

BLUEPRINT: DESIGNING WISCONSIN'S FUTURE

Professional Development

One 30-minute program

<http://WISTEM.org>

Blueprint: Designing Wisconsin's Future examines how schools, businesses, and communities are partnering to prepare students for the 21st century workplace and society. Featuring interviews with students, teachers and community supporters, *Blueprint* explores the effects of innovative science, technology, engineering and mathematics programs on communities throughout Wisconsin. In this program, you will see:

- Ariens Technology & Engineering Center - Ariens Company has partnered with Brillion High School to create a state-of-the-art learning center where students work on diverse projects such as high-mileage vehicles and hydroponics.
- FIRST Lego League - A global program created to get students excited about science and technology, First Lego League utilizes theme-based challenges to engage students in research, problem solving, and engineering for a statewide competition.
- Biopharmaceutical Technology Center Institute - This nonprofit organization facilitates real-life laboratory activities related to science, technology and nature discovery for students and young adults.
- Westfield Biodiesel Program - The School District of Westfield is pioneering the production and use of alternative energy by enabling students to manufacture biodiesel that is used to fuel their school buses.

CULTURAL LEGACIES OF ANCIENT CIVILIZATIONS

Social Studies Grades 7-12

Eight 15-minute programs

Through dramatic recreations, 3-D animations, insightful scripts, and worldwide location footage, this series connects both action events and key concepts that shaped each of the great ancient civilizations. These visual representations give students the sense of ancient daily living that reveal philosophical, political, economic, religious, and social ideas in each culture. It also compels higher-level thinking skills by challenging viewers to analyze some of the universal historical conflicts between ideals and real events.

1. Egyptians: Conflicting Visions of Immortality (ca 2556-1353 BC/BCE) - The Egyptian pharaohs tried to create immortality for their god-king legacy. They attempted it with mummification and huge tombs, but grave robbers and time destroyed most of these. Still, many images and mummies remain, but one pharaoh's legacy, Akhenaton's, was deliberately obliterated by polytheistic priests because his monotheism threatened their power. Only in the 20th century did knowledge of Akhenaton, worshipper of the sun god and perhaps the first personality in history, come to light.

2. Minoans: Public Peace & Ritual Violence (ca 2000-1400 BC/BCE) - The Minoans, a prosperous, peaceful island people of the Mediterranean region, influenced the Greeks, as seen in the Greek Minotaur and Theseus myth. Minoan art suggests a totally peaceful life without war, with violence sublimated in their bull-worship rituals. Females seem to have been more influential here than anywhere else in the Ancient World. Yet, recent archaeological discoveries suggest that secret sacrifices, led by women, were part of their religious rituals.

3. Phoenicians: The Alphabet & Carthage's Hannibal (ca 1050-146 BC/BCE) - The Phoenicians did not create an empire, but several city-states such as Byblos and Carthage. They were very successful seafaring traders. Their most influential legacy is the creation of a simple alphabet for business transactions. Its structure was adopted by the Greeks, Romans and other Western languages, including English. Eventually, though, Carthage's Hannibal challenged the Romans for supremacy of the Mediterranean and lost everything.

4. Greeks: Olympic Mind-Body Legacy (ca 776 BC/BCE-present) - Like the Phoenicians, the Greeks were a collection of city-states during their great Hellenic period. And even though they often made war on each other, during each Olympic Games celebration every four years they sublimated their violence into a fusion of mind and body worship dedicated to their chief god, Zeus. This great ideal of the Greeks has been more long-lasting throughout history than any of their others.

5. Romans: Inclusive Conquest & Loyal Citizens (ca 146 BC/BCE-476 AD/CE) - The Romans ruthlessly conquered Carthage and the rest of the Mediterranean region, but also gained the allegiance of most of the people they subdued. How? By giving them citizenship and including them in the benefits of empire, best exemplified by one of Rome's good emperors, Hadrian. This intelligent, if self-serving, political organization,

along with a well-run bureaucracy, helped Rome survive hundreds of years longer than most empires.

6. Khmers: Creating Heaven on Earth (ca 800-1200 AD/CE) - The Khmer Empire, now modern Cambodia, was largely unknown until the 19th century discovery of the ruins of Angkor Wat, an astonishing temple complex. Long abandoned, its huge and beautiful symmetry reveals it as an attempt to create a Hindu concept of Heaven here on Earth. Yet it also reveals a society where peasants and artisans supported an absolute ruler. One 12th century king made his people build this largest of all the world's religious temples to ensure immortality for himself as a living god, giving him enormous power, similar to the Egyptian pharaohs.

7. Mayans: Deception by Temple Rituals (ca 250-900 AD/CE) - The Mayan Empire was supported by sophisticated mathematical and astronomical knowledge. These ideas were integrated with their religious sacrificial practices, as in their life or death ball games. The theme of blood sacrifice to the gods was supposedly symbolized by the shedding of the king's blood, but the ritual piercing of his body was a sham, carried out by temple priests in secret, enforcing his power through subterfuge. Perhaps due to exposure, the rituals died out and so did the empire.

8. Incas: Oppression Self-Destroys an Empire (ca 1450-1550 AD/CE) - Like the Romans, the Incas conquered a large number of cultures, binding them together with a network of roads. The Incas also showed remarkable engineering skills in buildings and terraced farming fields, as at Machu Picchu. But the Inca impatience for power is revealed in their ruthless oppression of the defeated peoples. These discontented populaces were easily converted into allies by Spanish invaders, who quickly destroyed the Inca Empire.

DESIGN SQUAD

Science & Technology Education Grades 4-6

Twenty-six 30-minute programs

<http://pbskids.org/designsquad>

Engineers have led a technological revolution that has improved the quality of our lives, yet many kids and adults alike do not understand how the technology they use in their daily lives works. They are also unclear about the engineer's role in society or even what an engineer does. *Design Squad* is a series where kids can learn about engineering. Viewers see *Design Squad* teams take raw materials and with very little adult intervention, transform them into workable solutions. The series presents kids using technology (such as computers, electronics, and machine tools) to do a wide range of activities that have a scale and complexity that will excite the viewing audience and motivate them to do these activities on their own. Engineers and educators have partnered with *Design Squad* to help support kids as they try out the ideas first-hand. These real-world experiences give kids a stronger understanding of engineering, equip them with science and math skills, and ultimately lay the foundation they need to participate in engineering activities later in life.

1. The Need for Speed - A professional racecar builder challenges the DS teams to convert kiddie toys—a red wagon and a tricycle—into motorized dragsters. Fasten your seatbelts for *Design Squad's* racy debut!

2. Rock On - The teams compete to create original musical instruments—one stringed and one percussive—for Off White Noise, a local band. The instruments are put to the test when Off White Noise rocks out at the Middle East nightclub.

3. Skunk'd - When a guy named Skunk comes looking for a bike bizarre enough to impress the members of SCUL (Subversive Choppers Urban Legion), you give him what he wants. The rubber really meets the road when DS parades their newly created choppers (bikes) on a SCUL mission.

4. DS Unplugged - The teams take a crash course in pre-industrial building techniques as they compete to build 20-foot bridges—without the aid of power tools, forklifts or flushable toilets. It's a show for the (Middle) Ages!

5. Got Game? - Challenged to come up with a way to cover all the angles of a basketball game via remote-controlled cameras, the teams dive into action and compete to prove who's got (the whole) game.

6. A Collective Collaboration - The teams both set their sights on designing the most durable, portable and low-cost peanut butter making machines for a women's collective in Haiti. Powered by human hands and inspiring to the human heart, DS shows that engineering really can change lives.

7. Just for Kicks - The challenge: design a "revolutionary" device that automatically feeds a stream of balls to Michael Parkhurst, a professional soccer player with the New England Revolution. This is one *Design Squad* episode that's sure to be a ball.

8. Functional Fashion - It's a marriage of high tech and haute couture (well, sort of) as the teams compete to see who can design the best dual-purpose clothing. Join DS on the runway as the garments/gadgets make their fashion debut.

9. Batter Up - How to make a perfect pancake? The DS teams find the right ingredients for a machine that will cook, flip and serve up delicious flapjacks at the flick of a switch. The winning machine is put to the (taste) test at a busy diner.

10. Pumped - An 11-foot-tall water slide will be a cool addition to the community pool - once there's a pump to deliver the water. See which invention makes the biggest splash with YMCA campers.

11. Blowin' in the Wind - The teams tap into their inner artists as they compete to design and build wind-powered kinetic art from recycled materials. The winning sculpture is put on display at the DeCordova Museum and Sculpture Park in Lincoln, Massachusetts.

12. Bodies Electric - The *Design Squad* teams "take a shine" to hip hop artist Wyatt Jackson when they try to create a sound and light show triggered by Jackson's moves and grooves. In a live performance, it's DS night at the Strand Theater!

13. Winner Takes All - The season concludes when the product design firm Continuum asks the DS teams to develop and test a "summer sled" for retail giant L.L. Bean. It's a bumpy, downhill slide to the finish line.

14. Cardboard Furniture - The *Design Squad* teams create innovative yet practical cardboard furniture for the home goods superstore IKEA. Furniture shoppers take a seat in the judges' chair to decide the winning team. D-Squad Pro File: 25-year-old Jennifer Chua is a packaging engineer who works at Method, a company in San Francisco that specializes in nontoxic, biodegradable products. Jennifer makes high-quality products that are both good-looking and good for the environment.

15. PVC Kayak - Jump on board as King Island, Alaska, native Sean Gallagher challenges the *Design Squad* teams to build 10-foot kayaks using traditional design but with non-traditional materials. D-Squad Pro File: Mechanical and design engineer Connie Yang is as extreme as the high-tech tents she designs for NEMO Equipment.

16. Green Machines - The teams go green as they work with the Food Project, an organization that creates social change through sustainable agriculture. Two young Food Project volunteers challenge the teams to design a compost lifter for their urban farm. D-Squad Pro File: Industrial engineer Erin Gately creates new environmentally friendly products for Hewlett-Packard by ensuring that HP's computer products are made with fewer non-recyclable materials.

17. Gravity Bikes - The *Design Squad* teams go head-to-head as they compete to build high-speed gravity bikes for Gravity Sports International champion Tom Whalen. D-

Squad Pro File: Gael Force Team 126 from Clinton, Massachusetts, is one of more than 1,300 teams that compete each year at the annual FIRST (For Inspiration and Recognition of Science and Technology) Robotics competition. Teams had just six weeks to design, build and test a robot that raced around a track to move a 40-inch inflatable ball.

18. Water Dancing - Dancer and performance artist Lisa Bufano, a bilateral leg and finger amputee, challenges the teams to build specialized prostheses for an underwater performance. D-Squad Pro File: Greg Jones applies his mechanical engineering skills in a broad range of artistic endeavors including "La Contessa," a replica of a 40-foot Spanish galleon built over a school bus.

19. Backyard Thrill Ride - The teams bring the adrenaline rush of an amusement park ride to the backyard of 13-year-old Andreas Hoffman. D-Squad Pro File: What is more fun than riding a roller coaster? Mechanical engineer Chris Gray would say building one! At Great Coasters International, Chris applies his creativity and engineering know-how to build exhilarating (and safe!) roller coasters.

20. Big Bugs – *Design Squad* gets back to nature as the teams sculpt large-scale insects from found forest materials. The winning arthropod will be on display at the New England Wild Flower Society's Big Bugs exhibit. D-Squad Pro File: Matt Sisul and William Cao are 20-something structural engineers who volunteer for Engineers Without Borders to promote urban development in Africa and South America.

21. Aquatic Robots - Super Duck Excursions, the Boston-based terra-amphibious touring company, challenges the teams to create underwater radio-controlled robots to spice up their narrated tours. D-Squad Pro File: Mikell Taylor, a systems engineer at Bluefin Robotics, not only builds Autonomous Underwater Vehicles (AUVs) for the U.S. Navy, but she's also taken the lead in creating a new consumer product: a personal training device for swimmers.

22. Band Cam - There's nothing like the World Music rhythms of Zili Misik to send the *Design Squad* teams into an artistic groove. The eight-member all-female band challenges the teams to create remote-controlled aerial camera systems to cover their live performance. D-Squad Pro File: Mark Cayla, head engineer for Airship Management Services in North Carolina, maintains and operates some of the world's largest blimps for everyone from presidential candidates to the military.

23. No Crying in Baseball - The teams must hit a home run for Del "The Dogman" Christman, local celebrity and hot dog vendor for the Lowell Spinners (a Class A affiliate of the Boston Red Sox), who is in need of an onion dispenser to dress up his dogs. D-Squad Pro File: 25-year-olds Curtis Cruz and Becky O'Hara, engineers for Rawlings Sporting Goods, have a dream job that combines their passion for baseball with their love of math and science.

24. Hockey Net Target - The *Design Squad* teams take to the ice as Boston Bruins defenseman Matt Lashoff challenges the teams to build remote-controlled hockey net targets.

25. Go-Kart Finale: Part 1 - In this two-part season finale, the teams revamp go-karts in a high speed, off-road race. The first vehicle to cross the finish line will be featured in MAKE Magazine, and the contestant with the most point earns... a college scholarship provided by the Intel Foundation.

26. Go-Kart Finale: Part 2 – In this two-part season finale, the teams revamp go-karts in a high speed, off-road race. The first vehicle to cross the finish line will be featured in MAKE Magazine, and the contestant with the most point earns... a college scholarship provided by the Intel Foundation.

DRAGONFLY TV

Science Grades 4-6

Twenty 30-minute programs

<http://pbskids.org/dragonflytv>

DragonflyTV is an Emmy® Award-winning multi-media science education program that engages students, parents and teachers in accessible, hands-on science activities. The series' focus is to model scientific inquiry through real investigations conducted by real children, with a related objective of communicating basic science concepts. *DragonflyTV* aggressively promotes diversity and the idea that all children are capable of understanding and doing science. Children tell about their investigations, communicating the infectious excitement that comes with making their own discoveries. *DragonflyTV* offers a rich, interactive Web site and educators' guides in addition to the broadcast programs.

1. Pittsburgh – For Peat's Sake: Amy and Maya investigate why bogs help keep organic material from decaying, and view the preserved humans in The Mysterious Bog People, a traveling exhibit at Carnegie Museum of Natural History. Tyler and Aditya design their own roller coaster and test it on a simulator at the Carnegie Science Center, finishing their investigation on "Phantom's Revenge," a roller coaster at a nearby amusement park. And at the Pittsburgh Convention Center, *Dragonfly TV* reveals a Science Secret that makes other cities green with envy.

2. Dallas & Fort Worth – Fossil detectives Brandy and Ashley discover that not everything about dinosaurs—even Texas-sized ones—is gigantic when they dig for microfossils with the Fort Worth Museum of Science and History. Reed and Nick get game at The Science Place in Dallas, answering the question: So just where is the "sweet spot" on my bat? And in the Science Secret, *Dragonfly TV* uncovers a very clever pesticide at Discovery Gardens, a certified organic public garden.

3. Los Angeles – Milan and Harison go deep, comparing bottom feeders at the Long Beach Aquarium of the Pacific to those in the wild. While at the California Science Center's Big Lab, Max and Brian create model sailboats and the set sail in the Pacific to determine the most efficient design. And *Dragonfly TV* heads to the La Brea Tar Pits to check out the Ice Age inhabitants of L.A.

4. Minneapolis & Saint Paul – Inspired by the IMAX movie, *Stomp*, Maxine and Hannah create their own musical instruments at the Science Museum of Minnesota. Rylee, who uses a myoelectric prosthetic arm, heads to the Bakken Museum to explore how the electrical signals in her body help her arm function. And, in the Grossest Segment Ever!, Paige and Nick check out the "Animal Grossology" exhibit at the Science Museum of Minnesota before investigating how animals depend on their sense of smell at the Minnesota Zoo. In the Science Secret, find out what happens when you fill the Mall of America, one of world's largest shopping malls, with almost 40 million visitors each year.

5. New York – Jenn and Emily, members of the Junior United States Luge Team, slip slide away at the New York Hall of Science playground, investigating gravity and then applying what they learn to maximize their timings on the icy tracks at Lake Placid. Stanley and Jessica go ape, checking out the Bronx Zoo's Congo Gorilla Forest to see how plants and animals coexist in the many layers of the African Rainforest. And find out what's not so natural about New York's Central Park—the most frequently visited urban park in the U.S.

6. Phoenix & Tucson – Alexandra and Anna learn about construction techniques at the Arizona Science Center's "Many Hands Make a Home" exhibit, trying out what they learn on a house for their dog, Rupert. Home Prickly Home: Alex and Mark head to the Arizona-Sonora Desert Museum to see which creatures make the Saguaro cactus home. And DFTV learns how Chase Field—the only sports facility in world that has a retractable roof, air conditioning, and natural turf—keeps its grass green and growing.

7. San Francisco –Starting at Berkeley's Lawrence Hall of Science, Claire and Nisha walk the lines—the San Andreas and Hayward fault lines—to learn what causes earthquakes. Inspired by the "Light and Color" exhibit at the Exploratorium, a group of industrious middle schoolers create their own interactive art installation. And *Dragonfly TV* demystifies how antique cable cars continue to conquer the city's incredible hills.

8. Alaska – N'ice moves: Deborah and Brittani learn about changes in glaciers over time at the Mendenhall Glacier Visitor Center before scaling the Mendenhall Glacier to track its movement. Starting at the Southeast Alaska Discovery Center in Ketchikan, Emma and Gracie investigate tree growth rates in three areas of Tongass National Forest. And Juneau turns out to be built on a Science Secret worth its weight in gold!

9. New Mexico – Alex and Andrew head to Explora to investigate how much hot air is needed to make balloons fly before soaring to new heights at Albuquerque's International Balloon Fiesta. The New Mexico Museum of Natural History and Science inspires Emily and Isabel to travel to Carlsbad Caverns and track cave swallows. The excitement heats up at Sandia National Labs, where a scorching-hot Science Secret is revealed.

10. North Carolina – SciGirls Sarah, Valencia and Sophia tromp through diverse wetlands after a visit to the North Carolina Museum of Life and Science. SciWorks' barnyard gets Imran and Nabil thinking about what it takes to raise farm animals, prompting visits to local donkey and dairy farms. Winston-Salem holds a surprising connection to the Empire State Building that's unveiled in the Science Secret.

11. Montana & Yellowstone – Nicole and Ellen dig up a dino bone at Egg Mountain and then head to the Museum of the Rockies to find out how old their dino was when it died. Phoebe and Shannon roam Yellowstone National Park investigating why some areas have geysers while others do not. And simmering under Montana, Wyoming and Idaho is a science secret of volcanic proportions.

12. New England – Elly, John, Nick, and Linnea get help from the MIT Museum preparing a kinetic sculpture for the "Friday After Thanksgiving Chain Reaction Challenge." At the

Montshire Museum of Science, Chloe and Jesse get wet and wild creating a gravity-powered water fountain. The Science Secret lands in Boston, revealing the innovative ways this city has grown.

13. The Deep South – Joshua and Sean get down and dirty studying the composition of garbage at the Southern Environmental Center. The swamp exhibit at the Mississippi Museum of Natural Science inspires Katelyn and Blake to check out the characteristics of alligator habitats along the Mississippi River. The Marshall Space Flight Center in Huntsville will floor you in the Science Secret.

14. Hawaii – Starting at the Kilauea Visitor Center, Julia and Briana investigate lava flow on the Big Island at Hawaii Volcanoes National Park. Zach and Devin assess the readiness of baby sea turtles for release into the wild at the Maui Ocean Center. And the formation the youngest Hawaiian islands is explained in the Science Secret.

15. What's Nano?/Where's Nano? – *What's Nano?* - Ebony and Jasmine catch the Amazing Nano Brothers Juggling Show at the Museum of Science in Boston. The show gets them thinking, "How big is a billion? And how small is a billionth?" They search Boston for examples of a billion. Then they visit laboratories at Harvard University to find examples of nanoscale objects on their quest to "see" a nanometer. *Where's Nano?* - Regina, Linda, Harrison, Jared, Lorenz, and Randi, visit the "Zoom In" exhibit at the Morehead Planetarium and Science Center in Chapel Hill. They wonder what examples of nanoscale science and technology they can find in their everyday lives. Their nano "scavenger hunt" takes them to the University of North Carolina Chapel Hill, where a scientist helps them print images of nanoscale structures. The kids then create a visual representation of their findings to display at the science center.

16. Hockey Sticks/Butterfly Wings – *Hockey Sticks* - Nicholas and Jordan love hockey. They know that carbon nanotubes are used in some hockey sticks, but aren't sure how the tiny structures change the equipment. They head to Boston's Museum of Science to learn more about carbon nanotubes. Then, they put their sticks to the test on the ice. Finally, with help from scientists at Harvard University, they compare the tensile strength of the sticks and use powerful microscopes to "see" carbon nanotubes. *Butterfly Wings* - Emily and Julie check out the Magic Wings Butterfly House at the Museum of Life and Science in Durham. They wonder why butterfly wings are so colorful. They learn that iridescence in some butterfly wings—like the iridescence of soap bubbles—results from their structure. At Duke University, the girls learn how to determine whether colors in wings are the result of pigment or nanoscale structures. They test butterfly wings and learn that blue iridescence is due to structure, not pigment.

17. Surface Area/Stained Glass – *Surface Area* - After discovering that ordinary flour dust can be explosive, Lara and Anushua explore the importance of surface to area to volume ratio at the Science Museum of Minnesota. They conduct soda explosion experiments in the museum's Big Back Yard, investigating how surface area affects reactions. Finally, they visit the University of Minnesota where they learn how scientists are developing more affordable solar cells with nanotechnology that increases the cells' surface area. *Stained Glass* - Alettie and Yvonne visit the Glass Experience exhibit at the Museum of Science and Industry in Chicago and learn that nanoparticles are responsible for the colors in some medieval stained glass. The girls are surprised to learn

that nanogold makes glass red! They go to Northwestern University to explore the relationship between size and color of nanoparticles. They create different sizes of gold and silver nanoparticles to produce a variety of colors, which they use to make their own works of art.

18. Gecko Feet/Nasturtium Leaves – *Gecko Feet* - Jennifer and Nooshin like rock climbing. They wonder how some lizards can climb rocks so easily. They visit the Lawrence Hall of Science in Berkeley and compare the climbing ability of different lizards. They notice that the best climbers are geckos. They visit a lab at the University of California Berkeley to find out why, learning that special, nanoscale hairs on gecko feet are the secret to their amazing climbing abilities. *Nasturtium Leaves* - Jasmine and Melinda wonder why water beads up on some plants and not others. They head to San Francisco's Exploratorium, where they learn that surfaces at the nanoscale aren't always smooth, and that nano hairs on nasturtium leaves cause them to be water repellent. The girls collect other plants with hairy leaves and test their ability to repel water. They take some samples to Stanford University for up-close imaging and compare the structure of nasturtium leaves to water-resistant fabric.

19. Self-Assembly/Bone Regrowth – *Self Assembly* - Keely and Connor learn about self-assembly at the Children's Museum of Houston. The museum staff suggest they visit Rice University, where scientists use self-assembly to make things at the nanoscale. At Rice, a scientist helps the kids use self-assembly to make and "pop" microcapsules. The kids then try out a similar technique at home, encapsulating chocolate sauce, mint and other flavors in alginate beads to serve on ice cream. *Bone Regrowth* - Kobel, Nathan, and Adam go to the Oregon Museum of Science and Industry (OMSI), where they learn that scientists are using nanotechnology to help regenerate nerves and bones. A scientist from Brown University explains that a solution of nanotubes and minerals is injected into the fracture and forms a scaffold to encourage bone regrowth. The kids want to know why both ingredients are needed to repair the bone. They try solutions with different amounts of each ingredient on sponges and test how much weight each treated sponge can support.

20. Water Clean-up/Nanosilver – *Water Clean-Up* - Taylor and Gabe go to the Franklin Institute in Philadelphia and learn that nanoiron is being used to neutralize toxins in groundwater. They collect soil samples from a contaminated site, then take them to Penn State University to test the efficacy of nanoiron treatments. *Nanosilver* - Sarah and Mande visit the Sciencenter in Ithaca and learn that nanosilver is used in some socks to kill bacteria, keeping them odor-free. They wonder if the nanosilver in socks leaches out when you wash them, causing potential harm to beneficial bacteria and the environment. They buy two different brands of nanosocks and wash them. Then they take the socks and their wash water to Cornell University to test their effects on common bacteria.

ECO=KIDS: EXPLORE

Science / Environmental Science Grades 5-8
Five 11–17-minute programs

ECO=Kids: Explore features five different types of "Green Power" which are becoming increasingly popular: solar power, wind power, geothermal energy, ethanol and hybrid cars. This series investigates these energy sources in an understandable way, which will help young viewers learn how to help solve the problems facing our earth today. As our world population grows, so does the demand for energy. As pollution increases and our fossil fuels deplete, there is a need for a more reliable, affordable and eco-friendly source of energy: Green Power.

1. Ethanol - With today's high fuel costs, it is time to start looking beyond petroleum and into renewable resources to power our vehicles. Ethanol is a clean-burning fuel derived from plants, primarily corn. The corn is ground, cooked, fermented, distilled and dehydrated, then ready for use. Ethanol is combined with gasoline to produce a cleaner fuel that doesn't emit as many greenhouse gases as pure gasoline. Pure ethanol has not yet been approved to fuel our vehicles, but it is the fuel of choice for racecars. Indy cars operate on 100% ethanol fuel. By mixing gasoline with ethanol, we can extend our fuel supply. Join us as the Eco Kids explore the production of ethanol and highlight the importance it holds in the Green Power movement.

2. Geothermal Energy - Simply put, geothermal energy is derived from heat produced by the core of the earth. Geothermal energy is one of the oldest renewable resources used by humans. It has been used since the ancient Roman times as a heat source. Recently we have begun to harness that energy as a source of power. Geothermal power plants take the heat from the earth and bring it to the surface to create steam that spins a turbine. We have a constant supply of heat from the earth. The challenge is finding where it is strongest and bringing it to the surface. The Eco Kids will guide us through this process and explain a few different ways that geothermal power plants operate. Find out how experts are working to fine tune the process and make geothermal power plants more affordable and useful across the country.

3. Hybrid Cars - The first hybrid car was introduced in 1905. It had two distinct power sources working together to make it run: gas and electric power. However, using only gasoline back then was cheap and easy to power, and the hybrid car was forgotten until recently. Since the fuel widely used now is a non-renewable resource and becoming increasingly less affordable, the hybrid car is making a comeback. Hybrid cars are operated by a computer system called the Digital Drive Line. When you step on the gas pedal, you are telling the system how fast you need to go and the car decides whether to use gas, electric power or both. The benefit of the hybrid is that instead of running on gas for an entire trip, it uses non-polluting electric power when possible. The hybrid car is ideal for city driving and traffic. By using less gas, hybrid cars help cut pollution and help save drivers money at the gas pump.

4. Solar Power - Solar power is defined as the energy we produce by converting sunlight into heat or electricity. It is one of the most abundant and affordable sources of energy available. However, it is difficult to harness and impractical in some parts of the world. So, it is important to explore in-depth the process of converting sunlight to power. The three primary ways to produce solar power on a large scale are solar power generating plants, photovoltaic cells and solar thermal heaters. The Eco Kids will take us through each process of energy conversion to help us better understand this clean energy technology.

5. Wind Power - Wind is a natural resource that is readily available virtually everywhere. Wind power is defined as the process of turning the kinetic energy of the wind into electrical energy. Humans have been harnessing the power of the wind for around 2,000 years. The Dutch made the windmill famous. Find out how the large wind turbines are built using a simplistic design and modern technology. They operate completely autonomously by rotating with the force of the wind. The blades turn on a rotor that is connected by a shaft to a generator that creates electricity. With the Eco Kids, we'll explore how the use of wind power is growing and becoming widely used throughout the world. It is an efficient way to use a clean, renewable resource.

EMOTION COMMOTION

Health & Guidance Grades 3-6
Three 12–15-minute programs

Three live-action videos help young viewers understand what emotions are, why there is no such thing as a bad emotion, and how they can get a handle on strong feelings like anger, sadness, frustration and disappointment. Students will learn that powerful and upsetting emotions are part of every day—from a soccer game defeat, to a sick pet, to forgetting homework, to a family emergency, and more. These emotions require some basic coping strategies to help gain understanding and perspective. Age appropriate scenarios offer the message that kids can take control of their emotions and feel better about themselves.

1. Angry? Sad? Feels Bad! - Madison learns that her family will be moving because of her dad's new job. Danny has just learned that his dog is very sick and has to go the animal hospital. Sandra is upset because her play date was canceled. Each scenario identifies the emotions and gives suggestions for handling them.

2. When Worry and Fear Appear - Sam is getting stomach cramps because of his upcoming recital. Melissa is afraid of meeting new people in unfamiliar surroundings. Cassie has a fear of the water. This program explains the “flight or fight” response and models appropriate coping strategies.

3. The Stress Mess - Sandra is feeling stressed in her efforts to improve her swimming times. With swim team practice pressures, her schedule has become too overwhelming. Madison learns that “talking it out” with a friend or parent is a good way to reduce stress. Danny learns how to use positive self-talk to turn his negative feelings into positive feelings.

FINANCIAL LITERACY: TEACH IT!

Social Studies / Personal Financial Literacy – Professional Development Grades K-12

Three 40-minute programs

<http://www.ecb.org/finance>

A production of the Educational Communications Board, *Financial Literacy: TEACH IT!* is a multi-media professional development resource designed around Wisconsin's new Personal Financial Literacy standards. Twenty-one short videos demonstrate effective teaching of each of the seven content standards in elementary, middle, and high-school classrooms. Additional resources available on the Web site include links to lesson plans and online resources for each standard, as well as information for parents and a place for educators to share their experiences teaching financial literacy.

1. Grades K-4

2. Grades 5-8

3. Grades 9-12

FLORENTINE OPERA COMPANY PRESENTS: PINOCCHIO

Music & Theater Grades 1-6

One 60-minute program

This engaging one-hour performance documentary showcases *Pinocchio*, a children's outreach opera, performed by Milwaukee's own Florentine Opera Company. Enjoyed by audiences of all ages and sung in English, the performance tells a classic Italian folk story, adapted and written by renowned arts educator, John Davies. It is intended to bring opera to children in a way that they can understand and appreciate. The background story of the Florentine and their dedication to introducing opera to elementary school students follows the performance. Expressed in their own words, the performers and staff of the Florentine give us a behind-the-scenes look at what it took to create this delightful show, and explain why they feel kids need this experience.

THE 14 WONDERS OF OUR WORLD

Social Studies Grades 6-12

Fifteen 10-minute programs

There is no better way to get students' attention on the subject of past civilizations than showing them the Fourteen Wonders of the World. The Hellenistic Greeks first named the Seven Wonders of the Ancient World, and the Romans saw them as the crowning achievements of their predecessors in Egypt, Mesopotamia, and Greece. However, all but one have disappeared into the dusts of time, so in 2007 a new poll was taken by modern history enthusiasts, and the New Seven Wonders of the World, all visible today, were added to the Ancient Seven. Together these 14 wonders create a comprehensive survey of the best and most characteristic monuments of Ancient to Modern Civilizations. Through stunning historical re-creations, on-location footage, dazzling computer-graphic animations, and evocative narrations, we learn how and why they were built, and what they tell us about cultures that preceded and influenced America.

1. Introduction to the Seven Wonders of the World: Ancient & New - The Hellenistic Greeks first named the Seven Wonders of the Ancient World, and the Romans saw them as the crowning achievements of their predecessors. However, all but one have disappeared into the dusts of time, so in 2007 a new poll was taken by modern history enthusiasts, and the New Seven Wonders of the World, all visible today, were added to the Ancient Seven.

2. Pyramid of Giza - The only one of the Ancient Seven Wonders still standing, the Great Pyramid, contained the tomb of Pharaoh Khufu in a maze of interior corridors. Its purpose was to ensure his immortality. Controversy surrounds theories about the precise engineering and amazing manpower necessary to build it in about 2550 BC (BCE). Its exterior was a polished limestone sheath, long since vanished, leaving us contemplating its mammoth blocks, still part of the largest stone structure in the world.

3. Hanging Gardens of Babylon - It was 2,000 years after the Great Pyramid of Giza that humans created the second Ancient Wonder. Located in present-day Iraq, the garden's walls were made of adobe-like mud, painted beautifully with entrances like the famous Ishtar Gate. These desert Babylonians grew many exotic plants, and the gardens made King Nebuchadnezzar famous. Their loveliness fulfilled the ancient myths of gardens as heaven on Earth, but the wars that have historically raged through the Middle East soon destroyed them.

4. Statue of Zeus at Olympia - Phidias was the most famous sculptor in 5th Century Hellenic Greece, having created the statue of Athena in the Parthenon. His crowning achievement was the stupendous statue of Zeus at Olympia, site of the Olympic Games. Before this masterpiece, ivory had not been used except for small sculptures,

but Zeus towered higher than a four-story building. This feat was accomplished by a secret method of molding ivory into sections. All who saw it were awed, and it has influenced statues since then, including America's statue of Abraham Lincoln in Washington D.C.

5. Mausoleum at Halicarnassus - Even Greece's worst enemy, Persia, was so influenced by Greek and Egyptian culture that one Persian satrap or governor, Mausolus, designed and was buried in a building inspired by both Greek and Egyptian precedents. Located in ancient Anatolia or Asia Minor (modern Turkey), its pyramidal shape is underpinned by classical Greek columns and statues, and its peak displays Mausolus and his wife in a chariot. So influential was it on other monumental tombs, that all are now called mausoleums.

6. Temple of Artemis at Ephesus - The largest classical marble temple was at Ephesus in Asia Minor. It was dedicated to the Greek goddess, Artemis (Roman Diana), in this case in her role as a fertility icon. The Greek builders were inspired by monumental Egyptian architecture, and even adapted and improved some of their technologies. The result was a beautifully proportioned, yet huge, center of worship for the pagan people of its time.

7. Colossus of Rhodes - The Greek Island of Rhodes was assaulted by invaders from Asia Minor, but defeated them against all odds. To celebrate their victory, the islanders decided to build a statue of the sun god, Helios. Bronze statue making was traditional on the island, but this was to be the largest of all, the Colossus. We see the ingenious technologies employed to build it, but they were not sufficient to keep it from toppling soon after it was built. We also see the contrasting modern technologies used to keep standing America's most famous monument inspired by the Colossus, the Statue of Liberty.

8. Pharos of Alexandria - Hellenistic culture was the spreading of Greek Hellenic ideals after Alexander the Great's conquests, and their blending with other world civilizations. A towering lighthouse, or pharos, signaled the most important Hellenistic cultural center in Alexandria, Egypt. It was the first skyscraper in the world's first metropolis, which was the first attempt to establish a world culture. Like some of the other wonders, it was toppled by an earthquake near its namesake island, Pharos, but that name is still applied to lighthouses around the world.

9. Taj Mahal - One of the world's most beautiful and iconic buildings reveals much about a great period of India's culture. The Mughals were Muslim rulers who finally united a large part of northwestern India in the 16th Century. Shah Jahan was a 17th Century Mughal who married a Persian princess, and their romantic life together impelled him to build a monument to love after she died. The Taj's story reveals the glory and decline of this period of India's history.

10. Petra & the Silk Road - Petra, in present-day Jordan, means "rock" because this city was carved out of sandstone walls by Arabic ancestors, called Nabateans, as an oasis refuge on the famous Silk Road. Ancient China was the only country that knew the secret of making highly valued silk cloth, which was traded across the Silk Road on

Asian deserts all the way to Rome. This exchange promoted some of the world's first great cultural interactions between the East and the West, including that of Marco Polo.

11. Machu Picchu - High in the Andes Mountains, the Incas built the city of Machu Picchu. Considering their lack of modern technologies, the Incas were amazing engineers. Their huge empire along the west coast of South America was connected by miles of stone roads, used for trade and communication. The Incan architecture remaining at Machu Picchu and in modern Cuzco reveals huge stone works fitted together so precisely that a knife cannot be inserted in the seams, but much of it in Cuzco was built over by conquering 16th century Spaniards, while Machu Picchu shows only the defeat of weather and time.

12. The Colosseum - Rome's only Wonder of the World, the Colosseum, is its most famous building. This amphitheater was built to provide violent entertainment for Rome's restless populace, beginning in 80 AD (CE). Gladiator contests, as well as sacrifices of Christians and animals, made it infamous, but it represents the Roman engineering genius, with an intricate network of arched entrances, ramps, elevators, and passageways built around a central arena, covered in sand to absorb blood, or even covered with water for staged battles between ships.

13. Chichen Itza - The Classic Mayan civilization extended from the Mexican Yucatan Peninsula into Central America, from about 250 AD (CE) to 900 AD (CE). Chichen Itza in Mexico has some of the most impressive pyramids, temples, palaces and other structures of the Mayan competing city-states. They were intellectual peoples, with mathematical, astronomical and engineering skills, but religion was the primary source of these sophisticated activities. El Caracol observatory seems to have been built because the Mayans thought the movements of the sun, planets and stars were related to the activities of gods. Even their ball court was both religious and bloody, where the losers of the games were killed.

14. Great Wall of China - The Great Wall of China was begun in the 3rd century BC (BCE) but was not completed until the 17th century AD (CE). The largest manmade structure on Earth, it is over 3,000 miles long, averaging 20 feet in height. It twists and bends to the contours of the land, with 25,000 watchtowers along its length. Thousands of laborers were enslaved by China's first tyrannical emperor to begin work on it; many died and were just buried within the structure itself. Today, the Great Wall is still the primary symbol of Chinese civilization.

15. Christ the Redeemer Statue - On Mount Corcovado above Rio de Janeiro, Christ the Redeemer Statue is a work of our time. Rio is a modern city of pleasure and poverty. Cariocas, as the native people are called, love their beaches and Carnivale, their pre-Lenten celebration, similar to New Orleans' Mardi Gras. The great statue, with outstretched arms, stands atop one of Rio's several peaks, in contrast to the activities below. Begun in 1927, inaugurated in 1931, the 100th anniversary of Brazil's independence from its European colonizer, Portugal, the statue has both political and religious significance.

JOURNEY TO PLANET EARTH

Social Studies & Science/Environmental Science Grades 6-12

Eleven 60-minute programs

<http://www.pbs.org/journeytoplanetearth/education>

The programs in the *Journey to Planet Earth* series explore the fragile relationship between people and the world they inhabit. A common thread runs throughout all the programs: the necessity to achieve a balance between the needs of people and the needs of the environment. Some of the topics covered in this series include loss of farmland to urban development, pollution of the earth's rivers, and inadequate housing and water resources for those living in the world's mega-cities.

- 1. Rivers of Destiny** - Journey to four major river systems of the world to investigate environmental pressures facing those whose lives depend upon the health of their river. Locations: the Mississippi, Jordan, Amazon, and Mekong Rivers.
- 2. The Urban Explosion** - Explore a major dilemma of the 21st Century: how to sustain the world's exploding urban population without destroying the delicate balance of our environment. Locations: Mexico City, Istanbul, Shanghai, and New York City.
- 3. Land of Plenty, Land of Want** - Investigate the fundamental challenge facing today's farmers: how to feed the world's growing population without endangering our environment. Locations: Zimbabwe, China, France, and the United States.
- 4. On the Brink** - Examine how severe environmental problems can lead to political crises and increased hostilities around the world. Locations: Haiti, India, Peru, South Africa, Mexico, and the United States.
- 5. Seas of Grass** - Discover the world's grasslands, natural vegetation of nearly one-third of Earth's land surface, some of which are in grave danger. Locations: Kenya, South Africa, Argentina, China, and the United States.
- 6. Hot Zones** - See how changes in global and local ecosystems are connected to the increased spread of infectious diseases. Locations: Kenya, Peru, Bangladesh, and the United States.
- 7. Future Conditional** - Investigate the link between environmental change and the health of our planet as millions of people must cope with the spread of toxic pollution. Locations: The Arctic, Mexico, Uzbekistan, and the United States.

8. The State of the Planet - Discover the elegance of diversity and the rich tapestry of the natural world—a world shaped by people, by those who are strongly tied to the land and who draw from its bounty.

9. State of the Planet's Wildlife - Investigate what scientists call "the sixth great extinction of the world's animals" and what we are doing to stop it. Locations: Zambia, Brazil, China, and the United States.

10. State of the Ocean's Animals - Investigate why so many of our ocean's animals are disappearing. Case studies focus on global issues including climate change, sea-level rise, over-fishing, and habitat destruction. Locations: Antarctica, the United States, China, and Japan.

11. State of the Planet's Oceans - Investigate the health and sustainability of the world's oceans, with a special emphasis on issues affecting marine preserves, fisheries, and coastal ecosystems in the United States and worldwide. Explore the impact of glacier melt on sea level rise and fishing industries across the globe. Visit successful marine preserves in the Florida Keys and off the coast of Belize.

THE MAKING OF MILWAUKEE

Social Studies Grades 4-12

Five 60-minute programs

<http://www.themakingofmilwaukee.com>

Historian and host, John Gurda, explores the history of Wisconsin's largest city, from its origins as a Native American settlement to the present day. Re-enactments, vintage photos and archival film bring to life the story of one of America's greatest cities. This five-part series is based on Gurda's book of the same title.

1. Native Americans/Traders & Settlers/A City Is Born - Milwaukee's history is traced from its pristine waters, fertile lands, and Native American inhabitants to the French explorers and settlers.

2. The Uneasy Melting Pot - The Cream City's story continues, as many immigrant groups come together in an uneasy melting pot. Great industries spring up and manufacturing titans start their empires.

3. Building a Basilica/Machine Shop of the World - Milwaukee's history continues, as Polish immigrants build a basilica and Milwaukee becomes the machine shop of the world. A workers' fight for the 8-hour-workday culminates in the Bay View Riot.

4. Dirty Politics/ The Roaring '20s - Socialists clean up dirty politics at City Hall. WWI erupts, triggering anti-German fever. Prohibition closes the pub; the Roaring Twenties and speakeasies engulf the city; and Milwaukeeans go to the movies.

5. The Great Depression to the 21st Century - The U.S. and Milwaukee struggle through the Great Depression, and Milwaukee's citizens and industries fight WWII. Then the booming '50s, the turbulent '60s, and celebrations of ethnic pride all lead to today's Milwaukee.

MY LIFE ON THE FARM

Social Studies Grades K-3

Twelve 13-minute programs

Fascinating, friendly, up close and personal, this series features some very unusual and extraordinary daily lives of children from locations across the continents. Each destination, each unique natural environment and each special lifestyle become a portal for understanding new cultures through familiar themes of children, animals, families, and farms.

- 1. Amira in Algeria**
- 2. Franco in Argentina**
- 3. Dermot in Australia**
- 4. Jhney in Bolivia**
- 5. Pepito in Guatemala**
- 6. Swanborg in Iceland**
- 7. Sorcha & Cormac in Ireland**
- 8. M'Parany in Madagascar**
- 9. Noggy in Mongolia**
- 10. Diana in Romania**
- 11. Jake in Texas**
- 12. Khan in Vietnam**

NATIONAL SCIENCE FOUNDATION SERIES

Science Grades 7–12

Two 20-minute programs

Superb production values and strong visuals clarify challenging scientific concepts. Solidly based on the most recent research, these National Science Foundation programs are in keeping with topics of current middle and high school curriculum.

1. Gravity Waves: Einstein's Messengers - Since Galileo first turned a telescope to the heavens, astronomers have studied the planets, the stars and distant galaxies. But there are some mysteries so deep, the answers cannot be found with traditional tools. For those, it takes something entirely different: a revolutionary new kind of observatory built to detect the whisper of a signal that's never been directly measured. This award-winning documentary takes viewers inside the National Science Foundation's Laser Interferometer Gravitational Wave Observatory (LIGO) where scientists are spearheading the completely new and radical field of gravitational wave astronomy and opening a whole new window on the universe. It explains how LIGO's exquisitely sensitive instruments may ultimately take us farther back in time than we've ever been, catching, perhaps, the first murmurs of the universe in formation. This is a compelling and thought-provoking production about the drama of the scientific quest.

2. Secrets of Plant Genomes: Revealed! - Plants do just about everything and they can do even more when we understand them better. Plant genome research is revolutionizing the field of biology. *Secrets of Plant Genomes: Revealed!* takes viewers on a lively and upbeat journey that explores the how plants got to be the way they are and how we can make better use of them in the future. This program joins scientists in the lab, in the field, and at the computer as they work to unlock the secrets of some of the most important plants in our lives, including corn, cotton and potatoes. Their experiments have the potential to change the world!

PLANET H₂O

Science / Environmental Science Grades 5–8

Six 9-minute programs

Six case studies show how young students and professionals are helping to solve the growing problem of global overuse and abuse of Earth's most precious and limited resource: water. Despite being more than two-thirds covered by water, our planet has only 1% of that in the form of fresh water that is easily available for human use. This program explores both the positive and negative scientific and social implications of global water use. Its worldwide, multicultural point of view and appealingly youthful presentation, coupled with solid academic content, make it essential viewing for middle-school science and social studies classrooms.

1. Cleaning Polluted Water: Pumped Up for Peace - Drinking polluted water can cause many deadly diseases, especially in children of poor countries around the world. We see the crystal-clear water in a flowing Peruvian rainforest river, but are amazed to learn that it is unsafe due to runoff entering the great connected network of tributaries that flow into the Amazon, the world's largest source of fresh water. We learn how student fundraisers and field scientists from the U.S. have helped indigenous peoples develop water treatment systems, using their own technologies.

2. Drinking Water: Bottle or Tap? - A huge bottled-water industry has recently emerged, with the U.S. its largest consumer. But is bottled water actually healthier, safer, or tastier than tap water? A water expert explains that bottled water does not meet the same strict standards in the U.S. as water from the tap, though tap-water quality can vary among communities. A blind taste test by young students suggests that most people cannot tell the difference between tap and bottled water. And throw-away bottles create pollution.

3. Restoring H₂O Ecosystems: Saving Chesapeake Bay - Polluted waters can have damaging economic and social effects as well as destroy wildlife habitats. Chesapeake Bay is one of the most polluted bodies of water in America, but local students are working with commercial crab catchers and scientists in the Baltimore area to help restore its health.

4. Surface Water: A Day in the Life of the Rio Grande - The Rio Grande is one of our longest rivers, its Texas section forming the border between the U.S and Mexico.

Competing human claims for it are viewed through the eyes of two young women: a whitewater rafting guide in upstream New Mexico and a teenager downstream near El Paso. We learn that communities' demands on the Rio Grande take away so much of its water that southern Texas and Mexico often see only a dry, sandy riverbed.

5. The Great Lakes: Who Owns the Water? - The fair distribution of water has long been a worldwide problem, and it is one that the United States may increasingly experience in the future. The Great Lakes contain 20% of the world's fresh surface water, but that water is currently available to only a small portion of the U.S population. Should water-scarce regions of the country have access to this water, and if so, should they have to pay for it? What effect would the piping of Great Lakes water to other areas have on the lakes and Midwestern environments? These questions are debated by students and adult experts, giving viewers perspectives for further thought and research on their own.

6. Underground Aquifer Water: Precision Farming - Despite its wonders, Earth's water cycle does not spread water evenly around the planet. The Ogallala Aquifer's huge underground reservoir of water gives the relatively dry Central Plains states such as Nebraska a large but limited irrigation source. But the aquifer's water is being used up faster than it is being replenished. We see how one progressive farm family uses technology to conserve water while producing higher food yields.

SCIENCE KEY CONCEPTS

Science Grades 9–12

Nineteen 15–18-minute programs

Each title in this series explains three key science concepts. Experiments, many of which would be too difficult or dangerous to be conducted in a school lab, illustrate each concept. Artwork and animation illuminate what is happening both visibly and at the molecular level. The process of scientific reasoning and the nature of scientific evidence are demonstrated, with thought-stimulating questions interspersed throughout.

Biology

1. Cells and Tissues

Animal Cells: Structure and Tissues

Plant Cells: Structure and Tissues

Cell Division: Mitosis and Meiosis

2. Cellular Energy and Metabolism

Photosynthesis

Respiration

Enzymes

3. Energy Transfer and Biogeochemical Cycles

Food Chain Energy Transfer

The Carbon Cycle

The Nitrogen Cycle

4. Homeostasis

Controlling Body Temperature

Controlling Blood Sugar

Controlling Water Level

5. Human Digestive System

Testing Foods for Nutrients

Human Digestive System
Digestive Enzymes and pH

6. Sensory Responses & Tropisms

The Eye
The Nervous System
Plant Tropisms

Chemistry

7. Applied Chemistry

Ammonia and Fertilizers
Plastics and Polymerization
Sulfur and Sulfuric Acid

8. Electro-Chemistry

Electrolysis of Molten Lead Bromide and Zinc Chloride
Electrolysis of Sodium Chloride Solution
Electroplating with Copper

9. Molecular Motion

Brownian Motion
Diffusion
Changes of State

10. Periodic Table: Structures of Atoms

Discoveries of Atomic Structure
Atomic Number and Mass Number
Electron Shell Configurations

11. Periodic Table: Properties of Element Groups

Mendeleev's Periodic Table
Noble Gases: Properties and Uses
Transition Metals: Properties and Uses

12. The Properties of Natural Resources

The Fractional Distillation of Petroleum
Oxygen and Nitrogen
Reducing Metal Oxides

13. Radioactivity

Detection and Origin
Types and Properties
Measuring and Using Half Life

14. Reactions and Energy Changes

Exothermic and Endothermic Reactions
Reaction Rates
Catalysts

15. The Reactivity of Elements

Highly Reactive Metals, Group 1, Periodic Table
Highly Reactive Halogens, Group 17, Periodic Table
Range of Reactivity Among Metals

Physics

16. Electricity and Magnetism

Static Electricity
Magnetism
Generating Electricity

17. The Electromagnetic Spectrum

The Visible Spectrum
Longer Waves
Shorter Waves

18. Force and Motion

Constant Speed
Acceleration
Gravity and Falling

19. Waves

The Nature of Waves: Transverse and Longitudinal
Reflection of Waves
Refraction of Waves

TEEN HEALTH ISSUES

Health & Guidance Grades 7-12

Three 15–19-minute programs

1. Advertising, the Media and Your Health - Today's teens are often labeled "Generation M" because of the extent that media saturates their lives. This program examines how different forms of media encourage young consumers to smoke more, drink more, eat more unhealthy foods, and take greater risks with sexual behavior. Using the latest tools in brain imaging, the program also demonstrates how violent video games may make people more accepting of violence while increasing feelings of anxiety or vulnerability. This unique presentation reminds today's teens that as they become skilled creators of media—making their own films, music and blogs—they can learn to look critically at media tricks. Real teens deconstruct ads to expose the emotional hooks used to encourage teens to buy unhealthy products. This video and print package will help your students become savvy media consumers.

2. Diabetes: Why Many Teens Are at Risk - As a direct result of poor diet, sedentary lifestyle and obesity, Type 2 diabetes has become a serious health risk for many teens. This program presents the medical facts about diabetes; the differences between Type 1 and Type 2 diabetes; the risk factors for developing diabetes; the warning signs of diabetes; and the critical steps necessary to control diabetes, including changes in diet and exercise, and proper medical care. It profiles teens who describe how they are controlling their diabetes in order to live long and healthy lives, and identifies ways you can help a friend or classmate who has diabetes. The program also delivers a clear message that teens can take positive steps now to reduce their risk of developing Type 2 diabetes and avoid the lifelong struggle of managing this potentially life-threatening disease.

3. Five Essential Habits of Healthy Teens - All teens will benefit from learning these five "essential habits" based on recent wellness studies from top-ranking universities. Viewers follow Dr. Mohr, a registered dietitian and board certified specialist in Sports Dietetics, as he explores the five essential habits that promote health: eating a nutritious diet, starting each day with breakfast, exercising daily, getting enough sleep, and staying drug-free. Dr. Mohr follows real teens as they demonstrate each of the five strategies. We learn that eating a nutritious diet can be fast and easy; that exercise can come from dancing, bike riding or just about any activity. We visit a sleep lab to learn the

consequences of poor sleep habits. Finally, Dr. Mohr moderates a teen forum focused on how substance abuse and smoking impact health. Filled with helpful hints, easy recipes and lots of encouragement, this program will motivate students and set the foundation for life-long good health.