxygen; the chemistry of oxidation, differentiating covalent and ionic bonding; human respiration and circulation; the effects of low oxygen, both at high altitude and at sea level due to heart and lung disease; human adaptations to low oxygen conditions; and modern manufacture of oxygen. The film includes creative animation, rare archival footage, and compelling sequences shot in decompression chambers, the Rockies, and the Himalayas with celebrated mountaineer Sir Edmond Hillary, along with the concept dramatization and "music videos." Comes with a comprehensive study guide.

Chemistry; Oxygen; Science; Science(CK)

### Ozone Blanket in the Air

V1989,VH VHS Videocassette  
14 min JS 1991  
*Science Screen Report Series* - Takes students to where scientists discovered an ozone "hole" above the South Pole in 1977 - one of the most perplexing and important environmental mysteries of modern science.

High School Proficiency; Chemistry; Science(CK)

### The Periodic Table

06003,VH VHS Videocassette  
23 min JS 2000 Library Video  
*Chem Study: Physical Science in Action Series* - Kids know that when they are lost, they look at a map to find their way. Its no different in the world of science, as theyll learn in The Periodic Table - a fun and engaging look at the road map of the elements. Young students will learn about key information included on the table, including 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.

Chemical elements; Chemistry; Science(CK)

### Periodic Table

07805,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - The development of the Periodic Table of Elements produced order from the chaos of disorganized amounts of chemical information. The program shows the power of Mendeleev's arrangements, which predicted the properties of as yet undiscovered elements, and how modern chemists have refined its arrangement and continue to refer to the Periodic Table.

Chemical elements; Chemistry; Science(CK)

### Periodic Table

04018,VH VHS Videocassette  
13 min IJ 1993 Lucerne Media  
*Young Scientist Series* - Introduces the periodic chart of elements and explains how its organization is tied to the atomic structures of the elements. Students learn how useful it can be as they see how observable properties are related to atomic structures.

Chemistry; Science(CK)

### Periodic Table and the Human Element

*For descriptions see individual titles:*  
Explosion on the Lady Delia

### The Periodic Table:Reactions and Relationships

05577,VH VHS Videocassette  
25 min S 1996 Great Pacific Media  
*Chemistry Essentials Series* - This video explains periodic law and the significance of the rows and columns of the periodic table, including how to relate the position of an element in the table to its atomic number and atomic mass.

Chemistry; Chemistry elements; Science(CK)

### Phases of Matter

04901,VH VHS Videocassette  
19 min IJ 1998 Altschul Group  
*Physical Science Series* - The phases of matter have a large impact on our daily lives, shaping the world in which we live. This video closely examines the four states of matter: solid, liquid, gas, and plasma. Water, as well as other materials, are used as examples as to why a single substance can exist in so many different forms. Through interesting visual examples of the

Chemistry; Matter

### Physical and Chemical Changes

06431,VH VHS Videocassette  
17 min S 2000 CLASSROOM Media  
The atoms are looking for partners and employment. Xenon and Krypton set up as Marriage Counslor and Employment Officer and conduct a series of marriages, H to O and Ns to Cl, etc. A friendship or physical change is formed between iron and carbon to make steel. They find jobs for various elements, compounds nad mixtures.

Chemical Reactions; Chemistry; Science(CK)

## Chem. Study

### Physical Science

*For descriptions see individual titles:*

Atomic Structure and the Periodic Table  
Chemical Bonding  
Chemical Reactions  
Elements, Compounds and Atoms  
Mixtures and Solutions  
Phases of Matter

### Planet Under Pressure

*For descriptions see individual titles:*  
Sharing Carbon

### Poison in the Rockies

04070,VH VHS Videocassette  
56 min SA 1990 Bullfrog  
*Nova Series* - Here is PBS's updated "Nova" version of the award-winning "Downwind/Downstream", documenting the serious threat to water quality, sub-alpine ecosystems and public health in the Colorado Rockies from mining operations, acid rain and urbanization. 50% of the material in this "Nova" version is new. Increasing emphasis has been given to the scientific side of the story-from an explanation of Rocky Mountain geology and the development of aquifers, to detailing how the thousands of small abandoned mines contaminate water sources by leaching heavy metals into the rivers and streams. More time has also been given to the story of today's vast mining operations, such as the Climax Molybdenum mine owned by AMAX. Included are new interviews with mining officials and Charles Wilkinson, Professor of Law at the University of Colorado, who discusses the evolution of water battles in the West from questions of water supply to water contamination, and now mining regulations, which he describes as being in their infancy. Cities as far apart as El Paso, Phoenix, Denver and Los Angeles depend on clean water from the Rockies for their water supply. In addition to the mining operations, that water supply is now threatened by acid rain and acid snow. Together these problems also represent a potent threat to the \$10 billion Western tourism industry. This is a story about our society's waste products and the necessity of cleaning up our act now before its too late. [cc]

Chemistry; Ecology; Science(CK)

### Precious Envelope

07810,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - The chemistry of earth's atmosphere is examined. Theories of chemical evolution, ozone depletion, and the greenhouse effect are explained.

Chemistry; Ozone layer; Science(CK)

### Proteins: Structure and Function

07813,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Proteins are large polymers built of amino acids. A fantastically huge number of different protein molecules arise from only 20 basic amino acid building blocks. The number, kind, and sequence of amino acids in the polypeptide chain dictate the level of structure. Hair, wool, silk, and enzymes are used as examples.

Chemistry; Science(CK)

### Proton in Chemistry

02686,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Acids and bases play an important role in our lives, but are sometimes safe and sometimes dangerous. Demonstrations explain pH and how it is measured.

Chemistry; Electricity; Science(CK)

### Reactions

06473,VH VHS Videocassette  
20 min JS 2005 VISUAL Learning  
Chemicals interacting with each other are one of the most fascinating topics in chemistry, fireworks, burning flares, and rusting all illustrate chemical reactions. The different types of

reactions are described, as well as the process of balancing chemical equations. Other terminology includes: chemical equations, Law of Conservation of Mass, decomposition and synthesis reactions, replacement reactions, and reaction rates.

Chemistry; Science(CK)

### Rust

04772,VH VHS Videocassette  
20 min IJS 1997 Films for the Humanities  
*Materials and Their Properties Series* - This program studies the conditions and chemical reactions that cause steel to rust. Investigations are conducted on four sheets of steel. The scientific reasons why rust forms, includes the role of oxygen and salt. Separate tests are performed on gold, stainless steel, aluminum and copper.

Chemistry; Corrosion and anti-corrosive; Science(CK)

### School Chemical Experiments

*For descriptions see individual titles:*  
Carbon Dioxide & Chemical  
Reaction Rates

### Science Screen Report

*For descriptions see individual titles:*  
Chemistry at Work  
Chemistry: "The Basics"  
Neuroscience: Human Memory  
Ozone Blanket in the Air  
The Spine - Command Central

### Search for Heavy Elements

03331,VH VHS Videocassette  
24 min IJ 1994 Pyramid Film & Video  
This unique non-technical presentation of how these discoveries were made takes the viewer step by step through the element building process, of the heavy elements.

Chemistry; Science; Science(CK)

### Sharing Carbon

03702,VH VHS Videocassette  
20 min I 1992 TV Ontario  
*Planet Under Pressure Series* - Exploring the carbon cycle through four "spheres," this program shows how movement of carbon and other elements throughout the global biosphere supports life. The biosphere's capacity to adjust to changes in the balance of nutrients is also explored.

Chemical elements; Chemistry; Geology; Science(CK)

### Signals from Within

02683,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series* - Atoms and molecules can be made to communicate, and scientists have learned how to interpret their language. Chemist's knowledge of the interactions of radiation and matter is shown as the basis for analytical methods of sensitivity and specificity. How such techniques are used in very difficult laboratory situations is examined.

Atoms; Chemistry; Molecules; Science(CK)

### Solids, Liquids and Gases: A First Look

05975,VH VHS Videocassette  
17 min P 2001 Rainbow Educational Media  
*A First Look Series* - This program explains that matter takes up space and has weight. Solids keep their shape; liquids and gases take the shape of the containers they occupy; and gases fill whatever space is available. Matter can change from one state to another through freezing, melting, condensation and evaporation.

Change of State; Condensation; Chemistry;  
Evaporation; Liquids; Mass; Gases; Matter; Solids;  
Weight; Science; Science(CK)

**The Spine - Command Central**

V5618,VH VHS Videocassette  
20 min IJ 2002 SSR  
*Science Screen Report Series - 1-THE SPINE: COMMAND CENTRAL:* This provides a comprehensive look at the central nervous system. True-to-life animations demonstrate its components and how they work together to allow us to move. Students will also see how damage to the central nervous system can cause paralysis, and what scientists are doing to advance medical treatments in order to correct spinal cord injuries and cure paralysis. 2-ANTS: OUR TINY NEIGHBORS. 3-ELEMENTS OF NATURE. 4-ENERGY FOR LIFE. 5-FUELS AND GASES. 6-THE EVOLUTION OF PLANTS. 7/8-THE SEARCH FOR BLACK HOLES.

Physical Science; Biology; Chemistry; Health & Safety(CK)

**Stage One Science**

*For descriptions see individual titles:*  
What's Cooking?

**Stepping Stones to our Universe**

05123,VH VHS Videocassette  
26 min IJS 1998 Allegro Productions  
Neil Armstrong's first steps on the moon marked the beginning of a new that historic voyage, we have seen remarkable advancements in science and technology, we have learned more about the planets and stars, and we have begun to appreciate how fragile our existence is here on Earth. Looking to the future, we realize that the moon and Mars are our cosmic stepping stones. In this special millennium issue of Science Screen Report, we see the 21st century through the eyes of eminent scientists and futurists. Their predictions for space travel might seem like science fiction, but they are, in fact, based on current and emerging technologies. The International Space Station, Venture Star, lunar and Martian colonies, and mining expeditions to the asteroid belt are just a few of the plans and predictions for the 21st century.

Earth science; Chemistry; Physical sciences; Science(CK)

**Technology: The Microscope, an Indispensable Instrument**

02473,VH VHS Videocassette  
15 min IJS 1989 Ohio Edison  
From its simple beginnings in the 17th century, the microscope has evolved into a complex and sophisticated instrument. It has become a discipline in its own right with its own terminology and methods; it is a virtually indispensable piece of laboratory equipment. The 20th century has seen the development of many fundamental different microscope. You will see the microcosmos through some of the most sophisticated microscopes. Witness sharp 3-D pictures produced by a scanning electron microscope, learn how x-rays are being used in microscopy and find out the newest ways of seeing the world's smallest objects-including ultrasound!

Biology; Chemistry; Digital electronics; Geology; Science(CK); Social studies(CK)

**Water**

02684,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series - Why is water unique? Why is water necessary for life? The special chemical properties of water are explored. The protection and conservation of this natural resource are reviewed.*

Chemistry; Water; Science(CK)

**What's Cooking?**

04626,VH VHS Videocassette  
15 min P 1994 Altschul Group  
*Stage One Science Series - Using everyday products that are created through chemical changes such as glass and pottery, "What's Cooking?" illustrates how changes occur in food preparation. As children enjoy cooking in the classroom, the process of change is explained and demonstrated.*

Chemistry; Science(CK)

**World of Chemistry**

07802,VH VHS Videocassette  
29 min S 1989 Annenberg/CPB Collection  
*World of Chemistry Series - The world of chemistry is introduced by providing highlights of key sequences and themes from progress in the World of Chemistry series. The relationships of chemistry to the other sciences and to everyday life are presented.*

Chemistry; Science(CK)

**World of Chemistry**

*For descriptions see individual titles:*

Atom  
Chemical Bonds  
Water  
Chemistry of the Earth  
On the Surface  
Carbon  
Age of Polymers  
Busy Electron  
Chemistry and the Environment  
Futures  
Matter of State  
Measurement: The Foundation of Chemistry  
Metals  
Modeling the Unseen  
Mole  
Molecular Architecture  
Periodic Table  
Precious Envelope  
Proteins: Structure and Function  
Proton in Chemistry  
Signals from Within  
World of Chemistry  
World of Chemistry Disc 1 & 2

**World of Chemistry Disc 1 & 2**

07324,DV DVD Cassette  
26 min S 1990 Annenberg/CPB Collection  
*World of Chemistry Series - Disc 1 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. Disc 2 9. Molecular Architecture - The program examines isomers and how the electronic structure of a molecule's elements and bonds affects its 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 help explain the role of catalysts. Dynamic equilibrium is also demonstrated.*

Each 26 section is 1/2 hour

Periodic law; Atoms; Chemistry; Color; Elements, chemical; Molecular theory; Matter; Matter-Properties; Measurement; Molecules; Water; Science(CK)

**World of Natural Science**

*For descriptions see individual titles:*  
Acids and Bases

**Young Scientist**

*For descriptions see individual titles:*  
Atoms and Compounds  
Matter and its Measures  
Periodic Table