



 **Science
Screen
Report**
FOR KIDS®

**SCIENCE SCREEN REPORT
FOR KIDS®
2010 -11 PROGRAM CATALOGUE**



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Screen
Report**
FOR KIDS®





Science that Inspires

SCIENCE SCREEN REPORT® has been a trusted resource of objective science news reporting for high school science teachers for nearly 40 years.

The award-winning DVD series, produced in cooperation with the Accreditation Board for Engineering & Technology, and its elementary school edition, **SCIENCE SCREEN REPORT FOR KIDS®**, examines the most recent developments and discoveries in science and technology. The programs are designed to help students understand the vital role science plays in our everyday lives and to address critical issues facing society today, as well as being an economic driver that creates well-paying career opportunities.

SCIENCE SCREEN REPORT® and **SCIENCE SCREEN REPORT FOR KIDS®** are provided to schools free of charge through the generosity of local corporations who use the series to complement important community outreach initiatives in their respective corporate and plant locations.

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The **SCIENCE SCREEN REPORT®** Advisory Board oversees all program production to ensure the integrity of the scientific content and its respective correlation to National Education Standards and Benchmarks in Science Literacy for Science instruction.

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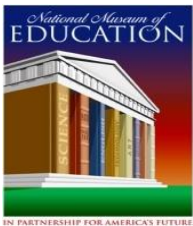
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Former Director of STEM Academy, Boca Raton Community High School, PDD FCAT Trainer. Curriculum Writer: Scope and Sequence 2003 – 2005, Weather Channel Safeside Curriculum booklet, Sharks Benchmark Focus Lesson, “Storm of ‘28” Benchmark Focus Lesson; Testbank Writer: FCAT testing software, Testtools, Inc. Testbank Writer: FCAT Database, Edukids Inc. **Honors:** Winner Governor’s Award for Literary Excellence 2002-2003; 2002 Presidential Award for Excellence in Math and Science Teaching; 2004 and 2005 Presenter NSTA Conference “Presidential Awardees Best Practices”.

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Senior Lecturer in Geology, The University of Akron. Former Earth Science & Environmental Studies Teacher & Science Dept. Chair, Springfield Local Schools, Earth Science Instructor, Cleveland Public Schools, Earth Science & Biology Instructor, Maple Heights School District, Earth Science Instructor, Lakewood High School. Publications: “Educator to Inventor”© Training, 2000, “Science & Math Events: Connecting & Competing”, “Graduate Retention Initiative”, “Camp Invention” Curriculum, “A Simple Foucault Pendulum for Classroom Use”, “When Light and Matter Collide.”

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Former French and English Teacher, Springfield Local Schools, French Instructor, Kent State University, Summer Studies: the Sorbonne, Paris, University of London, The Free University of Berlin, University of Vienna, The Babcock & Wilcox Company, Naval & Commercial Nuclear Department. Publications: “Rubber Band Competition” with The University of Akron, and Akron Global Polymer Academy, “Standing With Hope”, “Future CEO’s”, “Feeding Success”, “Art is Alive and Well”, “Common Dreams”, “Upward Bound”, “Stretched to the Max”.

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Biology, anatomy, physiology. Member: Georgia Science Teachers Association, the National Science Teachers Association, National Association for Research in Science Teaching and the National Association of Biology Teachers. Board Certified Teacher in Adolescent/Young Adult Science. Published: “*Effectiveness of an Inquiry Curriculum on Natural Selection*” -- 2008 Georgia Science Teachers Association Conference.

DEBRA MURNAN, Math and science elementary/middle school educator.

Teacher of the Year, North Grade Elementary School, Lake Worth, FL. Nominated for: “Science Night” and peer workshops to teach AIMS.

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**ASTEROID, THE THREAT and KING PLANET:
JUPITER 20 mins**

Between Mars and Jupiter is the asteroid belt. Every so often, asteroids collide and tumble towards the Sun. If they pass Mars, they can be drawn towards Earth, sometimes colliding. Sixty-five million years ago an asteroid impact may have been the cause of the climate change that killed the dinosaurs. Jupiter is the largest planet in our solar system. It is a ball of gas with no solid surface and orbited by more than 60 moons of which four are large enough to be small planets.

Catalogue #: SSRFK 19-3

EARTH, HOME PLANET and ORBIT, EARTH FROM SPACE 20 mins

Earth, third planet from the Sun, developed the right environment for life to evolve in the oceans, green plants to produce breathable air, and animal life to flourish. Orbiting satellites help predict weather (hurricanes, tornadoes, floods, drought) and more. Telecommunication and navigation devices utilize satellites for many important functions. *Catalogue #: SSRFK 17-6*

**INSIDE TRACK: MERCURY and VENUS,
HOSTILE PLANET 20 mins**

Baked and irradiated, Mercury is a cratered world; pock-marked by debris that rained from space during the early development of our Solar System. With double sunrises, its day is twice as long as its year. Mercury's orbit is now perpetually shadowed from the scorching Sun; scientists think there may be ice deposited by comets. In contrast, the un-Earthly Venus is believed to be a lifeless planet with a dense, choking atmosphere with temperatures that could melt lead. Constantly shrouded in cloud, Venus could once have been Earth's twin with oceans and continents, even simple life, but as the Sun matured, Venus became the hottest planet in our Solar System. *Catalogue #: SSRFK 18-6*

LIVING IN SPACE 18 mins

The International Space Station is a stepping stone towards establishing human life in space and on other planets. Transportation cost, sufficient food, oxygen and water production are key factors that scientists are working on to make un-Earthly life possible in the 21st century. We also take a look at Biosphere 2; its purpose, development and ultimate shortcomings. *Catalogue #: SSRFK 17-2*

**MOON, OUR PARTNER IN SPACE and
JAW DROP: ECLIPSES AND AURORAE 20 mins**

Earth's moon was probably formed when a body the size of Mars collided twice with the planet. Our moon is steadily receding into space and eventually, due to the loss of this lunar regulator, Earth will start to wobble, creating climatic chaos. Eclipses can be seen; the Sun obscures the Moon or vice versa. Another light show, the Aurora, occurs when electrified particles from the solar wind interact with Earth's upper atmosphere, is visible particularly in the Polar Regions.

Catalogue #: SSRFK 17-7

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ORIGINS OF THE UNIVERSE EXPLORED

15 mins.

The Big Bang theory is currently the most popular scientific theory for the origin of the universe. It describes how the universe emerged from an enormously dense and hot state about 13.7 billion years ago and how the universe is still expanding from that point. Scientists have learned to support this theory with information from the Hubble Space Telescope and radio telescopes. In addition, this theory helps scientists explain the formation of all the galaxies, stars, and planets.

Catalogue #: *SSRFK 16-3*

SATURN, LORD OF THE RINGS and OUTER GAS GIANTS, URANUS AND NEPTUNE

20 mins

Second largest of the gas planets, Saturn rules a dazzling domain. Its famous rings are billions of moon-lets that range from the size of tanks to grains of dust. The planet is so light it would float in water, and its largest moon, Titan, is bigger than Mercury. Uranus is twice as far from the Sun as Saturn, while Neptune is so distant it takes 165 years to orbit the Sun. Uranus rotates on its side, possibly knocked over in a collision. Triton, Neptune's largest moon, is the coldest place in our Solar System. **Catalogue #:** *SSRFK 19-7*



THE SUN: CENTER OF OUR SOLAR SYSTEM

16 mins

The Sun is the most prominent feature in our solar system. Day after day the sun shines in the sky providing earth with enough energy for life to sustain itself. Solar energy is created deep within the core of the Sun. It is here that the temperature and pressure is so intense that nuclear reactions take place. It is the largest object and contains approximately 98% of the total solar system mass. Scientists predict that the sun's energy will run out in billions of years and have built a model of the structure of the sun, using a new spacecraft called SOHO to test this model as well as confirm its actual structure. **Catalogue #:** *SSRFK 16-4*

SUN, POWERHOUSE OF THE SOLAR SYSTEM and GALAXY, OUR MILKY WAY 20 mins

It's a nuclear reactor losing four million tons of mass every second, enough energy to keep the Sun blazing for another five billion years. Solar winds are a stream of electrically charged particles. Twists in the magnetic field trigger gigantic eruptions that change winds to storms. In five billion years time, the Sun will bloat into a red giant and die as a white dwarf. Of the 200 billion stars in our galaxy, the nearest star is Alpha Centauri, 4.25 light years away. **Catalogue #:** *SSRFK 18-7*

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STATES OF MATTER: SOLID, LIQUID AND GAS *17 mins*

Anything that takes up space or has mass is matter. All forms of matter, elements or compounds, have specific chemical and physical properties. Under certain conditions, matter can be a solid, liquid, gas, or plasma. Different states of matter can be combined in suspensions and solutions, and mixtures can be taken apart. Exploring the physical and chemical properties of matter provides insight into nature, and a glimpse at how scientists and engineers use this knowledge to shape our world. *Catalogue #: SSRFK 14-5*

ENERGY FROM EARTH'S INTERIOR *15 mins*

An alternative to fossil fuels lies in the heat below the earth's crust. This SCIENCE SCREEN REPORT FOR KIDS explores how huge granite bodies that are two to three miles under the earth's surface may be used as heating elements for future geothermal power plants. Students will see how these hot rocks are formed, and the technology that is used to locate them and allow them to be mined for heat. The program also offers a basic understanding of earth's interior. *Catalogue #: SSRFK 12-1*

POWER FROM THE OCEAN TIDES *15 mins*

This issue explains how the earth's tides are formed, their relationship to the moon's gravity, how the power of the tides is used to produce electricity in underwater turbines, and how undersea transformers adjust the voltage so the electricity can be sent over long distances. *Catalogue #: SSRFK 13-2*

THE POWER OF ELECTRICITY *15 mins*

This issue provides a look at how hydroelectricity is created in power plants, distributed along massive power lines, and how transformers move the electricity and convert it to the appropriate voltage. The differences between alternating current and direct current are demonstrated. The video also explains the differences between neon and filament bulbs, and shows how electricity powers automobiles and mass transportation.

Catalogue #: SSRFK 15-6

PURSUING ENERGY ALTERNATIVES *13 mins*

About 300 years ago conventional science, based on Newton's Laws of Motion, announced that energy could not be created and thus the quest for perpetual motion, and therefore 'free' energy, was over. However, there were a few dreamers and visionaries who refused to believe perpetual motion, the holy grail of science, was beyond the minds of men. Drawn together by the internet, there are still those who believe perpetual motion and 'free' energy is not only possible, but that it may well be the solution to our current energy crisis. These dedicated individuals make their case with surprising results. *Catalogue #: SSRFK 16-7*

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ARCHAEOLOGY: TECHNOLOGICAL

ADVANCES *16 mins*

Advanced digital technology using 3D-terrain maps, laser pantographs, digital photographs and satellite data is increasing our visual understanding of architectural structures of bygone eras. The multi-faceted world of digital archaeology aids researchers by supporting data management and by making visual presentations more realistic. The ancient city of Troy is *re-discovered* in this engaging program that fuses complex technology to uncover the past without damaging the local ecosystem.

Catalogue #: SSRFK 18-4

GLASS: 21ST CENTURY TECHNOLOGY

12 mins

Telecommunication systems - semiconductors and optical fibers - require speed, accuracy and high quality. Glass is the key. Newly developed glass is both durable and scratch resistant. It is also used for terrestrial and extra-terrestrial telescopes. For example, The Very Large Telescope (VLT) in Chile uses four individual mirrors, each over eight meters in diameter, to see the details of our galaxy and beyond. **Catalogue #: SSRFK 19-4**

MOVEMENT OF THE HUMAN BODY

14 mins (Also Life Sciences)

This program demonstrates the characteristics of muscles and bones and how their interaction creates movement. It also shows how scientists are studying the composition and functions of muscles and bones to improve technology. Students will see how engineers use this knowledge to improve robots' range of motion, develop artificial limbs, and to design computer games. They will also see how special cameras and computers increase engineers' abilities to use their knowledge of muscles and bones to improve product designs.

Catalogue #: SSRFK 12-5

ROBOTICS: ENGINEERING MARVELS

17 mins

Robots are regularly used for hazardous, super-heavy and difficult tasks in space exploration, manufacturing, agriculture, entertainment, and medicine. Honda Motor Company's humanoid robot, ASIMO, can walk, run, recognize people, and identify sounds and voices. Robot-assisted surgery is less painful, recovery is quicker and hospital stays are shorter. Spirit and Opportunity are NASA's robotic rovers whose job is to map the Martian terrain and search for evidence of water. Robots have been part of the work force for fifty years.

Catalogue #: SSRFK 19-1

SKYSCRAPER: REACHING THE SKIES

15 mins

Architects and construction engineers are building taller, larger and smarter by inventing new materials that are lightweight, robust and sturdy. The 21st century skyscraper is being tailored to the demands of location specific environments/ecosystems and to anticipate extreme weather. This issue centers on the construction of the Burj Dubai – the tallest man-made structure in the world. The 162 floors of the Burj Dubai soar to 818 meters. **Catalogue #: SSRFK 19-5**

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BLANKET OF PROTECTION:

EARTH’S ATMOSPHERE 17 mins

From studying the earth’s atmosphere, the greenhouse effect, and past climate changes scientists have found that there is one-third more carbon dioxide in the atmosphere today than there was before the industrial revolution. This leads scientists to believe that human activity plays a significant role in global warming. With the use of renewable energy sources such as wind, water and solar energy we can help slow the global warming process. *Catalogue #: SSRFK 15-2*

EXPLORING SHORELINE HABITATS 19 mins

Shoreline habitats thrive with many different species of wildlife, and this ecosystem depends on the balance of all the living things that reside in these zones. Although interactions between humans and wildlife haven’t always worked out well for the wildlife, steps are being taken by the people who live in and visit these areas to help strike a balance between development and preservation. Our goal is to keep our shoreline habitats healthy and appealing for wildlife and humans alike. As scientists and environmentalists work with developers to preserve these sensitive areas, we should be able to successfully coexist in these vital environments. *Catalogue #: SSRFK 16-6*

OUR GREEN PLANET 17 mins

This issue explores how plants moved from the sea to land after developing a vascular system to transport water, minerals and food throughout the plant. It discusses how the plants and trees we know developed over time, explains the process of photosynthesis, and the unique ways some plants and trees have adapted in order to survive in difficult conditions. *Catalogue #: SSRFK 13-5*

SPRING WATER FROM THE SEA 17 mins

Though 70% of Earth’s surface is water, only approximately 2.5% is fresh water and in some places clean drinking water is scarce. After the discovery of a fresh water spring flowing deep in the Mediterranean Sea, scientists found a way to capture and deliver that valuable resource to the surface. Without depleting or damaging the ecosystem, they were able to engineer a device to harness this precious necessity. *Catalogue #: SSRFK 18-2*

WETLAND ANIMALS: BANDED STILTS 15 mins

The Australian outback is home to a diverse group of organisms. When conditions are right, they play host to a distant, shoreline visitor – the Banded Stilt. Though common to the country’s coasts and tidal shallows, this bird travels great distances inland in search of a particular food at its inland breeding grounds. Due to an environmental event, the mystery behind this behavior was only recently discovered and documented. Cyclone Bobby started a chain reaction by flooding a dry salt lake that, when wet, supports a variety of algae, bacteria, and the all important brine shrimp. We see how animal life, microscopic organisms and the ecosystem are interconnected for the survival of all three. *Catalogue #: SSRFK 18-3*

WHERE THE SEA MEETS THE SHORE 27 mins

One of the harshest environments on earth exists at the place where the sea meets the rocky shore. This visually stunning program examines the wide variety of animal and plant life that survive these difficult conditions that are caused by pounding waves during the ebb and flow of the tides. Students will come to appreciate how these plants and animals have adapted to develop unique survival mechanisms that help them find food and escape predators. *Catalogue #: SSRFK 12-7*

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ANCIENT TREE: MODERN WONDER 15 mins

The Wollemi Pine is a “green dinosaur” that first spread its roots about one-hundred million years ago, but only discovered in an Australian forest in the second half of the twentieth century. This edition takes students there to learn amazing details about this botanical wonder and the over fifty kinds of fungi it harbors, including one that is valuable in the fight against cancer. The program also discusses the efforts that are underway to assure that these trees survive. *Catalogue #: SSRFK 12-2*

FARMER ANTS 13 mins

The leafcutter ant produces their own food by growing fungus gardens. This edition shows how they produce a growing medium using collected leaves, and how they plant, weed, and irrigate their crops. Close-up photography shows them building nests and creating underground, growing chambers and reservoirs to capture rainwater for irrigation. The program also explains how biologically produced chemicals keep their crops pest and disease free, and what scientists learned from them to help human farmers. *Catalogue #: SSRFK 13-4*

TARANTULA: UP-CLOSE AND PERSONAL

15 mins

They're big, hairy, scary, poisonous, and found in a variety of habitats on Earth. The 8-legged arachnid is a pet for some, pest for others and in Asia, a spicy, cooked, snack. This program uncovers the cultural myths and truths about the *King of Spiders* and the modern research being conducted using its venom. *Catalogue #: SSRFK 17-5*

BIZARRE CREATURES IN THE OCEAN 19 mins

Some very interesting animals with unique physical characteristics live in our oceans. The longest animal in the world, a 131 foot long jellyfish colony, has no brain, yet various tentacles have specific functions to perform. Bioluminescence (light produced from the agitated electrons in plasma) is what lights up the angler fish's anatomical lure. High-tech ROVs (remote operating vehicles) and cameras for deep sea use aid scientists in research and discovery of life in our oceans. *Catalogue #: SSRFK 17-4*

COLORFUL CREATURES OF THE SEA 26 mins

Oceans cover nearly seventy-five percent of the surfaces of the earth. The waters flow with salts, minerals and dissolved gases that provide the essentials for sea life to thrive. Many species have developed means to survive in this environment while others have existed unchanged for millions of years. Scientists believe that the depths below hold secrets of creatures yet to be discovered, and each plays an important role in the preservation of the ocean environment. *Catalogue #: SSRFK 15-7*

EXPLORING DESERT BIOMES 18 mins

Deserts are lands of extremes – deadly heat, extreme dryness, and tremendous flash floods. They cover great distances and are classified by their geographical location and dominant weather pattern. But desert regions are abundant with life, and are second only to tropical rainforests in the variety of plant and animal species that live there. In this edition, we explore the unique and fascinating land of the desert. *Catalogue #: SSRFK 15-4*

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FOREST FARMING 14 mins

Trees are an essential resource that we rely upon for a multitude of everyday needs. Meeting the world's increasing demands, while complying with conservation guidelines requires new arboriculture technology. From a computer at a sawmill, data - including desired tree length and diameter - is sent to harvesting machinery in the forest. Botanists are researching genetically manipulated (transgenic) trees to learn if they are suitable for integration into a natural environment. *Catalogue #: SSRFK 18-1*

THE IMMUNE SYSTEM: BARRIER TO INFECTION 14 mins

This program investigates the immune system's ability to protect us from bacteria and micro-organisms. It discusses the body's initial defenses in our skin, eyes, nose, and stomach to ward off bacteria, and how white blood cells fight back when the body is infected. It also discusses the differences between bacteria and viruses, why allergies occur, and the role of vaccines in keeping people well. *Catalogue #: SSRFK 15-5*

IMPORTANCE OF OUR FACE 26 mins

The organs of our face work together to reveal our outer and inner selves, enabling us to communicate our expressions and emotions to the world. Universal beliefs about attractiveness are linked to facial symmetry. Illustrations show the anatomy of the teeth, tongue and jaws. The mouth and nose work together to identify foods. Demonstrations show the process of chewing and swallowing, and the functions of the taste buds and saliva. Software applications allow us to identify people through the features of their faces. *Catalogue #: SSRFK 14-7*

(Human Body) THE LIFE AND TIMES 18 mins

The concept of aging is changing as many people live longer. In this issue, students will learn how genes affect the lifespan of animals and plants, and how scientists are studying people who live a century or more to learn about specific genes that influence a very long life. The program also discusses the discovery of the telomerase, an enzyme that increases the number of times a cell can divide and aid in cellular regeneration. *Catalogue #: SSRFK 12-3*

A LOOK INTO THE HUMAN EYE 16 mins

This program provides an understanding of visual perception and how the eye interprets colors, shapes, and the dimensions of objects by processing reflected light. It explains the functions of the lens, cornea, retina, and the optic nerve, and discusses some complications and conditions that interfere with eyesight. Scientific breakthroughs in vision research demonstrate corrective procedures that are restoring sight for some people. *Catalogue #: SSRFK 14-6*

MOVEMENT OF THE HUMAN BODY (also engineering) 14 mins.

This edition demonstrates the characteristics of muscles and bones and how their interaction creates movement. It also shows how scientists are studying the composition and functions of muscles and bones to improve technology. Students will see how engineers use this knowledge to improve robots' range of motion, develop artificial limbs, and to design computer games. They will also see how special cameras and computers increase engineers abilities to use their knowledge of muscles and bones to improve product designs. *Catalogue #: SSRFK 12-6*

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PUSHING THE LIMITS OF THE HUMAN BODY

18 mins

Thrill seekers, extreme sports, and even dangerous professions all push our bodies to their limits. The question is, how much can our body handle? With the help of science, we are able to create products to assist our bodies in these situations. With newer technology, doctors are able to simulate events on models and monitors – giving insight into what would happen in a real life situation. But when our body’s limits are exceeded and we are injured, we need to depend on the skill of doctors and trained professionals to help us. In the future, with science and technology by our side we may find ourselves enjoying more extreme activities, flying at higher G forces, and diving at greater depths.

Catalogue #: SSRFK 16-2

THE SCIENCE OF TOUCH

18 mins

We have five senses that enable us to interact with the world around us. We are most familiar with the senses of seeing and hearing. Many fear living a life of darkness or silence but no one really thinks about living a life without the sense of touch. Like our other senses, we use our sense of touch every minute of every day. We use our sense of touch every time we pick something up, every time we take a step – anytime we touch something – we are putting our sense of touch to the test. Scientists want to learn more about our sense of touch and are finding the latest scientific technologies which may be able to help those who have lost this valuable sense. **Catalogue #: SSRFK 16-5**

THE SPINE: BODY’S CONTROL

15 mins

For centuries, scientists have been fascinated with the human body and its ability to perform intricate tasks and maneuvers upon demand. The spinal column provides stability and flexibility by absorbing shock and relieving pressure on the nerves during movement. This issue looks at the design of the spinal cord and the medical advances being made to treat spinal cord injuries. Studies and experiments range from physical therapies to computer chips implanted in the spine. **Catalogue #: SSRFK 14-1**

A TRIP THROUGH THE CIRCULATORY SYSTEM

13 mins

Oxygen is found in all living tissue and is essential for our existence. The respiratory system acquires oxygen from the air we breathe. The circulatory system is responsible for distributing the oxygen throughout our bodies. This edition looks at how our bodies acquire and process energy. Scientists study the amount of oxygen and glucose the body needs under different conditions to see how their findings can be used to adjust the amount or type of food intake for different activities.

Catalogue #: SSRFK 14-3

LAKE NAKURU: FLAMINGOS AND FRIENDS

18 mins

The lesser flamingo flourishes at one particular lake tucked away in the middle of Lake Nakuru National Park in Kenya, Africa. Along the edges of the soda (sodium carbonate) lake are blooms of blue-green algae, their primary food source. It is the photosynthetic pigments or carotinoids in the algae that give these graceful birds their pink color. This program explores the dynamic relationship between flora and fauna in this unique environment.

Catalogue #: SSRFK 19-2

- **Up to 4 titles: \$198** (unit price: \$49.50) plus shipping
- **Up to 8 titles: \$325** (unit price: \$40.62) plus shipping
- **Up to 12 titles: \$432** (unit price: \$36.00) plus shipping
- **Up to 20 titles: \$640** (unit price: \$32.00) plus shipping

(Meteorology) HOW WEATHER HAPPENS

17 mins

Our planet's diverse but consistent climate creates the conditions for life to flourish. This program explores the interaction of natural forces that create our weather. It demonstrates the role of the oceans in creating weather patterns, huge storms and events such as El Niño, and how technology is increasing forecast accuracy to boost our abilities to prepare for any type of weather. *Catalogue #: SSRFK 13-7*

METEOROLOGY: PREDICTING DANGEROUS WEATHER

17 mins

Violent weather touches thousands of lives, homes and businesses around the world each year. Billions of dollars are spent on cleanup and reconstruction. Climatologists and meteorologists at the Meteorological Alpine Project (MAP) are using specialized computer technology to discover how hot winds in the African desert develop into a damaging hail storm in the Swiss Alps. *Catalogue #: SSRFK 18-5*

THE MINDS OF BIRDS

18 mins

This program investigates birds' abilities to communicate, solve problems, make decisions, and to memorize. It illustrates how an African Grey Parrot learned to count, identify objects, and verbally express feelings, how Northwestern Crows developed a technique to crack open clamshells, and how Pinyon Jays can remember where to recover seeds buried months earlier. *Catalogue #: SSRFK 13-1*

PASSING THE BUG

15 mins

Bacteria are the oldest known form of life on Earth. Until the 20th century invention of antibiotics, many people suffered and died from bacterial diseases. Currently, misuse of antibiotics and the unintended use by farmers is changing their effectiveness, while bacteria insidiously evolve to resist them. Scientists are working to understand bacterial evolution and to educate the public about healthful usage. *Catalogue #: SSRFK 17-1*

PREDICTING VOLCANOES

18 mins

Volcanoes are a fascinating part of the earth and have intrigued scientists as well as the general public for hundreds if not thousands of years. Fueled by the excitement that volcanoes create, scientists strive to make further advances in monitoring and predicting volcanic activity. New technologies will allow scientists to study the earth's plates for a better understanding of the complexity of volcanic activity around the world. *Catalogue #: SSRFK 16-1*

- **Up to 4 titles: \$198** (unit price: \$49.50) plus shipping
- **Up to 8 titles: \$325** (unit price: \$40.62) plus shipping
- **Up to 12 titles: \$432** (unit price: \$36.00) plus shipping
- **Up to 20 titles: \$640** (unit price: \$32.00) plus shipping

SPECTACULAR SHARKS 16 mins

Sharks are the largest predatory fish in the ocean, distinguished from other fish by skeletons made of cartilage rather than bone. This issue offers a perspective on the history of sharks and their unique physiological characteristics, including a variety of head shapes and sensory organs that detect electric fields. These, and other distinctions, have helped sharks survive since the age of the dinosaurs. **Catalogue #: SSRFK 14-4**

THEORIES OF DINOSAUR EXTINCTION

17 mins

Dinosaurs were the dominant land vertebrates for 140 million years. They filled many niches in the environment and competed with other organisms, like mammals, for space in ecosystems. For years, scientists thought the dinosaurs became extinct in a short period of time, the result of an extraterrestrial impact from a comet. In this program, we show the trail of evidence that led scientists to an impact crater on the Yucatan Peninsula suspected to be the result of a comet impacting the earth. This comet brought about the end of the age of dinosaurs and helped begin the age of mammals 65 million years ago.

Catalogue #: SSRFK 15-1

UNDERSTANDING EARTHQUAKES 12 mins

The more people understand earthquakes, the better they can prepare to protect themselves and their property. This issue demonstrates how geologists study earthquakes and their effects on the planet. Graphic demonstrations visualize the tectonic plates in California and how they move beneath the earth. There are also demonstrations of how seismic waves radiate through the earth and how scientists use this information and the Richter Scale to predict these destructive forces.

Catalogue #: SSRFK 12-6

WILDEBEESTS: THE JOURNEY TO SURVIVE

12 mins

Chancing a crocodile-filled river crossing and open range lion attacks in search of food and water sources are normal aspects of the largest wildlife migration on earth. Travelling across 2900 kilometers of East African terrain, wildebeests (a.k.a. 'gnu') and other ungulates perpetually search for the best grasslands and safe watering holes. Students will learn about the lifecycle of this dynamic migratory mammal.

Catalogue #: SSRFK 19-6



- **Up to 4 titles: \$198** (unit price: \$49.50) plus shipping
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- **Up to 12 titles: \$432** (unit price: \$36.00) plus shipping
- **Up to 20 titles: \$640** (unit price: \$32.00) plus shipping

ATOMS AND ELEMENTS *16 mins*

Everything on earth and in space is made up of elements, the basic building blocks of matter. This program looks at atoms, elements and compounds. It shows how elements are smelted from ore and how they can be combined through chemical processes into different compounds. It also demonstrates how our knowledge of elements can be used in forensic science to provide evidence against criminals. **Catalogue #: SSRFK 14-2**

THE MAGIC OF LIGHT AND ELECTRICITY

14 mins

Light is created, transported and made visible by the microscopic movement of electrons. This program is about the cutting edge nanoscience of capturing and controlling light. Scientists are creating photonic devices that guide the uninterrupted, super fast travel of data. It's all about sending and receiving information faster than a magician can wave a wand.

Catalogue #: SSRFK 17-3

MAGNETIC FORCE AT WORK *15 mins*

If it wasn't for magnetism everything would fall apart. This issue explores magnetism's role in our lives. Starting with basic principles, the program explains the magnetic fields of the sun and their relationship to earth's magnetosphere, as well as magnetism's role in technology, including its use in generating electricity in motors, computers, medical testing and communications equipment.

Catalogue #: SSRFK 12-4

THE PROPERTIES OF FUELS AND GASES

(also Energy) 18 mins

This issue explores the basic properties of gases. Demonstrations show how gases spread to fill their containers, that all gases have weight, how gases can be compressed, and how a scent is created when particles of matter are diffused in the air and reach the nose. It illustrates why some gases are used to inflate toys, lift blimps, put fizz in soda pop, and fuel our engines. **Catalogue #: SSRFK 13-6**

THE SCIENCE OF LIGHT *17 mins*

This program explores the concepts of visual light through demonstrations of how light emanates from the sun and affects the earth, how we see color, how light can be reflected, and how the light of lasers can be made to bend, enabling it to carry information and making it an essential element in telecommunications technology.

Catalogue #: SSRFK 13-3

UNDERSTANDING THE FIRE TRIANGLE

18 mins

Understanding the nature of fire and how to control it is the goal of scientists all over the world. This program explores the elements necessary to create fire — heat, fuel and oxygen — the fire triangle. Firefighters show how using a thermal imaging camera helps to identify the source of a fire. A gel containing water filled bubbles is shown protecting houses from burning. The positive use of fire is demonstrated through the internal combustion engine. As we learn more about fire, perhaps we can make it safer. **Catalogue #: SSRFK 15-3**

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ENERGY FROM EARTH'S INTERIOR 15 mins

An alternative to fossil fuels lies in the heat below the earth's crust. This SCIENCE SCREEN REPORT FOR KIDS explores how huge granite bodies that are two to three miles under the earth's surface may be used as heating elements for future geothermal power plants. Students will see how these hot rocks are formed, and the technology that is used to locate them and allow them to be mined for heat. The program also offers a basic understanding of earth's interior.

ANCIENT TREE: MODERN WONDER 15 mins

The Wollemi Pine is a "green dinosaur" that first spread its roots about one-hundred million years ago, but it was only discovered in an Australian forest in the second half of the twentieth century. This edition takes students there to learn amazing details about this botanical wonder and the over fifty kinds of fungi it harbors, including one that is valuable in the fight against cancer. The program also discusses the efforts that are underway to assure that these trees survive.

THE LIFE AND TIMES 18 mins

The concept of aging is changing as many people live longer. In this issue, students will learn how genes effect the lifespan of animals and plants, and how scientists are studying people who live a century or more to learn about specific genes that influence a very long life. The program also discusses the discovery of the telomerase, an enzyme that increases the number of times a cell can divide and able to recreate life.

MAGNETIC FORCE AT WORK 15 mins

If it wasn't for magnetism everything would fall apart. This issue explores magnetism's role in our lives. Starting with basic principles, the program explains the magnetic fields of the sun and their relationship to earth's magnetosphere, as well as magnetism's role in technology, including its use in generating electricity in motors, computers, medical testing and communications equipment.

MOVEMENT OF THE HUMAN BODY 14 mins

This edition demonstrates the characteristics of muscles and bones and how their interaction creates movement. It also shows how scientists are studying the composition and functions of muscles and bones to improve technology. Students will see how engineers use this knowledge to improve robots' range of motion, develop artificial limbs, and to design computer games. They will also see how special cameras and computers increase engineers abilities to use their knowledge of muscles and bones to improve product designs.

UNDERSTANDING EARTHQUAKES 12 mins

The more people understand earthquakes, the better they can prepare to protect themselves and their property. This issue demonstrates how geologists study earthquakes and their effects on the planet. Graphic demonstrations visualize the tectonic plates in California and how they move beneath the earth. There are also demonstrations of how seismic waves radiate through the earth and how scientists use this information and the Richter Scale to predict these destructive forces.

WHERE THE SEA MEETS THE SHORE 27 mins

One of the harshest environments on earth exists at the place where the sea meets the rocky shore. This visually stunning program examines the wide variety of animal and plant life that survive these difficult conditions that are caused by pounding waves during the ebb and flow of the tides. Students will appreciate how these plants and animals have developed survival mechanisms that help them find food and escape predators.

**\$295 FOR COMPLETE SET
PER TITLES LISTED
Catalogue #: SSRFK12**

THE MINDS OF BIRDS *18 mins*

This program investigates birds' abilities to communicate, solve problems, make decisions, and to memorize. It illustrates how an African Grey Parrot learned to count, identify objects, and verbally express feelings, how Northwestern Crows developed a technique to crack open clamshells, and how Pinyon Jays can remember where to recover seeds buried months earlier.

POWER FROM THE OCEAN TIDES *15 mins*

This issue explains how the earth's tides are formed, their relationship to the moon's gravity, how the power of the tides is used to produce electricity in underwater turbines, and how undersea transformers adjust the voltage so the electricity can be sent over long distances.

THE SCIENCE OF LIGHT *17 mins*

This program explores the concepts of visual light through demonstrations of how light emanates from the sun and affects the earth, how we see color, how light can be reflected, and how the light of lasers can be made to bend, enabling it to carry information and making it an essential element in telecommunications technology.

FARMER ANTS *13 mins*

The leafcutter ant produces their own food by growing fungus gardens. This edition shows how they produce a growing medium using collected leaves, and how they plant, weed, and irrigate their crops. Close-up photography shows them building nests and creating underground, growing chambers and reservoirs to capture rainwater for irrigation. The program also explains how biologically produced chemicals keep their crops pest and disease free, and what scientists learned from them to help human farmers.

OUR GREEN PLANET *17 mins*

This issue explores how plants moved from the sea to land after developing a vascular system to transport water, minerals and food throughout the plant. It discusses how the plants and trees we know developed over time, explains the process of photosynthesis, and the unique ways some plants and trees have adapted in order to survive in difficult conditions.

THE PROPERTIES OF FUELS AND GASES*18 mins*

This issue explores the basic properties of gases. Demonstrations show how gases spread to fill their containers, that all gases have weight, how gases can be compressed, and how a scent is created when particles of matter are diffused in the air and reach the nose. It illustrates why some gases are used to inflate toys, lift blimps, put fizz in soda pop, and provide power to fuel our engines. A brief, cartoon animation also explains the history of fuels.

HOW WEATHER HAPPENS *17 mins*

Our planet's diverse but consistent climate creates the conditions for life to flourish. This program explores the interaction of natural forces that create our weather. It demonstrates the role of the oceans in creating weather patterns, huge storms and events such as El Niño, and how technology is increasing forecast accuracy to boost our abilities to prepare for any type of weather.

**\$295 FOR COMPLETE SET
PER TITLES LISTED
Catalogue #: SSRFK13**

THE SPINE: BODY'S CONTROL *15 mins*

For centuries, scientists have been fascinated by the human body's ability to perform intricate tasks and maneuvers upon demand. The spinal column provides stability and flexibility by absorbing shock and relieving pressure on the nerves during movement. This issue looks at the design of the spinal cord and the medical advances being made to treat spinal cord injuries ranging from physical therapies to computer chips implanted in the spine.

ATOMS AND ELEMENTS *16 mins*

Everything on earth and in space is made up of elements, the basic building blocks of matter. This program looks at atoms, elements and compounds. It shows how elements are smelted from ore and how they can be combined through chemical processes into different compounds. It also demonstrates how our knowledge of elements can be used in forensic science to provide evidence against criminals.

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Oxygen is found in all living tissue and is essential for our existence. The respiratory system acquires oxygen from the air we breathe. The circulatory system is responsible for distributing the oxygen throughout our bodies. This edition looks at how our bodies acquire and process energy. Scientists study the amount of oxygen and glucose the body needs under different conditions to see how their findings can be used to adjust the amount or type of food intake for different activities.

SPECTACULAR SHARKS *16 mins*

Sharks are the largest predatory fish in the ocean, distinguished from other fish by skeletons made of cartilage rather than bone. This issue offers a perspective on the history of sharks and their unique physiological characteristics, including a variety of head shapes and sensory organs that detect electric fields. These, and other distinctions, have helped sharks survive since the age of the dinosaurs.

STATES OF MATTER: SOLID, LIQUID AND GAS*17 mins*

Anything that takes up space or has mass is matter. All forms of matter, elements or compounds, have specific chemical and physical properties. Under certain conditions, matter can be a solid, liquid, gas, or plasma. Different states of matter can be combined in suspensions and solutions, and mixtures can be taken apart. Exploring the physical and chemical properties of matter provides insight into nature, and a glimpse at how scientists and engineers use this knowledge to shape our world.

A LOOK INTO THE HUMAN EYE *16 mins*

This program provides an understanding of visual perception and how the eye interprets colors, shapes, and the dimensions of objects by processing reflected light. It explains the functions of the lens, cornea, retina, and the optic nerve, and discusses some complications and conditions that interfere with eyesight. Scientific breakthroughs in vision research demonstrate corrective procedures that are restoring sight for some people.

IMPORTANCE OF OUR FACE *26 mins*

The organs of our face work together to reveal our outer and inner selves, enabling us to communicate our expressions and emotions to the world. Universal beliefs about attractiveness are linked to facial symmetry. Illustrations show the anatomy of the teeth, tongue and jaws. The mouth and nose work together to identify foods. Demonstrations show the process of chewing and swallowing, and the functions of the taste buds and saliva and how security software allows identification through facial features.

\$295 FOR COMPLETE SET**PER TITLES LISTED****Catalogue #: SSRFK14**

THEORIES OF DINOSAUR EXTINCTION *17 mins*

Dinosaurs were the dominant land vertebrates for 140 million years. They filled many niches in the environment and competed with other organisms, like mammals, for space in ecosystems. For years, scientists thought the dinosaurs became extinct in a short period of time, the result of an extraterrestrial impact from a comet. In this program, we show the trail of evidence that led scientists to an impact crater on the Yucatan Peninsula suspected to be the result of a comet impacting the earth. This comet brought about the end of the age of dinosaurs and ushered in the age of mammals.

BLANKET OF PROTECTION: EARTH'S ATMOSPHERE *17 mins*

From studying the earth's atmosphere, the greenhouse effect, and past climate changes scientists have found that there is one-third more carbon dioxide in the atmosphere today than there was before the industrial revolution. This leads scientists to believe that human activity plays a significant role in global warming and how renewable energy sources such as wind, water and solar energy can help slow global warming.

UNDERSTANDING THE FIRE TRIANGLE *18 mins*

Understanding the nature of fire and how to control it is the goal of scientists all over the world. This program explores the elements necessary to create fire - heat, fuel and oxygen - the fire triangle. Firefighters show how using a thermal imaging camera helps to identify the source of a fire. A gel containing water filled bubbles is shown protecting houses from burning. The positive use of fire is demonstrated through the internal combustion engine.

THE IMMUNE SYSTEM: BARRIER TO INFECTION *14 mins*

This program investigates the immune system's ability to protect us from bacteria and microorganisms. It discusses the body's initial defenses in our skin, eyes, nose, and stomach to ward off bacteria, and how white blood cells fight back when the body is infected. It also discusses the differences between bacteria and viruses, why allergies occur, and the role of vaccines in keeping people well.

EXPLORING DESERT BIOMES *18 mins*

Deserts are lands of extremes: deadly heat, extreme dryness, and flash floods. They cover great distances and are classified by their geographical location and dominant weather pattern. But desert regions are abundant with life, and second only to tropical rainforests in the variety of plant and animal species that live there. In this edition, we explore the unique and fascinating land of the desert.

THE POWER OF ELECTRICITY *15 mins*

This issue provides a look at how hydroelectricity is created in power plants, distributed along massive power lines, and how transformers move the electricity and convert it to the appropriate voltage. The differences between alternating current and direct current are demonstrated. The video also explains the differences between neon and filament bulbs, and shows how electricity powers automobiles and mass transportation.

COLORFUL CREATURES OF THE SEA *26 mins*

Oceans cover nearly seventy-five percent of the surfaces of the earth. The waters flow with salts, minerals and dissolved gases that provide the essentials for sea life to thrive. Many species have developed means to survive in this environment while others have existed unchanged for millions of years. Scientists believe that the depths below hold secrets of creatures yet to be discovered, and each plays an important role in the preservation of the ocean environment.

**\$295 FOR COMPLETE SET
PER TITLES LISTED
Catalogue #: SSRFK15**

PREDICTING VOLCANOES 18 mins

Fueled by the excitement that volcanoes create, scientists strive to make further advances in monitoring and predicting volcanic activity. New technologies help scientists study the earth's plates to better understand complex volcanic activity.

PUSHING THE LIMITS OF THE HUMAN BODY

18 mins

Thrill seekers, extreme sports, and even dangerous professions all push our bodies to their limits. The question is, how much can our body handle? With new technology, doctors are able to simulate events on models and monitors, providing insight into what would happen in a real life situation. In the future, science and technology may allow us to pursuing even more extreme activities.

ORIGINS OF THE UNIVERSE EXPLORED 15 mins

The Big Bang theory is currently the most popular scientific theory for the origin of the universe. It describes how the universe emerged from an enormously dense and hot state about 13.7 billion years ago and how it is still expanding. This theory is supported by data from the Hubble Space Telescope and radio telescopes. In addition, this theory helps scientists explain the formation of all the galaxies, stars, and planets.

THE SUN: CENTER OF OUR SOLAR SYSTEM

16 mins

The Sun is the most prominent feature in our solar system, with enough energy for life to sustain itself. Solar energy is created deep within the core of the Sun. It is here that the temperature and pressure is so intense that nuclear reactions take place. It is the largest object and contains approximately 98% of the total solar system mass. Scientists predict that the sun's energy will not run out for billions of years and models of the sun and using a new spacecraft called SOHO they can test this model as well as confirm its actual structure.

THE SCIENCE OF TOUCH 18 mins

We have five senses that enable us to interact with the world around us. We are most familiar with the senses of seeing and hearing, but no one really thinks about living a life without the sense of touch. Like our other senses, we use our sense of touch every minute of every day; every time we touch something, we are putting our sense of touch to the test. Scientists want to learn more about our sense of touch and develop new technologies to help those who have lost this valuable sense.

EXPLORING SHORELINE HABITATS 19 mins

Shoreline habitats are home to many different species of wildlife, and this ecosystem depends on the balance of all the living things that reside in these zones. Now steps are being taken by scientists and developers to maintain a balance between development and preservation of these vital environments for both wildlife and humans.

PURSUING ENERGY ALTERNATIVES 13 mins

About 300 years ago conventional science, based on Newton's Laws of Motion, announced that energy could not be created and thus the quest for perpetual motion, and therefore 'free' energy, was over. However, there were a few dreamers and visionaries who refused to believe perpetual motion, the holy grail of science, was beyond the minds of men. Drawn together by the internet, there are still those who believe perpetual motion and 'free' energy is not only possible, but that it may well be the solution to our current energy crisis.

**\$295 FOR COMPLETE SET
PER TITLES LISTED
Catalogue #: SSRFK16**

PASSING THE BUG *15 mins*

Bacteria are the oldest known form of life on Earth. Until the 20th century invention of antibiotics, many people suffered and died from bacterial diseases. Currently, misuse of antibiotics and the unintended use by farmers is changing their effectiveness, while bacteria insidiously evolve to resist them. Scientists are working to understand bacterial evolution and to educate the public about healthful usage.

LIVING IN SPACE *18 mins*

The International Space Station is a stepping stone towards establishing human life in space and on other planets. Transportation cost, sufficient food, oxygen and water production are key factors that scientists are working on to make un-Earthly life possible in the 21st century. We also take a look at Biosphere 2; its purpose, development and ultimate shortcomings.

THE MAGIC OF LIGHT AND ELECTRICITY*14 mins*

Light is created, transported and made visible by the microscopic movement of electrons. This program is about the cutting edge nanoscience of capturing and controlling light. Scientists are creating photonic devices that guide the uninterrupted, super fast travel of data faster than a magician can wave a wand.

BIZARRE CREATURES IN THE OCEAN *19 mins*

Some very interesting animals with unique physical characteristics live in our oceans. The longest animal in the world, a 131 foot long jellyfish colony, has no brain, yet various tentacles have specific functions to perform. Bioluminescence (light produced from the agitated electrons in plasma) is what lights up the angler fish's anatomical lure. High-tech ROVs (remote operating vehicles) and cameras for deep sea use aid scientists in research and discovery of life in our oceans.

TARANTULA: UP-CLOSE AND PERSONAL*15 mins*

They're big, hairy, scary, poisonous and found in a variety of habitats on Earth. The 8-legged arachnid is a pet for some, pest for others and in Asia, a spicy, cooked, snack. This program uncovers the cultural myths and truths about the King of Spiders and research being done using its venom.

EARTH, HOME PLANET AND ORBIT, EARTH FROM SPACE *20 mins*

Earth, third planet from the Sun, developed the right environment for life to evolve in the oceans, green plants to produce breathable air, and animal life to flourish. Orbiting satellites help predict weather (hurricanes, tornadoes, floods, drought) and more. Telecommunication and navigation devices utilize satellites for many important functions.

MOON, OUR PARTNER IN SPACE AND JAW DROP, ECLIPSES AND AURORAE *20 mins*

Earth's moon was probably formed when a body the size of Mars collided twice with the planet. Our moon is steadily receding into Space; eventually, due to the loss of this lunar regulator, Earth will start to wobble, creating climatic chaos. Eclipses can be seen; the Sun obscures the Moon or vice versa. Another light show, the Aurora, occurs when electrified particles from the solar wind interact with Earth's upper atmosphere, is visible particularly in the polar regions.

**\$295 FOR COMPLETE SET
PER TITLES LISTED
Catalogue #: SSRFK17**

FOREST FARMING 14 mins

Trees are an essential resource that we rely upon for a multitude of needs. Meeting increasing demand within conservation guidelines requires new arboriculture technology. Data from a computer at a sawmill, is sent to harvesting machinery in the forest. Botanists are researching genetically manipulated (transgenic) trees to learn if they are suitable for integration into a natural environment.

SPRING WATER FROM THE SEA 17 mins

Though 70% of Earth's surface is water, only approximately 2.5% is fresh water. After the discovery of a fresh water spring flowing deep in the Mediterranean Sea, scientists found a way to capture and deliver that valuable resource to the surface. Without depleting or damaging the ecosystem, they were able to engineer a device to harness this precious necessity.

WETLAND ANIMALS: BANDED STILTS 15 mins

The Australian outback is home to a diverse group of organisms. When conditions are right, they play host to a distant, shoreline visitor – the Banded Stilt. Though common to the country's coasts and tidal shallows, this bird travels great distances inland in search of a particular food at its inland breeding grounds. Cyclone Bobby started a chain reaction by flooding a dry salt lake that, when wet, supports a variety of algae, bacteria, and the all important brine shrimp. We see how animal life, microscopic organisms and the ecosystem are interconnected for the survival of all three.

ARCHAEOLOGY: TECHNOLOGICAL ADVANCES

16 mins

Advanced digital technology using 3D-terrain maps, laser pantographs, digital photographs and satellite data is increasing our visual understanding of architectural structures of bygone eras. The multi-faceted world of digital archaeology aids researchers by supporting data management and by making visual presentations more realistic. The ancient city of Troy is recreated using complex technology to uncover the past without damaging the local ecosystem.

METEOROLOGY: PREDICTING DANGEROUS WEATHER 17 mins

Violent weather touches thousands of lives, homes and businesses around the world each year. Billions of dollars are spent on cleanup and reconstruction. Climatologists and meteorologists at the Meteorological Alpine Project (MAP) are using specialized computer technology to discover how hot winds in the African desert develop into a damaging hail storm in the Swiss Alps.

INSIDE TRACK: MERCURY and VENUS, HOSTILE PLANET 20 mins

Baked and irradiated, Mercury is a cratered world; pock-marked by impactors that rained from space during the early development of our Solar System. With double sunrises, its day is twice as long as its year. Mercury's orbit is now perpetually shadowed from the scorching Sun; scientists think there may be ice deposited by comets. In contrast, the un-Earthly Venus is a lifeless planet with a dense, choking atmosphere with temperatures that could melt lead. Constantly shrouded in cloud, Venus could once have been Earth's twin with oceans and continents, even simple life, but as the Sun matured, Venus became the hottest planet in our Solar System.

SUN, POWERHOUSE OF THE SOLAR SYSTEM and GALAXY, OUR MILKY WAY 20 mins

It's a nuclear reactor losing four million tons of mass every second, enough energy to keep the Sun blazing for another five billion years. Solar winds are a stream of electrically charged particles. Twists in the magnetic field trigger gigantic eruptions that change winds to storms. In five billion years time, the Sun will bloat into a red giant and die as a white dwarf. Of the 200 billion stars in our galaxy, the nearest star is Alpha Centauri, 4.25 light years away.

**\$295 FOR COMPLETE SET
PER TITLES LISTED
Catalogue #: SSRFK18**

ROBOTICS – ENGINEERING MARVELS 17 mins

Robots are regularly used for hazardous, super-heavy and difficult tasks in space exploration, manufacturing, agriculture, entertainment, and medicine. Honda Motor Company's humanoid robot, ASIMO, can walk, run, recognize people, and identify sounds and voices. Robot-assisted surgery is less painful, recovery is quicker and hospital stays are shorter. Spirit and Opportunity are NASA's robotic rovers whose job is to map the Martian terrain and search for evidence of water. Robots have been part of the work force for fifty years.

LAKE NAKURU: FLAMINGOS AND FRIENDS

18 mins

The lesser flamingo flourishes at one particular lake tucked away in the middle of Lake Nakuru National Park in Kenya, Africa. Along the edges of the soda (sodium carbonate) lake are blooms of blue-green algae, their primary food source. It is the photo-synthetic pigments or carotinoids in the algae that give these graceful birds their pink color. This colorful issue explores the dynamic relationship between flora and fauna in this unique environment.

ASTEROID, THE THREAT AND KING PLANET, JUPITER 20 mins

Between Mars and Jupiter is the asteroid belt. Every so often, asteroids collide and tumble towards the Sun. If they pass Mars, they can be drawn towards Earth, sometimes colliding. Sixty-five million years ago an asteroid impact may have been the cause of the climate change that killed the dinosaurs. Jupiter is the largest planet in our solar system. It is a ball of gas with no solid surface. Regal Jupiter is orbited by more than 60 moons of which four are large enough to be small planets.

GLASS – 21ST CENTURY TECHNOLOGY 12 mins

Telecommunication systems - semiconductors and optical fibers - require speed, accuracy and high quality. Glass is the key. Newly developed glass is both durable and scratch resistant. It is also used for terrestrial and extra-terrestrial telescopes. For example, The Very Large Telescope (VLT) in Chile uses four individual mirrors, each over eight meters in diameter, to see details of our galaxy and beyond.

SKYSCRAPER – REACHING THE SKIES 15 mins

Architects and construction engineers are building taller, larger and smarter by inventing new materials that are lightweight, robust and sturdy. The 21st century skyscraper is being tailored to the demands of location specific environments/ecosystems and to anticipate extreme weather. This issue centers on the construction of the Burj Dubai – the tallest man-made structure in the world. The 162 floors of the Burj Dubai soar to 818 meters.

WILDEBEESTS – THE JOURNEY TO SURVIVE

12 mins

Chancing a crocodile-filled river crossing and open range lion attacks in search of food and water sources are normal aspects of the largest wildlife migration on earth. Travelling across 2900 kilometers of East African terrain, wildebeests (a.k.a. 'gnu') and other ungulates perpetually search for the best grasslands and safe watering holes. Students will learn about the lifecycle of this dynamic migratory mammal.

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