Energy and Water Videos

Grades 4-12

WATER DVD SERIES (Grades 4-8)

(Schlessinger Media – BBC – 2003)

What happens to water as it moves through the water cycle? Where does our supply of drinking water come from? What are the causes and effects of a flood? Understanding water means learning about all the ways in which it can influence our lives. Water is a precious natural resource that is vital to the survival of all living things. While only a small portion of Earth's water is fresh water, an even smaller amount is available for human needs. Scientific and geographical explanations answer important questions about the role and influence of water on people. This series uses real life examples of people and places that are affected by water in different ways.

Each title comes with:
1 DVD (20 min.)
Teacher's Guide
List of Correlating Sunshine State Standards

FLOODS

Concepts taught:
Floods can be both helpful & harmful
People adapt their lives & homes to cope with floods

WATER'S CYCLE

Water changes form as it circulates through its cycle
Water is treated before & after use to make it safe

WATER SUPPLY

Concepts taught:
How people get clean, fresh water
Water resources are strained & conservation is encouraged

ENERGY IN ACTION DVD SERIES (Grades 5-8)

(Schlessinger Media, 2000)

Through the afterschool exploits of an aspiring young scientist, the Energy in Action series takes students beyond the basics to help them understand the five main forms of energy: mechanical, chemical, heat, electromagnetic and nuclear. Compelling examples show how stored energy is converted to active energy and how energy continually changes from one form to another.

Each title comes with:
1 DVD (23 min.)
Teacher's Guide
Investigation Data Sheet
List of Correlating Sunshine State Standards

ELECTROMAGNETIC ENERGY

Concepts taught:
Electromagnetic spectrum is made up of energy waves
Position in the spectrum and amount of energy in waves is determined by their size

ENERGY: POTENTIAL & KINETIC

Concepts taught:
Kinetic energy is related to objects in motion
Potential energy is stored

ENERGY RESOURCES: USE & CONSERVATION

Concepts taught:
Fossil fuels helped fire the industrial revolution
Fossil fuels are non-renewable & in danger of being used up
Kids can take an active role in energy conservation

HEAT & CHEMICAL ENERGY

Concepts taught:
Heat energy comes from the motion of atoms
Chemical energy is stored in the bonds that link atoms together

MECHANICAL ENERGY

Concepts taught:
Mechanical energy can exist in two states-kinetic & potential
Sound is mechanical energy

NUCLEAR ENERGY

Concepts taught:
Power stored inside atoms
Fission & fusion
Nuclear is clean, reliable energy source, but has safety issues

THE TRANSFER OF ENERGY

Concepts taught:
Energy changes form as it moves through the universe
Heat energy is transferred from the sun to the earth through conduction, convection & radiation

CORE PHYSICS DVD SERIES (Grades 9-12)

(Ambrose Video Publishing – 2007)

The Core Physics series is a unique approach to presenting in a logical way classical and modern physics' core principles relating the nature and property of matter.

Each title comes with:
1DVD (30/35 minutes)
Teacher's guide
Quiz
Timeline
Images

CLASSICAL PHYSICS

Classical Physics presents in a logical way classical physics' core principles relating to the nature and property of matter. This program covers the period that led to the Industrial Revolution and modern technology, and examines the key points in the development of classical physics, beginning with Isaac Newton's investigation of light and continuing with the discovery of light's spectral lines in 1814, the discovery of electromagnetism and the Doppler Effect, the formulation of the laws of

thermodynamics, Faraday's and Maxwell's investigations into electromagnetism and ending with the discovery of X-rays in 1896 by Wilhelm Rontgen.

MODERN PHYSICS

Modern Physics presents in a logical way modern physics' core principles relating to the nature and property of matter. This program covers the modern era, which brought us new paradigms of how the universe works and our place in it. The key points in the development of modern physics are examined, beginning with the discovery of the electron in 1897 and following through the principles of quantum physics, the development of chaos theory, Einstein's breakthrough Theory of Relativity, the discovery of wave-particle duality and Heisenberg's uncertainty principle, the first nuclear chain reaction in 1942 and ending with the discovery of quarks 26 years later.

PBS (Various Programs) (Grades 9-12)

These programs previously aired on PBS on the series Nova, American Experience, Frontline and Scientific American Frontiers. Each covers some aspect of the environment, either from the past, the present or the future. Topics range from pesticides to global warming to solar energy. Each comes with suggested lesson plans.

CAR OF THE FUTURE
(Nova - 2008 – 54 minutes)

Is new technology about to transform the way we drive? Join Tom and Ray Magliozzi (hosts of NPR's Car Talk) as they look at America's four-wheeled future. They explore everything from a Detroit auto show to the homebuilders of Boston's AltWheels Festival, from a hydrogen-powered bus fleet in Iceland to a green think tank in Colorado. They check out hybrids that plug in to a household outlet and an electric sports car that goes from 0-to-60 in four seconds. The hosts meet experts in biofuels and lithium batteries, mixing sharp observation, slapstick and probing interviews. These car guys turn an expert, comic eye on the promise and pitfalls of tomorrow's auto technology.

GLOBAL WARMING: WHAT'S UP WITH THE WEATHER?
(Frontline/Nova - 2000 – 112 minutes)

Man-made carbon dioxide has overloaded the earth's atmosphere. With demand for fossil fuels increasing daily, experts predict emission levels will triple in the next 100 years. But the greenhouse effect remains the subject of heated debate among scientists, climatologists and futurists. Some believe the earth's temperature will rise by

nearly 10 degrees, melting arctic ice caps and, paradoxically, bringing about a new Ice Age. Others believe the weather will stay relatively normal. Who's right?

HYDROGEN HOPES

(Scientific American Frontiers – 2004 – 30 minutes)

Will hydrogen ever become the oil-replacement fuel, as many in industry and government believe? Can hydrogen help avert a global warming crisis? How can we create hydrogen from renewable sources like the sun, and how do we store it safely once we have it? Alan Alda meets with hydrogen enthusiasts working toward a future when hydrogen can be made in unlimited quantities from renewable, non-polluting resources.

RACHEL CARSON'S SILENT SPRING

(American Experience – 1993 – 55 minutes)

With a passion for nature instilled in her at an early age, writer and biologist Rachel Carson became a fearless champion for the environment. She had been a biologist for the federal government when she first took note of the effects of the unregulated use of pesticides and herbicides. Carson's great love of the natural world drove her to write an exposé of the chemical industry, specifically its unregulated use of DDT. Defying her failing health and risking her reputation, Carson published her controversial work, Silent Spring, in 1962. She was viciously attacked but her warning sparked a revolution in environmental policy and created a new ecological consciousness.

SOLAR ENERGY: SAVED BY THE SUN

(Nova – 2007 – 56 minutes)

Can solar power help save the Earth from the ravages of global warming? In the face of steeply rising oil prices and political turmoil in the Middle East, there's new urgency and enthusiasm for finding ways to make solar power more efficient and affordable. From individuals installing solar panels on their roofs to industrial-scale projects in the Mojave Desert featuring massive arrays of mirrors, solar power is gaining ground in the U.S. And in Germany, the world's leading developer of solar power is on track to produce 30 percent of its electricity from renewable sources by 2020. Breakthroughs in nanotechnology could make solar's future even brighter.

GOING TO GREEN: Towards a More Sustainable Community

(2009 – 5 videos – 7 ½ hours)

Going to Green deals with the restoration of America's urban landscape through the creation of sustainable neighborhood ecosystems. Each chapter is devoted to a specific subject, accompanied by a lesson with service extension activities. Besides the science

and social studies standards addressed throughout the film, the curriculum highlights various cross-curricular activities, such as literature, math, psychology and art tie-ins.

Disks in this series include:

- Toward a More Sustainable Community (Education in Action, Understanding Sustainability, Building Community, Waste Management)
- Elements of Sustainability (Green Building, Energy, Air Quality, Water Quality)
- Balancing Green Space with the Built Environment (Soil Quality, Parks & Open Spaces, Transportation, Biodiversity)
- Implementing Urban Greening (Urban Agriculture, Community Gardens, Urban Forestry, Urban Planning, Integrated Resource Management)
- Public Policy and Green Collar Opportunities (Environmental Justice, Public Policy & Community Action, Sustainable Commerce, Green Collar Careers)

Disks may be borrowed separately or as a set.

WHEN THE WATER TAP RUNS DRY

(2009 – 40 minutes)

The threat of climate change is about more than hotter weather. It's also about another incredibly important problem: water shortages. Learn how our water infrastructure is incapable of handling the changes, and why the answer to keeping the water flowing through our taps is in rethinking everything from how we use it to who owns it.

THE ANTARCTICA CHALLENGE – A GLOBAL WARNING

(2010, 52 minutes)

Filmmaker Mark Terry leads an expedition to Antarctica to report on the new discoveries made by the world's scientific community stationed in Antarctica during International Polar Year (March 2007 to March 2009.) This award-winning documentary reveals many startling new scientific revelations such as penguin suicide, new vegetation growing in the world's largest desert, diminishing populations of land animals and marine life and the dangerously increasing melting of Antarctica's land ice.