

1 GEOLOGY: SCIENTISTS PROBE EARTHQUAKES

Geologists continue to study earthquakes and their effects on the earth. This issue explores earthquakes in California. It illustrates how tectonic plates move beneath the earth. We see how scientists study seismic waves and extrapolate structural details about the earth's interior. We also see how the Richter Scale is used to predict earthquakes and how this information can be used to minimize earthquakes' effects on safety, property and the infrastructure. 14:46

2 ENERGY: ELECTRICITY FROM THE MOON

The ocean tides offer a clean and renewable energy source that can reduce reliance on fossil fuels. Students will see how earth's tides are formed and their relationship with the moon and its gravitational forces. They will learn how scientists have used principles of old-fashioned water mills to build underwater turbines that create electricity. The program also explores efforts to reduce the environmental impact of damming estuaries and rivers that will be necessary if undersea power plants become part of our future. 12:58

3 MAGNETISM: INVISIBLE FIELDS OF FORCE

Magnetism is a fundamental force in the universe. Magnetism is used to generate electricity in motors, computers and communications equipment. Electromagnetism allows atoms to bond and form molecules which hold matter together. Biomagnetism is the basis for medical technology such as Magnetic Resonance Imaging. This program takes a detailed look at magnetism, starting with basic principles, discussing the magnetic fields of the sun and their relationship with earth's magnetosphere, and exploring magnetism's role in the world around us. 13:41

4 PHYSICS: THE SCIENCE OF VISUAL LIGHT

This report looks at the sun as a source of heat and light. It explores light's physical properties and its effects as it radiates off the sun and strikes earth. The program focuses on the properties of different light spectrums or wavelengths and how light is reflected. It demonstrates how what we see is affected by the properties of light surrounding it. Light is also explored as an essential component of modern telecommunications, and students will see how the light of lasers is bent in order to carry information which is transmitted through fiber optic cables. 13:30

5 BIOLOGY: THE LIFE AND TIMES

Scientists study the aging process to develop means to expand and improve life. This edition focuses on the genetic processes behind aging and how genetic structure affects the life span of plants and animals. Students will learn about scientific discoveries such as the telomerase, an enzyme that extends the number of times a cell can divide, extending the ability to recreate life. Other longevity research is also explained, including experiments to isolate genes that affect aging. 12:53

6 CHEMISTRY: CHANGING STATES OF MATTER

This issue explores the properties of matter and how changes of state are caused by physical forces affected by the movement of atoms. While all elements and compounds are solid, liquid or gas, different states can be combined. Using commonplace examples, the program explains how changes occur when energy is applied or taken away, how matter is combined in suspensions and solutions, and how such mixtures can be taken apart. Students will see how this knowledge is used to create foods and to desalinate the seas to provide potable drinking water. 15:45

7/8 ECOLOGY: LIFE AT THE EDGE OF THE SEA

An enormous variety of crustaceans, gastropods, mollusks, and other marine animals and plants live at the point where the sea meets the rocky shore. They have evolved with the ability to survive difficult conditions created by pounding waves, the daily ebb and flow of the tides, the need to escape natural predators, and the need for sustenance. This study reveals the ecological diversity and balance of this unique environment. 24:00