CANADIAN LEARNING COMPANY

Learning Resources

Here are an exciting collection of audio-visual learning resources covering topics in chemistry, physical science, geography and earth sciences for Grades 7 to 12

The Adventures In Space Series

Hosted by Leonard Nimoy, these three remarkable programs capture the historical achievements of the United States Space Program. The series recalls America's greatest moments of discovery and bitter disappointments that have occurred during the never-ending quest to learn more about *what's out there.* Produced by NBC News Productions, Inc.

Space Probes and Starships

Grade 6: Space; Basic concept: describe the physical characteristics of components of the solar system.

Featuring footage from NASA's Voyager and Mariner space probes, this program provides close up images and detailed descriptions of all of the planets in our solar system. The challenges of intergalactic space travel are also discussed.
29 minutes, order 1-8480

Journey to the Moon

This program documents the beginning of the U.S. Space Program, from initial dream to final reality. Outstanding footage from the Apollo missions to the moon are featured.

Also available in Laser Videodisc
27 minutes, order 1-8481

The Pilots and the Astronauts

This program remembers the courageous test pilots and astronauts who risked and sometimes even lost their lives for the advancement of aeronautical and space aviation. Famous astronauts are featured, and events surrounding the Challenger disaster are discussed.
28 minutes, order 1-8482
Ages 9 to 11, Ages 12 to 14
minutes, order 1-84801-IN

African Adventure: Balloon Safari, Grasslands, Maasai Mara

Newton's Apple Series

A balloon safari over Kenya. One grass feeds four species. Life in a baboon troop. Females rule in elephant society.
Ages 12 to 14
30 minutes, order 5-5002-IN

Amazing Facts Behind Bridges, Bears, Earthquakes And Tv

Newton's Apple Series

Studying the forces of compression and tension - from a pasta bridge. The “crusty” whys of earthquakes. Chromakey effect puts Knapp on weather map. Bringing a grizzly cub to bear.
Ages 12 to 14
30 minutes, order 5-5001-IN

Around South America

Highlights South America's rich historical and geographical legacy and serves as a valuable introduction to Latin American studies.

Circumnavigating the lush South American continent, the program begins with a journey through the Panama Canal, visits many key cities and capitals along the Pacific and Atlantic coasts, and travels to several interior cities, jungles and the continent of Antarctica.

Included are a variety of beautiful vistas, captivating images of people and wildlife,and an informed narrative. Segments include Ecuador, the Galapagos Islands, Lima, Machu Picchu, Santiago and coastal Chile, the Strait of Megellan, Buenos Aires, Rio de Janiero, Salvador da Bahia, Belem, the Amazon, Devil's Island, Curacao, and Cartagena.
Ages 15 to 18, Adult
57 minutes, order 8-2503-IN

Asteroids And Comets: Visitors From Space

Expanding Frontiers: The Exploration Of Space Series

The possibility of an enormous asteroid crashing into Earth is not just the stuff of science fiction, but was actually a frequent occurrence in the distance past. Such prehistoric collisions triggered the development of life itself, but a similar event today could possibly bring about the end of our very existence.
Ages 12-18, Ages 16 to Adult Post Secondary
33 minutes, order 8-1132-IN

Atoms And Molecules

Atoms and molecules, two of the most basic units of matter, are examined in this program by means of animated graphics, charts, graphs, demonstrations and experiments. Models of three simple elements, hydrogen, helium, and lithium, are used to explore the structure of atoms. The various features of subatomic particles are described and graphics are used to depict the `electron cloud' model currently used by scientists.

The arrangement of electrons into `shells' grouped around the nucleus according to their amount of energy is fully outlined. An examination of the shells' chemical properties leads to a discussion of energy levels. The program explores the forces that push electrons to higher energy levels, causing them to leave the nucleus's field of attraction. Further animated experiments illustrate various processes which occur in the atom, how atomic mass and numbers are calculated, and an illustration of a simplified periodic table showing how elements composed of similar chemical properties form a group, or `period'. Ionization, dissociation, recombination, atomic numbers and the ordering of elements within the periodic table are demonstrated and explained. Also available in laser videodisc and CD-ROM

Ages 12-18
22 minutes, order 1-8271-IN

Australasian Landforms

Grade 7 - The Earth's Crust; Basic concept: explain the causes of some natural events that occur on or near the earth's surface; process involved in mountain formation and in the folding and faulting of earth's surface.

Traces the evolution of Australasia from its earliest known beginnings to the present. Spectacular aerial photography illustrates main landform regions. The effect of continental drift on the present shape of Australia is shown.

Ages 12 to 14, Ages 15 to 18
22 minutes, order 1-8044-IN

Australian Way Of Life, The

Up-to-date overview looks at Australia's first inhabitants, European settlement; the land and its wildlife, agriculture, mining, manufacturing, politics and culture.

Ages 12 to 14, Ages 15 to 18
22 minutes, order 1-8029-IN

Chemistry Of Soap

Grade 7 - Pure Substances and Mixtures; Overall Expectation: identify human uses of mixutres and solutions to everyday life, and evaluate the environmental impact.

Provides a unique look at the early use and manufacture of soap through to its present uses, along with a look at future development. It explains the chemical properties of soap plus how its basic cleaning agent, the surfactant, works to remove dirt. Live action and animated graphics examine the nature and uses of several types of surfactants, both natural and synthetic.

Provides an interesting discussion of the chemistry of soap with a detailed examination of the way surfactants work. Experiments demonstrate how surfactants affect the surface tension of water, allowing it to bond with, moisten, and dissolve grease and dirt. Various types of synthetic surfactants, anionic, cationic, and nio surfactants, are examined as the program outlines their chemical properties, applications, as well as the processes by which they work.

The film takes a critical look at anionic surfactants, used mainly in detergents, which were found in the 1970s to cause water pollution. This find led to a puch to make detergents biodegradable. The program's study of the process by which these new surfactants acts focuses on their ease of assimilation and lack of harm to the environment.

Also available in Laser Videodisc.

Ages 12-18
13 minutes, order 1-8272-IN

The Chemistry Essentials Cd-rom Series

This series offers a complete chemistry curriculum. Each CD-ROM program contains video chapters (25 minutes); random access, interactive browsing; an interactive quiz; bulletin board; test with record keeping; interactive glossary and a teacher management system (password required).

The teacher management system allows teachers to write and edit quiz and test questions; track student scores; create/edit bulletin board information; print tests, class rosters and scores by name or code.

Matter: Form and Substance in the Universe

The basis characteristics of matter are introduced, including the concepts of mass, density, weight and inertia; the differences between elements, compounds, substances and solutions; the unique physical properties and chemical characteristics of different types of matter.
Order 1-9087

Compounds: Electromagnetic Attraction in Molecules

Quality animation and graphics are used to explain how compounds are formed by either ionic or covalent bonding; the difference between various groups of compounds; chemical formulas, chemical equations and the Conservation of Matter.
Order 1-9088

Atomic Structure: Mapping an Invisible World

The invisible world of the atom is brought to life in this program that examines how models of the atom have changed over time. It also shows how radioactive isotopes are used to detect and fight disease, monitor the flow of pesticides through the environment, and to date fossil remains.
Order 1-9089

Periodic Table: Reactions and Relationships

This informational program explains periodic law and the significance of the rows and columns of the periodic table. It also outlines the physical and chemical qualities of the members of each group of elements from the alkaline metals to the noble gases.
Order 1-9090

Reactions: The Chemistry of Change

Various types of reactions, including exothermic and endothermic, spontaneous and non-spontaneous, are discussed. How variables such as temperature, concentration, and the presence of a catalyst affect the rate of chemical reactions is also examined.
Order 1-9091

Mixtures: Together But Separate

This program explains the difference between mixtures and compounds, and how stability is affected by the polarity of the solvent and solute. Students are also introduced to suspensions and colloids, and how mixtures can be separated by filtering, distillation, and setting.
Order 1-9092
Ages 12 to 14, Ages 15 to 18
minutes, order 1-90870-IN

Cosmic Crisis:protecting The Earth Against Comets&asteroids

Expanding Frontiers: The Exploration Of Space Series

Recent scientific reports have indicated the chance of a large asteroid or comet hitting the Earth within the next 30 years, possibly wiping out all life on our planet.

In a worst-case scenario, what could we do to prevent such a catastrophe? Through interviews with leading experts, Cosmic Crisis explores these potential solutions.
Ages 12-18, Ages 16 to Adult Ages 9 to 11
34 minutes, order 8-1141-IN

Diffusion And Phase Changes Of Matter

Grade 8 - Cells, Tissues, Organs, and Systems: Basic concept: describe the movement of gases and water into and out of cells during diffusion and osmosis.

Grade 8 - Fluids: Basic concept; explain the effects of changes in temperature on the density of ...

The spontaneous mixture of two substances is a commonplace occurrence. This natural mixing process, called diffusion, results from the random, constant movement of all molecules. The way it works is explored in this program with the help of the particle model, live action experiments, time lapse photography, graphs and animation.

The external factors that affect the rate and degree of diffusion are time and temperature. An experiment with water and syrup explains why heat increases the movement of molecules and accelerates diffusion.

The particle model is used to diagram the molecular patterns of gases, liquids, and solids. These diagrams show that the greater the distance between molecules, the faster diffusion takes place. Widely spaced gas molecules will always diffuse more rapidly than tightly packed solids. In fact, diffusion can take place in solids only under special conditions.

Time lapse photography and laboratory experiments also document the phase changes in solids, liquids, and gases, showing the transformation that occurs when heat is applied to lead and mercury. Experiments with dry ice and iodine demonstrate sublimation, in which a solid is transformed directly into a gas without melting. The cooling of iodine vapour and its subsequent reformation into solid crystals illustrate the process of resublimation, or solidification. Filmed experiments show that bromine is one substance which illustrates all the phase changes of matter; melting vapourization, solidification, sublimation, and resublimation.

Also available in Laser Videodisc.

Ages 12 to 14, Ages 15 to 18
11 minutes, order 1-8273-IN

The Earth Science Essentials Cd-rom Series

Series offers a complete Earth Science curriculum. Each CD-ROM program contains video chapters (25 minutes), random access, interactive browsing, an interactive quiz, bulletin board, test with record keeping, an interactive glossary and a teacher management system (password protected).

The teacher management system allows teachers to write and edit quizzes and tests; track student scores, create and edit bulletin board informaton, print tests, class rosters and scores by name or code.

Oceans: Charting the Vastness

Oceans cover 70% of Earth's surface, are responsible for much of Earth's weather patterns, and contain vast quantities of living and mineral resources. This program explains the geology of the ocean floor, the dynamics of ocean currents and tides, and the oceans' incredible diversity of marine life.
Order 1-9081

The Universe: The Vast Frontier

Colourful, 3-D animation of the “big bang” and the birth and death of stars, exciting footage of the VLA radiotelescope in New Mexico and optical telescopes in Arizona, highlight this powerful introduction to the structure and history of the universe.
Order 1-9082

Geology of the Earth: Of Forces, Rocks and Time

Dramatic volcanic and glacial footage and spectacular coastal and canyonland shots visualy outline the forces that contribute to shaping the earth's surface, the movement of crustal plates, volcanic activity, physical and chemical weathering and erosion.
Order 1-9083

The Solar System: Our Neighbours in Space

After explaining the nebular theory of the origin of the solar system, this program takes a spectacular journey across the universe. Actual satellite and telescope photographs detail the geology, atmospheric composition, and the moons of each of the nine planets.
Order 1-9084

Weather: The Chaos Which Surrounds Us

Dramatic live action storm footage provides a vivid introduction to the dynamics of the atmosphere. The program show how the flow of energy in the atmosphere leads to weather patterns and details how violent weather phenomenon develops.
Order 1-9085

The History of the Earth: Over the Eons

This integrated outline of the geologic and biologic history of Earth provides students with a basic understanding of the major geologic and biologic events from the Precambrian Era to the present.
Order 1-9086

Ages 12 to 14, Ages 15 to 18
minutes, order 1-90810-IN

Electrical Current And Magnetism

Grade 6 - Electricity

Through simple experiments, the basic principles of electromagnetism are explored. Electromagnets are contrasted with permanent magnets and their differences and similarities are clearly shown. Also teaches basic principles behind common electrical devices.

Available in CD-ROM and VHS

Ages 9-14
18 minutes, order 1-8381-IN

Exploring Our Solar System

Grade 6 - Space; Basic concepts covered: all

Recently, sophisticated space probes have provided a wealth of new information to help unlock the mysteries of our solar system. This program combines live action photography, breathtaking footage from space, artwork, and three-dimensional models to present much of that new information in an exciting introduction to the solar system.

The program illustrates how the sun's gravitational pull causes the elliptical orbits of the nine planets. It explains how the sun's enormous mass and extreme temperatures create sunspots, prominences, and solar flares; and it describes how the sun applies the energy we need on Earth.

Each planet's surface is described along with its atmosphere, distance from the sun, temperature, rotation, orbit, and moons. The Voyager space probe has provided amazing new glimpses of the outer planets including the discovery of additional moons around Saturn and Jupiter and faint rings around Jupiter and Uranus.

In addition to the planets and their moons, billions of smaller objects orbit around our sun. The program describes the composition and movement of asteroids, comets, and meteors. Theories on the origin of the solar system, life on other planets, and the existence of other solar systems in the universe are presented. *Also available in CD-ROM and Video Laserdisk*

Ages 9 to 11, Ages 12 to 14
15 minutes, order 1-8060-IN

Fire From The Sun: The Search For Fusion Energy

The need for an alternative energy source has reached a new level of importance. When “cold fusion” grabbed headlines, it seemed the promise of nuclear fusion as a safe, limitless supply would soon be realized. Now people want to know more. What is nuclear fusion? Can its power be harnessed safely and used economically to heat our homes and fill our gas tanks? Is it an environmentally clean source of energy? Is it affordable?

This program provides and overview of the global search for the ultimate solution to the planet's energy problems and puts this timely and controversial topic in perspective.

After fully explaining the science of nuclear fusion...the energy that powers the sun and stars, the program artfully combines history and images from popular culture with interviews of leading scientists and members of U.S. Congress to tell the dramatic story of the forty year effort to master this potential for energy. Beginning with the enthusiasm of the 50s for anything atomic, the program documents anti nuclear activism, responses to the energy crisis of the 70s, federal budget deficits, and other major influences on fusion research.

The program also examines foreign investment in fusion power and the prospect of “importing” fusion energy.

If you wish the original 58 minute version, order 1-8327

Ages 15 to 18
27 minutes, order 1-8326-IN

Future Flight

Christopher Reeve presents ten visions into the not-too-distant future.

Predictions into the next century, include an orbiting space station, commuting to the moon via lunar taxi, pioneering an expedition to Jupiter, and a futuristic solar sailing competition, indicate that the sky is no longer the limit.

Creative fantasies come to life through the use of simulation, animation and vivid imagination.

The original, 48 minute version is also available. Order 1-8725

Ages 15 to 18
29 minutes, order 1-8775-IN

Geographic Setting

A Look At Today's China Series

Examines Shangdong's geography, history and culture with dramatic footage of the Yellow River at flood stage.

Ages 12 to 14, Ages 15 to 18
15 minutes, order 5-2204-IN

Grand Canyon Chronicles, Precambrian And Paleozoic Eras

Grade 7: The Earth's Crust; Basic concepts: all

Among the most remarkable of Earth's wonders it is also a giant geological laboratory. Walls bear evidence of forces and events of the last 2 billion years. Orson Welles narrates.

Ages 12 to 14
24 minutes, order 1-9698-IN

Grand Canyon Chronicles, Mesozoic And Cenozoic Eras

Grade 7 - The Earth's Crust; Basic concepts: all

Reveals clear evidence of our recent past - the last 225 million years! - during which time dinosaurs reign and the Age of Mammals began. Narrated by Orson Welles.

Ages 12 to 14, Ages 15 to 18
28 minutes, order 1-9699-IN

Heat: Molecules In Motion

Grade 7 - Heat: Basic concept: how heat is transmitted by conduction, convection and radiation.

This program examines the ways we use heat by looking in on a typical family. It follows the family through one day's activities and illustrates how heat affects their lives.

Animation is used effectively to illustrate the main points... The narrator speaks both to the audience and to the characters in the film, which works well. This film correctly and effectively presents science and would be an excellent introduction to the topic of heat. American Association for the Advancement of Science.

Available in VHS, CD-ROM and Laser Videodisc

Ages 9-14
16 minutes, order 1-9811-IN

Inside The Russian Space Program

Expanding Frontiers: The Exploration Of Space Series

Here is an insider's view. Russia's spectacular early lead in the space race was not to last; a number of disastrous, occasionally fatal, setbacks and the former Soviet Union's faltering economy have helped bring the once mighty space program nearly to its knees. Today, the Russian program struggles to survive with the aid of foreign funding and the cooperation of NASA.

Ages 12-18, Ages 16 to Adult, Ages 9 to 11
35 minutes, order 8-1138-IN

Interactions: Real Math, Real Careers Series

"At last, a series where kids get the connection that they need math to make their dreams come true...from playing in a rock band, to making movies, designing fashions, or commanding a space flight! INTERACTIONS should be in every middle and high school classroom." Colleen Hartry, Parent Film and Television Reviews.

Demonstrating the range of math applications in the workplace is a challenge for most teachers. The mandate of INTERACTIONS was to bring real-world math applications into the classroom, and that's what it does.

Every program is videotaped on location so students can experience the adventure of successful professionals applying real math principles.

Created by the Foundation for Advancements in Science and Education (FASE), each title comes with a Teacher's Guide.

Solar Energy

Can people in remote rural areas who are far from electric generating plants get power for their lights and appliances? Solar cells make it possible.

Mechanical and electrical engineers take your students through the process of designing and installing solar cell panels in remote locations. Math topics include: geometry, percentages.
12 minutes, order 5-4436

Water Resources

What does it take to estimate how much water a large city will need 25 years from now? The chief of urban water conservation for the State of California explains the challenges of supplying water to a growing population of millions, much of which lives in the desert. Math topics include: patterns/functions, measurement.
12 minutes, order 5-4437

Endangered Species

Can we bring back animal species that are on the brink of extinction? A Native American biologist, who combines scientific training and traditional values, recalls his part in bringing the bald eagle off the endangered species list. Math topics include: ratios, patterns.
11 minutes, order 5-4438

Recycling

A few years ago, Seattle faced an overwhelming garbage crisis. City planners and engineers describe how they created a recycling program that has become a model for North America. Your students will see, from beginning to end, how the recycling process gets done. Math topics include percents and fractions.
13 minutes, order 5-4439

Digital Communication

What is the information "superhighway" really all about? Communications engineers at GTE and US West Provide a remarkably clear introduction to the basic concepts of the digital communications revolution. Your students will see how trillions of 1's and 0's make up the digital codes that become video images, graphics and sounds on computers, and increasingly, on our television screens. Math topics include: exponents, patterns/functions, powers of 10.
11 minutes, order 5-4440

Making Music

Do musicians really use math? A composer takes students behind the scenes as she creates music for HBO's "Comic Relief" special, and a renowned percussionist demonstrates the rhythmic patterns used to create familiar musical styles. Math topics include: ratios, proportions, fractions.
13 minutes, order 5-4441

The Fashion Business

In a rare visit to the design studios and factory at Levi Strauss & Company, design, marketing, and sales professionals reveal how they meet the demand for everybody's favourite clothing. Your students may never look at their jeans in the same way again. Math topics include: decimals, percents and statistics.
10 minutes, order 5-4442

Coaching an Athlete

What young athlete doesn't dream of being in the Olympics? From a dawn run, to workouts on the mats, the head judo coach for the U.S. Olympic Training Team uses math to create training programs that put his athletes at the peak of physical ability. Math topics include: percents, statistics.
11 minutes, order 5-4443

Designing a Product

How is a pair of sunglasses like a coffee maker? Both are the result of problem solving. A senior product designer at Bausch and Lomb takes students into the company's design studios and factory to see a new style of sunglasses being developed and manufactured. Math topics include: statistics, percents and geometry.
12 minutes, order 5-4444

Building a Rover

To traverse the surface of the Moon or Mars, a vehicle must be able to think for itself. At NASA's Jet Propulsion Lab, a team of scientists demonstrates the rover which will one day wander over Martian landscapes. Math topics include: geometry, patterns/functions.
11 minutes, order 5-4445

Voyage to Mars

How do you plot a course to Mars, from one moving planet to another? What are the impacts of space travel on the body and can human beings survive the trips?

Your students take a look at plans for a flight to Mars. Math topics include: geometry, decimals.
11 minutes, order 5-4446

Deep Sea Missions

It's cold, it's dark. The pressure is immense. A pilot and scientist navigate a remotely operated vehicle through one of the Earth's deepest underwater canyons, filming the ocean floor and collecting fragile marine samples.

12 minutes, order 5-4447
Ages 9 to 11, Ages 12 to 14
140 minutes, order 5-44360-IN

The Kenyan Way Of Life

Presents the history, demographics, lifestyle, government, education, traditions, development and geography of this gorgeous country that is home to forty different cultural groups.

Ages 16 to Adult, Ages 9-14
22 minutes, order 1-8465-IN

The Living Reef

Grade 4: Habitats and Communities; Basic concept: animals and plants live in a specific habitat because they are dependent on those habitats and have adapted to them.

An underwater “mountain” of coral built up over countless centuries by the exo-skeletons of tiny animals called polyps, Australia's Great Barrier Reef is not only one of the ocean's wonders, but a laboratory for the study of marine habitats and life. Many kinds of corals and the fish that live in and around them are examined and named.

Also available in laser videodisc.

Ages 12-18 Ages 9 to 11
22 minutes, order 1-8025-IN

Men On The Moon: The Apollo Program

Expanding Frontiers: The Exploration Of Space Series

Learn the inside story of the first lunar expeditions. Men on the Moon: The Apollo Program, features interviews with the astronauts and technicians who made it happen, plus classic NASA footage of those pioneering missions.

Ages 12-18, Ages 16 to Adult, Post Secondary
33 minutes, order 8-1131-IN

The Nile: Lifeblood Of Egypt

The Nile. From the overflow of these dark waters grew Egypt. Grew to form the topsoil from which our civilization grew. This is Egypt today. And 50 centuries ago, the Egypt of the Pharaohs. Of ancient Greeks and Romans. Christian Egypt. Islamic Egypt. Its lifeblood is the Nile.

Stretching from the hot Sudan to the cooling Mediteranean, and from Africa into Asia by way of the Sinai, the Republic of Egypt with 60 million inhabitants, is the most populous Arab nation on earth. This program explores Cairo, city of minarets, ancient Memphis, the Pyramids of Giza, the Greek capital Alexandria, the Suez Canal, the holy Sinai, the Red Sea, Luxor, Karnak and the city of Dead, Aswan, gateway to Nubia, and stunning Abu Simbel.

To undersatnd Egypt fully, the scope of its history and its monuments, requires a sense of timelessness. The more one delves, the greater the sense of being suspended betwen reality and myth. But there is truth in these myths. Some can be seen and touched. Some are only shadows of their past. Egypt's true gift to the world was and still is its people. This video is a fresh and up-to-date look at Egypt, its ancient spendors and its modern people and conditions.

Ages 12 to 14, Ages 15 to 18
36 minutes, order 8-2504-IN

The Northern Lights And Other Powerful Topics

Newton's Apple Series

Shedding light on the aurora borealis; how the earth's magnetic field captures electrons and protons ejected from the sun. The power of atmospheric pressure. Al Gore's pleas for trees. Are piranhas really ferocious?

Ages 12 to 14
30 minutes, order 5-4999-IN

The Pathfinder: Mission To Mars

Expanding Frontiers: The Exploration Of Space Series

On July 4, 1997, the Mars Pathfinder successfully touched down on the surface of the Red Planet, providing us with a wealth of new images and data. The Pathfinder: Mission to Mars, explores the story behind this NASA success and the vision of future missions that has now become a real possibility.

Ages 12-18, Ages 16 to Adult, Post Secondary
34 minutes, order 8-1134-IN

The Physics Essentials Cd-rom Series

Each interactive CD-ROM program contains video chapters (25 minutes); random access, interactive browsing; interactive quizzes; bulletin board; test and record keeping; an interactive glossary and a password protected Teacher Manager System.

Electricity: The Invisible River of Energy

A mass of information gives students a fundamental understanding of electrical energy: static and currrent electricity: parallel, series, and complex circuits; the relationship between magnetism and electricity; and how electricity is generated.
Order 1-9093

Waves: Energy in Motion

Quality animation helps illustrate how waves transfer energy, but not matter, from one point to another. The concepts of reflection, refraction, interference, diffraction, the Doppler Effect, wavelength, amplitude, and freqency are also thoroughly explained.
Order 1-9094

Heat and the Changing States of Matter

Students learn how thermal energy causes matter to change states, expand and contract, and how this energy is transferred by convection, conduction, and radiation. Scenes of steel mils, solar and geothermal power plants, and wind farms illustrate these concepts.
Order 1-9095

Motion: Newton's Three Laws

Exciting footage of dragsters, fighter jets, and bungee jumpers illustrate Newton's Three Laws of Motion. These examples help explain the motion of falling bodies and projectiles, circular motion, and how the motion of an object is relative to the observer's frame of reference.
Order 1-9096

Light, Lenses, and Lasers

This program explains that light is the visible part of the electromagnetic spectrum which consists of a variety of waves from radio waves to cosmic rays. It also explores the use of concave and convex lenses and the concepts of diffraction and polarization.
Order 1-9097

Force and Work: Energy in Action

Viewers are introduced to everyday mechanical forces and the mysteries of field forces like gravity and electromagnetism. The concepts of work, pressure, potential and kinetic energy, and power and efficiency are also explored.
Order 1-9098
Ages 15 to 18, Ages 12 to 14
minutes, order 1-90930-IN

Race To The Moon: The Real Story

Expanding Frontiers: The Exploration Of Space Series

From the 1957 launch of Sputnik to the lunar landing of Apollo 11 in 1969, the United States and Russia engaged in a cut throat competition to reach the moon first. Race to the Moon, chronicles the glorious successes and tragic failures of both nations in that tension-filled decade.
Ages 12-18, Ages 16 to Adult, Post Secondary
34 minutes, order 8-1137-IN

Reaching For The Moon: Project Gemini

Expanding Frontiers: The Exploration Of Space Series

The “giant leap for Mankind” in 1969 was actually the result of dozens of small steps throughout the decade. This program spotlights Project Gemini, the series of historic flights that laid the groundwork for that first trip to the moon.
Ages 12-18, Ages 16 to Adult, Post Secondary
35 minutes, order 8-1139-IN

Rendezvous With Mars

Expanding Frontiers: The Exploration Of Space Series

As technology progresses we move closer toward the possibility of a manned exploration of the Red Planet. But as we see in this video, many obstancles must still be overcome.
Ages 12-18, Ages 16 to Adult, Post Secondary
30 minutes, order 8-1133-IN

Robots: The Computer At Work

In what ways are robots different from automated machines? Designed to answer such basic questions, this film takes its examples mainly from Japan where more robots are currently in use than in any other country.
Ages 12 to 14, Ages 15 to 18
22 minutes, order 1-8027-IN

Russia's First Cosmonaut: The Untold Story

Expanding Frontiers: The Exploration Of Space Series

The cosmonaut listed in history books as the first man in space was in fact the second. This program details the USSR's cover-up of their first catastrophic attempt to send a man into space, the details of which are only now being brought to light.
Ages 12-18, Ages 16 to Adult, Post Secondary
34 minutes, order 8-1135-IN

The Saga Of Apollo 13

Expanding Frontiers: The Exploration Of Space Series

In April of 1970, a seemingly routine mission to the moon went disastrously awry, leaving the crew of Apollo 13 stranded in space. This program details the amazing story of their rescue, as NASA technicians defied the odds and made history in the process.
Ages 12-18, Ages 16 to Adult, Post Secondary
35 minutes, order 8-1136-IN

The Search For Life On Mars

Expanding Frontiers: The Exploration Of Space Series

Recent evidence has raised the possibility of life having once existed on Mars. The Search for Life on Mars, explores the technological developments that will enable us to confirm or deny these findings.

Ages 12-18, Ages 16 to Adult, Post Secondary
35 minutes, order 8-1140-IN

Secrets Of Greenland Ice

Describes the work of Danish, Swiss and American scientists who are probing beneath Greenland's icy glacial sheet hoping to uncover information about the earth's climate tens of thousands of years ago.

Ages 16 to Adult
30 minutes, order 5-1952-IN

Solar Activity

Grade 6: Space; Basic concept: describe the physical characteristics of components of the solar system; Relating Science & Technology: identify the technological tools and devices needed for space exploration (spectroscopes).

A great deal of spectacular activity takes place on the sun...our nearest and most important star. With the help of a few simple experiments, as well as complex equipment like radio telescopes, this program explains the nature of the sun's surface and atmosphere. It examines such activity as sun spots, solar flares, and prominences, and shows how the study of sunlight can tell us much about the physical composition of the sun.

Centuries ago, early scientists discovered that sunlight could be refracted into many different colours. Galileo's series of sketches led him to estimate that the sun completes a rotation every twenty seven days. In modern times, a spectroscope allows us to study the range of sunlight's wavelengths, which we see as colours.

A filmed experiment, using a spectroscope and an asbestos fiber soaked in sodium chloride and heated over an open flame, shows how scientists determine the elements that make up the sun. A different experiment with a spectroscope and a tube of hydrogen demonstrates how we know a huge amount of hydrogen is contained in the sun's mass.

Another experiment shows how astronomers use special filters to absorb surface light and monitor the now visible chromosphere.

Ages 12-18
20 minutes, order 1-8284-IN

Solar Cells: Power From The Sun

Grade 5: Conservation of Energy; Basic concept: investigate ways energy can be stored for later use.

This program explains the process that transforms sunlight into electricity, and discusses problems that must be overcome for solar energy to be used on a widespread basis.

Solar cells transform energy into electricity; this program offers viewers a look at how that transformation takes place. Through animation, a solar cell is dissected, showing how the sunlight is absorbed and made into energy. One layer of the solar cell is positively charged and the other is negatively charged. Where the two layers meet, an electric field is created.

Solar energy can be collected and stored in batteries. It can be used to power everything from calculators to automobiles. Large scale use of solar power is being explored by many nations.

Although more costly to implement than conventional energy sources, the film shows how the benefits of solar power make it a worthy investment. From FWU Productions.

Ages 12 to 14, Ages 15 to 18
15 minutes, order 1-8392-IN

Top Flight

From the Wright Brothers to “The Right Stuff,” this program celebrates the milestones of aviation and honours heroes and heroines of the air, exploring the past, present and future of military aviation, leaving viewers with a bright vision for the future.

Ages 12 to 14, Ages 15 to 18
46 minutes, order 1-8724-IN

Trailblazers: The First American Women In Space

Expanding Frontiers: The Exploration Of Space Series

With the development of the space shuttle program in the late 1970s came the introduction of women into the NASA astronaut corps. Trailblazers: The First American Women in Space, tells the story of these pioneers, the obstacles they faced and their ultimate success in winning the respect of their male peers.

Ages 12-18, Ages 16 to Adult, Post Secondary
30 minutes, order 8-1129-IN

Women In Science

Meet three accomplished scientists as they describe their work activities, goals, educational backgrounds, professional responsibilities and personal insights that led them into their respective fields of marine biology, industrial forestry, and astronomy.

Red Ribbon Winner, American Film & Video Association.

Ages 12-18, Adult
20 minutes, order 1-8517-IN

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