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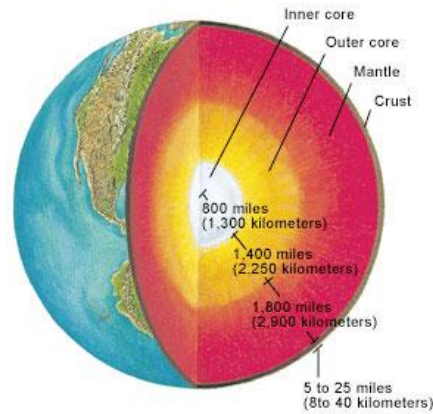
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Planet Earth has several layers. This NASA Earth World Book illustration—by Raymond Perlman and Steven Brayfield, Artisan-Chicago—depicts those layers. Online, courtesy NASA. PD

Before we can understand the natural disaster that befell the citizens of San Francisco, in 1906, we need to know something about the Earth's composition. How is it constructed? Are earthquakes, like the one which decimated the city, predictable? The answers, and the information currently known about earthquakes, may surprise you.

What would we see if we could look inside the earth? Although no one has ever descended lower than the earth's crust, scientists have a good idea how the planet's interior is configured.

The crust averages 5-40 kilometers in depth. In addition to elements necessary to sustain life, it is mostly composed of alumino-silicates with feldspar and quartz the two most common minerals. On the crust's surface, sedimentary rocks form a kind of thin veneer, but igneous rocks constitute the bulk (about 95%) of the total crust.

Earth's largest layer - the mantle - is composed of hot, dense rock. Temperatures in this 1800-mile layer get progressively hotter (from about 1600 degrees Fahrenheit at the top to around 4000 degrees Fahrenheit at the bottom) while pressures increase commensurately (since earth's temperatures and pressures increase with depth).

Because of the mantle's temperature differences, its molten rock flows (just like thick soup which boils in a saucepan) with the consistency of asphalt.

Whatever is resting on the flowing molten rock will *also* move.

See Alignments to State and Common Core standards for this story online at:

<http://www.awesomestories.com/asset/AcademicAlignment/INSIDE-THE-EARTH-San-Francisco-Earthquake-of-1906>

See Learning Tasks for this story online at:

<http://www.awesomestories.com/asset/AcademicActivities/INSIDE-THE-EARTH-San-Francisco-Earthquake-of-1906>



Feldspar

Image online, USGS (U.S. Geological Survey).

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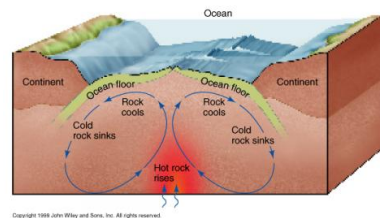


Quartz

Image online, courtesy USGS.

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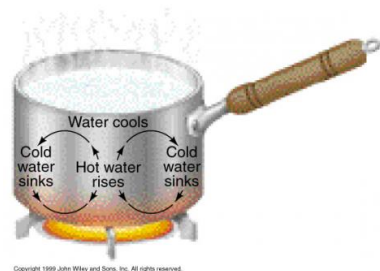


Molten Rock Flow Pattern - Earth's Mantle

Illustration, depicting the Earth's molten rock flow in its mantle, is from John Wiley and Sons, Inc., online via USGS (U.S. Geological Survey).

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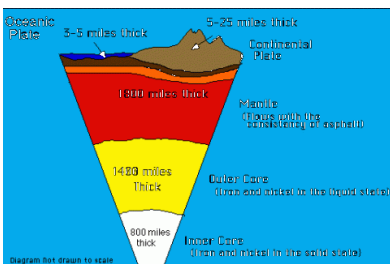


Boiling Illustration of Liquid Flow Patterns

Illustration, depicting the Earth's molten rock flow in its mantle, is from John Wiley and Sons, Inc., online via USGS (U.S. Geological Survey).

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Graph of Earth's Layers

Image online, courtesy USGS (U.S. Geological Survey). PD

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