Scene	Description	Narration
1	The Earth from space. We see a view of the Earth from the moon. A cutaway view of the Earth and its interior layers. The Inner core is shown and labeled. We zoom out to the outer core, then the mantle, and finally the crust. A close-up view of a cross section of the crust shows the layers of water, earth, and mountains that make up the crust.	Geology is the study of the earth's physical characteristics and history. Scientists now believe the earth is 4.6 billion years old and over that time, the physical geography of the earth has changed. Scientists have developed the idea of what the interior of the earth looks like. They believe the core, or center of the earth, is made of very hot metal. Mainly iron mixed with nickel. The inner core is thought to be a dense solid with the outer core being molten rock. Around the core is the mantle, a thick layer of rock about 1800 mile thick. Scientists believe the mantle is mostly solid with some flexibility. The rocky surface layer is called the crust. It is surprisingly thin only around 5 miles thick above the oceans. Natural forces interact with the crust creating landforms and other natural features.
2	We see a cutaway of the crust and atmosphere. The soil is labeled "lithosphere," the water is labeled "hydrosphere," the sky is labeled "atmosphere," and the forest is labeled "biosphere." Each section is highlighted as it's announced. We see the ocean in the background, and a pie chart showing 70.8% water and 29.2% land. Each color-coded continent appears one at a time. We see an image of the mountains, some green hills, canyon plateaus, and grass plains.	The earth's natural environment is a set of related spheres. Soil, rocks, landforms and other related features make up the lithosphere. The atmosphere is the layer of air, water and other substances above the surface. The hydrosphere consists of water in the oceans, lakes, rivers and even under the ground. The Biosphere is the world of plants, animals and other living things occupying the earth. Physical geography studies the way these spheres operate and interact with each other. Over 70 % of the Earth's surface is covered by water, mainly from the oceans. The large landmasses in the oceans are called continents. The major types of landforms on the continents are mountains (the largest), hills (lower and rounded), Plateaus (a raised area with a flat surface) and plains (flat areas).
3	We see a cone cutaway of the interior of the Earth, starting with the core. We scan up to the crust. Video of a volcano erupting. An image of an erupting volcano. We see a fold geological formation, then an aerial view of a fault line.	So, what shapes the physical landscape? Landforms are first formed by internal forces, originating in the earth's interior. One of these forces is volcanism. Volcanoes form when magma or molten rock, breaks through the earth's crust. Alternating sequences of eruptions and smooth lava flows create cone shaped mountains. Some

		movements bend and break the earth's crust. When the crust bends and folds up it is called a fold and when the crust bends downward it is called a fault.
4	A timelapse video of a river meeting the ocean. A map of the Earth, and the lines of plate tectonic boundaries appear. We see two sides of the globe with no water, with glowing fault lines.	Most of the changes in the earth's crust a created so slowly they are not immediately noticeable to the naked eye. According to the theory of Plate Tectonics, the earth's crust is not one solid sheet. Instead, the earth's crust and the upper layer of the mantle is broken up into a number of moving plates. The earth's oceans and continents ride and move atop these massive plates. This theory became widely accepted by scientists in the 1960s as it explained the continental drift and seafloor spreading.
5	A globe from space dissolves into a shot of Pangea. A portrait of Alfred Wegener is superimposed over the globe of Pangea. Four images of continental drift dissolve into each other to show the change over time. A physical map of Earth, with the same fossil appearing from four different coastlines across the Atlantic Ocean. Then we see maps of the ocean floor, showing younger rock along ocean ridges. We see a diagram of spreading between two plates. Then we see a color-coded map of the tectonic plates.	As early as the 1600's many noticed the continents looked as if they could fit together like a puzzle. In the early 1900's a German scientist and explorer name Alfred Wegener suggested the continental drift theory. He suggested there was once a supercontinent he called Pangea. He theorized about 180 million years ago, Pangea began to break into several different continents. To support his theory, he showed that fossils and rocks from all different continents were once very similar. The other study supporting plate tectonics is from the study of the ocean floor. From mappings of the ocean floor, scientists realize the ocean closely resembles the topography on land. Scientists were surprised to find the youngest rocks were found near ocean ridges. This suggests that molten rock from deep in the earth comes through these ridges and spreads the seafloor outward. Continental drift and seafloor spreading became part of the theory of plate tectonics.
6	A cutaway of Earth showing convection from the mantle. We see an example of a divergent plate boundary, then an example of a subduction zone, and a convergent plate boundary. We see an image of Everest. There's an example of faulting plates. Then we see the rocks pushed up by the San Andreas fault in	Scientists today believe the plates are moved through a process called convection. Convection is a circular movement caused when the material is heated, expands and rises. Then cools and falls. When plates pull away from each other, a process known as

California. Another map showing the plate tectonic boundaries, with an image of a volcano coming from East Asia and an earthquake coming from the West Coast of California.

spreading, they form a divergent plate boundary. Volcanoes and earthquakes are likely to occur along these boundaries. When one plate sinks below another plate, this is known as subduction. When two continental plates collide, this is known as convergence. Convergence is how the tallest mountains the Himalayas were formed. Sometimes plates slide along each other in a process known as faulting. The San Andreas fault in California is an example of this. Plate tectonics explains most of the physical aspects of the earth's crust and explains the violent actions of volcanoes, earthquakes and faults and why they occur in certain areas.