

Common Earth Science Confusions

There are a variety of mistaken ideas or preconceptions for various Earth science topics. To address some of these concepts, consider displaying some of your books and videos on Earth science, or incorporating the following websites:

- Many people confuse climate with weather; NASA's [ClimateKids site](#) has some great information about the difference.
- People may be confused by the water cycle and unfamiliar with the distribution of water on Earth. Details are at [NASA Earth Observatory](#)
- Most people struggle with the concepts of climate change, and many do not recognize that the factors contributing to climate change include human activities. NASA's [ClimateKids site](#) has great details about what we know and how we know it.
- People are likely to be confused by the greenhouse effect. NASA's [ClimateKids site](#) has a webpage explaining it.
- People often confuse the ozone layer with the greenhouse effect; [NASA Earth Observatory](#) explains the difference.
- People may be confused by how clouds form, what they are made of, and how they form rain. [NASA ClimateKids](#) has some answers.
- People are often confused by or unfamiliar with the carbon cycle. Details are at [NASA Earth Observatory](#).
- People may not recognize that Earth's complex systems connect changes in different parts of the world; for instance, they may not recognize that changes in ocean currents to changes in regional climates. Information is [at UCAR](#)
- Most people struggle with geologic time; for instance, they may think that dinosaurs and cavemen lived at the same time rather than dozens of millions of years apart. The National Park Service has a great [website about Geologic Time](#).

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- Many people have mistaken ideas about the layers of the Earth and believe that there's a layer of magma or that the mantle is molten. The mantle is mostly solid but moves slowly over time. Magma comes from pockets of molten rock called magma chambers, rather than a layer in the Earth. More information is at USGS's [This Dynamic Earth](#)
- Many people struggle with the concepts within the theory of plate tectonics. National Geographic has a useful [introduction to Plate Tectonics](#)
- Many people are confused by tides (their size, periods, and causes) and some confuse tides with ocean waves. [NOAA SciJinks](#) has some great information. Additional information about what causes tides is at [NASA's Earth's Moon site](#).

Sources about Earth Science misconceptions:

- [NOAA National Ocean Service](#)
- [SERC Earth Science Misconceptions by Kent Kirkby](#)
- [MiTEP List of Common Geoscience Misconceptions](#)

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