

# Layers of the Earth Unit

8<sup>th</sup> Grade

Ms. Martin and Mrs. Savage-Speegle's Unit

Earth's Crust – Page 1

Earth's Mantle – Page 6

Earth's Core – Page 8

## [Journey To The Centre Of The Earth](#)

Grade Level:



How far would you have to travel before you reach the center of the Earth's core? What would you find along the way as you traveled there? At this interesting site you can scroll down the page and travel through the Earth's internal structure. Along the way you will be able to see at what depths certain events and natural processes occur. At the bottom of the screen is a measurement scale that keeps track of how deep you go. As you travel to the center of the Earth you can learn fun and interesting facts.

Topic: Earth (Planet)--Internal structure, Earth (Planet)--Core

Language: English

Lexile: 610

URL: <http://www.bbc.com>



## [A Virtual Journey to the Center of the Earth](#)

Grade Level:



Humans have only gone so far in their journey to the center of the Earth. Miners in South Africa have gone 3.5 kilometers below the surface, but no one has gone further. Volcanic vents have revealed rare bits of Earth from depths of up to 150 kilometers. That leaves 12,000 kilometers of the planet's

interior that has never been seen. Isaac Newton realized that the Earth's interior must be denser than the surface to account for the force of gravity. Discover how earthquakes teach us about the planet's interior. Study the compositional and mechanical layers of the Earth.

**Topic:** Earth (Planet)--Internal structure, Earth (Planet)--Density

**Language:** English, Spanish

**Lexile:** 1290

**URL:** <http://www.visionlearning.com>

### [The Layers of the Earth](#)

**Grade Level:**

6-8

9-12

Scientists use seismic waves to study the layers of the Earth. The density of the Earth increases as it goes from the crust to the mantle to the core. Ranging from five to sixty kilometers thick, the crust is made of sedimentary, basalt, and granite-like rock. The mantle can be divided into a plastic-like fluid and dense rock. The core is believed to be made of iron and nickel. Find out why scientists think that the outer core is liquid. Investigate the thickness and density of each layer. Discover how earthquakes help scientists learn about the Earth's interior.

**Topic:** Earth (Planet)--Internal structure, Earth (Planet)--Density

**Language:** English

**Lexile:** 780

**URL:** <http://regentsprep.org>

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### [The Mesosphere](#)

**Grade Level:**

3-5

6-8

9-12

You may know what the atmosphere is or have heard of the mesosphere, but have you ever seen what the Earth's atmospheric layers look like? You can view an image of the Earth and its atmosphere, find where the mesosphere is located, and enlarge that image to see it up close. Then you can find some interesting facts about the mesosphere such as where it is located compared to Earth's other layers, what the temperature is like in this part of the

atmosphere, and how you can see it. Not only will you know the facts about the mesosphere, but you will also be able to say that you have seen the mesosphere.

**Topic:** Mesosphere

**Language:** English, Spanish

**Lexile:** 790

**URL:** <http://www.windows2universe.org>



### [Layers of the Ocean](#)

**Grade Level:**



The abyssal zone is one of four basic ocean zones that describe the depth and conditions of the water in a particular region of the ocean. A fifth zone, the Hadalpelagic Zone, is the deepest zone of the ocean located in the Mariana trench off the coast of Japan. This NOAA National Weather Service website offers information on the layers of the ocean. On this page, each zone is presented in a color illustration and described in detail.

**Topic:** Ocean layers

**Language:** English

**Lexile:** 780

**URL:** <http://www.srh.noaa.gov>



### [Iron](#)

**Grade Level:**



This popular element has a whole period of history named after it. Iron has been used by humans throughout history and can be found all over the universe. Explore some common places where this grayish metal can be found. Sometimes iron turns reddish-brown and we call the new compound rust. With 26 electrons, iron needs four electron shells to hold them all. If you want to find iron, you don't have to look far. It is found in magnets, paper clips, skyscrapers, the Earth's crust and core, and even your blood.

**Topic:** Iron (chemical element)

**Language:** English

**Lexile:** 740

**URL:** <http://www.chem4kids.com>



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[Ox-y-gen](#)

Grade Level:



Oxygen is an important element necessary for life. Living organisms take in oxygen from the atmosphere when they breathe. Find out how much oxygen is in the atmosphere and why oxygen can be dangerous. It is the eighth element on the periodic table, which means it has eight electrons in two shells. It is found in the ozone layer, rocks, soil, water, air, and even plastics! Learn more about its place on the periodic table, its properties, and the elements it combines with to form water and other compounds.

**Topic:** Oxygen**Language:** English**Lexile:** 780**URL:** <http://www.chem4kids.com>

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[Journey To The Centre Of The Earth](#)

Grade Level:



How far would you have to travel before you reach the center of the Earth's core? What would you find along the way as you traveled there? At this interesting site you can scroll down the page and travel through the Earth's internal structure. Along the way you will be able to see at what depths certain events and natural processes occur. At the bottom of the screen is a measurement scale that keeps track of how deep you go. As you travel to the center of the Earth you can learn fun and interesting facts.

**Topic:** Earth (Planet)--Internal structure, Earth (Planet)--Core**Language:** English**Lexile:** 610**URL:** <http://www.bbc.com>

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[Cycles: The Rock Cycle](#)

Grade Level:



The rock cycle never stops as rocks melt and cool, weather and erode, compact and cement, and change under heat and pressure. Find out how igneous rock forms as liquid magma cools and creates crystals. Discover how weathering and erosion can reduce any kind of rock into sediment. Learn how sedimentary rock is cemented together. If rocks get hot enough they change into metamorphic rock and if they get really hot they melt into magma.

**Topic:** Igneous rocks, Metamorphic rocks, Sedimentary rocks, Petrology, Geology--  
Periodicity

**Language:** English **Lexile:** 780

**URL:** <http://www.cotf.edu>

 Add to this List

[To Thine Own Self Be True](#)

**Grade Level:**



Judith Jamison read an essay was delivered at her dance studio and replayed for a radio program. You can read the transcript of this essay and listen to the radio program as well. The program offers some background information that you will not find in the transcript. In the essay Jamison discusses her beliefs that she credits for her success. She explains what it is to be a good dancer and what a good performance can do for an audience.

**Topic:** Jamison, Judith

**Language:** English

**Lexile:** 650



**URL:** <http://www.npr.org>

# Earth's Mantle Layer

## [Structure of the Interior of Earth](#)

**Grade Level:**

3-5

6-8

The earth's four main layers are made up of rock and metal and this report tells you about each of the layers that make up the earth's structure. You will learn about the inner core, the outer core, the mantle, and the crust. You will also learn about the temperature of the earth's core, the movement of the earth's interior, and the earth's magnetic field. A labeled diagram of the earth's internal structure can be enlarged for a better view.

**Topic:** Earth (Planet)--Internal structure

**Language:** English, Spanish

**Lexile:** 930

**URL:** <http://www.windows2universe.org>

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## [Rocks, Rocks, and More Rocks](#)

**Grade Level:**

3-5

6-8

From chalk to glass, rocks are all around you. An aluminum baseball bat is made from rocks. The soil or sand beneath your feet is composed of rock. Rocks are used to make jewelry, cars, airplanes, and sandpaper. Examine the layers of the Earth. Find out how rocks are classified. What type of rock frequently contains fossils? What type of rock is formed by heat and pressure? Rocks change and move slowly over time through weathering or erosion. Discover how minerals are identified. Learn how stalactites and stalagmites form.

**Topic:** Geology, Rocks, Gems

**Language:** English

**Lexile:** 870

**URL:** <http://idahoptv.org>

 Add to this List

## [Pacific Rim of Fire](#)

**Grade Level:**

3-5

6-8

A diagram that offers evidence for seafloor spreading also reveals the volcanoes that are located around the rim of the Pacific Ocean. This brief fact sheet reveals that this area is also an area that experiences many earthquakes as well. The

connection between the volcanoes and subduction is made and you will learn the name for the volcanoes around the Pacific Rim. You will notice that diagram has highlighted the earth's boundaries or plates as well.

**Topic:** The Ring of Fire

**Language:** English, Spanish

**Lexile:** 880

**URL:** <http://www.windows2universe.org>



### [The Alvin](#)

**Grade Level:**



There are some places in the ocean that are too deep for a diver to go. The pressure is extreme when you are miles below the surface of the sea. The Alvin is an underwater submersible designed for exploring deep sea trenches and the ocean floor. More than 10,000 scientists have taken a ride in Alvin to study underwater geology, chemistry, and biology. They search for shipwrecks and discover unusual creatures like the tubeworm that lives near hydrothermal vents.

**Topic:** Underwater exploration

**Language:** English

**Lexile:** 890



**URL:** <http://www.windows2universe.org>



### [How Rocks and Minerals are Formed](#)

**Grade Level:**



See how rocks and minerals are formed as you explore this site from Rocks for Kids. You will find out how the crust of the earth is like the shell of an egg. Learn the difference between a rock and a mineral, and find out the importance of soil. The rock cycle is explained, and the three main types of rocks are described. See what qualities make up igneous, sedimentary, and metamorphic rocks. Erosion is also defined.

**Topic:** Minerals, Rocks

**Language:** English

**Lexile:** 820

**URL:** <http://rocksforkids.com>



### [Mercury: The Hot Planet](#)

**Grade Level:**



The closest planet to the Sun, Mercury is really hot, at least on the side that faces the Sun. There is a side of Mercury that faces away from the Sun. In spite of being so close to the Sun, the temperature on that part is 640 degrees colder than the part that faces the Sun. The planet rotates very slowly, taking 58 Earth days to rotate once. Mercury gets bombarded with space dust and asteroids that Earth's atmosphere would burn up. Learn about Mercury's magnetic field. Find out why it's hard to see Mercury in the sky.

**Topic:** Mercury (Planet)

**Language:** English

**Lexile:** 950

**URL:** <http://www.cosmos4kids.com>

## Earth's Core Layer

### Structure of the Interior of Earth

Grade Level:



The earth's four main layers are made up of rock and metal and this report tells you about each of the layers that make up the earth's structure. You will learn about the inner core, the outer core, the mantle, and the crust. You will also learn about the temperature of the earth's core, the movement of the earth's interior, and the earth's magnetic field. A labeled diagram of the earth's internal structure can be enlarged for a better view.

**Topic:** Earth (Planet)--Internal structure

**Language:** English, Spanish

**Lexile:** 930

**URL:** <http://www.windows2universe.org>

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### Earth Sciences

Grade Level:



From floods to fossils, earth science studies clues about things that changed the Earth. Earth scientists may study rocks but they may also study oceans, weather, and earthquakes. This is a career where you might crawl through caves, climb mountains, or wade through swamps. After collecting rocks and water samples, they make charts and maps of what they discovered. Find out how geologists study rock layers and use fossils to help determine the age of rocks.

**Topic:** Earth scientists, Earth sciences

**Language:** English

**Lexile:** 980

**URL:** <http://www.factmonster.com>

Add to this List

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## [Rocks, Rocks, and More Rocks](#)

Grade Level:



From chalk to glass, rocks are all around you. An aluminum baseball bat is made from rocks. The soil or sand beneath your feet is composed of rock. Rocks are used to make jewelry, cars, airplanes, and sandpaper. Examine the layers of the Earth. Find out how rocks are classified. What type of rock frequently contains fossils? What type of rock is formed by heat and pressure? Rocks change and move slowly over time through weathering or erosion. Discover how minerals are identified. Learn how stalactites and stalagmites form.

Topic: Geology, Rocks, Gems

Language: English

Lexile: 870

URL: <http://idahoptv.org>

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## [Oceans](#)

Grade Level:



You know that oceans are big, but this article puts the size of the earth's oceans in perspective. Not only will you learn about the size of oceans, but you will learn how they are divided, and how the ocean was formed. The bottom of the ocean is discussed as well as its salt content, zones, and related voyages to vast depths. Information on the study of the ocean is also provided along with some of the problems that are faced in regards to pollution and overfishing. A photo gallery is also available for you to browse.

Topic: Ocean, Ocean layers

Language: English

Lexile: 970

URL: <http://old.glossopedia.org>

## The Earth's Atmosphere

Grade Level:



The atmosphere that surrounds Earth protects us from dangerous ultraviolet radiation. The atmosphere is made of nitrogen, oxygen, and other gases which become thinner as they gradually reach space. The atmosphere is divided into five layers. The troposphere is near the surface and is where weather occurs. The stratosphere is where planes fly and where the ozone layer is. The mesosphere is where meteors burn up and is very cold. The thermosphere includes the ionosphere and can be hot due to solar activity. The exosphere is the top of the atmosphere where atoms escape into space.

Topic: Atmosphere

Language: English, Spanish

Lexile: 930

URL: <http://www.windows2universe.org>

## Lakes

Grade Level:



Big or small, deep or shallow, lakes can be found in many places. Ponds are shallow lakes with plants rooted on the bottom. Over thousands of years, lakes with dry out or fill with sediment and disappear. Even oceans can dry out, sometimes leaving behind a saltwater lake. New lakes will form during earthquakes or in volcanic craters. Some of Earth's lakes were carved as glaciers dug holes and others occurred when craters from meteorites filled up with water. Study lake layers and how they affect water temperature.

Topic: Lakes

Language: English

Lexile: 930

URL: <http://www.nhptv.org>

## Earth

Grade Level:



There is much more to learn about Earth than other planets because we live here and because it is the only planet we know of that can support life. This article tells you about Earth in regards to its place in the solar system, how the earth was formed, the changes that have taken place on earth, and the layers of the earth. You will find information on amazing land features, life on Earth, and exploring and studying the earth. A list of fast facts and a photo gallery are available for you to browse as well.

Topic: Earth (Planet)

Language: English

Lexile: 960



URL: <http://old.glossopedia.org>

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### [If Rocks Could Talk](#)

Grade Level:



If rocks could talk, they would have a story to tell about the history of the Earth. Join us to interview six rocks to learn about their stories. First up is a meteorite, a rock from another planet that didn't completely burn up travelling through Earth's atmosphere. Next, meet a conglomerate who has travelled through the rock cycle. Greet a piece of granite that was formed five miles beneath the Earth's surface, carried by a giant glacier, and deposited on the ocean floor. Limestone hides fossils within its layers while obsidian is made of volcanic glass.

Topic: Rocks--Identification, Petrology, Rock collecting

Language: English

Lexile: 870



URL: <http://www.amnh.org>

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### [Microscopic Fresh Water Crustaceans](#)

Grade Level:



This web site features microscopic water crustaceans. On this site you can read about and view which crustaceans can be found in fresh water. Click on the thumbnails to view more detailed illustrations of these creatures. Learn about how these fossilized animals are important to the study of ancient earth layers. For some hands-on activities, visit the Pond Life Identification Kit link.

Topic: Crustaceans

Language: English

Lexile: 810

URL: <http://www.microscopy-uk.org.uk>[Blue Sky- Why Is the Sky Blue?](#)

Grade Level:



To understand why the sky is blue and sunsets are red, students can learn about the earth's atmosphere on this web site, which answers these questions with an explanation of the composition of the earth's atmosphere. A detailed summary of light waves, the colors of light, and the movement of light through the air explains the blue of the sky and the red of a sunset. Additional facts about the atmosphere and its layers are included, along with some ideas for projects.

Topic: Atmosphere, Light--Wave-length, Sky

Language: English

Lexile: 860

URL: <http://www.sciencemadesimple.com>[Lightning Formation](#)

Grade Level:

In calm weather, positive and negative charges are scattered throughout the sky. In the clouds, ice crystals and hailstones have different charges. Updrafts and downdrafts cause the charges to separate into layers. A negative charge at the bottom of the cloud reacts with the positive charge on the surface of the Earth. The charge rushes to the Earth as a stepped ladder and returns to the cloud as lightning. Find out more about how lightning forms.

Topic: Lightning, Atmospheric electricity

Language: English, Spanish

Lexile: 910

URL: <http://www.windows2universe.org>

### [Why Does the Temperature of the Atmosphere Vary?](#)

Grade Level:



Find out about the temperatures of the atmosphere from a real scientist! This scientist was asked a question about the different temperatures in the different layers of the atmosphere. He answered the question and put it online so you could also read the answer. If you don't know one of the words you can find the definition. There is also a graph that shows you what the temperatures are in each layer of the atmosphere. Links to more information are also provided.

Topic: Atmospheric temperature

Language: English

Lexile: 870

URL: <http://www.windows2universe.org>

### [The Rock Identification Key](#)

Grade Level:



If you are a rock collector, this identification key will be helpful to you. The guide begins with a definition of rocks and then describes the three different types of rocks. Understand the process of the rock cycle and learn which minerals form rocks. There are tips for anyone who wants to collect rocks and some guidelines for safety while collecting. There are instructions for using the Rock Key. Find a rock and try using the key to see what you have!

Topic: Rocks--Identification, Rock collecting

Language: English

Lexile: 860

URL: <http://www.minsocam.org>

### [Tropical Rainforest](#)

Grade Level:



Tropical rainforests grow near the equator and are home to a diverse population of plants and animals. This article tells you about tropical rain forests and tells you why it is a good thing that they need a lot of water. You will find an interactive feature that shows you the layers of the tropical rainforest, you will learn the importance of tropical rainforests, and why there is so much biodiversity. Information on the plants and animals found in tropical rainforests is provided along with information on the uses, threats, and conservation efforts related to the world's rainforests.

Topic: Rainforests

Language: English

Lexile: 940



URL: <http://old.glossopedia.org>

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### [Density of Ocean Water](#)

Grade Level:



If you have ever gone swimming in the ocean, you probably know that the water is salty. Compare the density of pure water and ocean water. Find out why ocean water is denser as you learn about how much salt is in the water. Think about why less dense water floats on the ocean. If you dove down in a submarine, the water would get denser the deeper you traveled. Try an experiment with salt water, tap water, food coloring, and a golf ball to learn more about water density.

Topic: Water--Density

Language: English, Spanish

Lexile: 930

URL: <http://www.windows2universe.org>

 Add to this List

### [Sinkholes by Caitlyn, Meredith and Margi](#)

Grade Level:



In Southeast Minnesota, sinkholes are everywhere. Some appear practically overnight and others have been there long enough for trees to grow in them as farmers plow around them. Caitlyn, Meredith, and Margi went exploring sinkholes and looking for clues as to how they formed. The larger sinkholes had debris and a drain in the bottom. One drain led to an underground cave. Limestone was found in every sinkhole. They even found fossils in the bottom of a sinkhole. Make a model sinkhole.

Topic: Sinkholes

Language: English

Lexile: 880

URL: <http://pbskids.org>

### [All About Geology](#)

Grade Level:

Discover the many different specialties within the field of geology. If you think geologists study rocks, you are only partly right. Some geologists study the Earth's interior, the ocean floor, or even the geology of other planets. Geologists study what's happening beneath the Earth's surface and how the Earth originated. Investigate the age of the Earth and explore what scientists can learn from rocks. Look at eons, eras, and epochs as you study geologic time. Find out why the Grand Canyon is like a library for geologists. Examine the properties of rocks, magma, and lava as you study volcanoes.

Topic: Geology

Language: English

Lexile: 940

URL: <http://www.pbs.org>

### [What is Air?](#)

Grade Level:

Not only will you discover the components of air, but in this report you will also find out how much air is used by children and adults every day. In addition to learning about air, you will also find information on the atmosphere. There are facts about its location, its purpose, and its size. The layers of the atmosphere are described and you will discover what can be found in each layer. A labeled illustration of the atmosphere is included as well.

Topic: Air (Composition)

Language: English

Lexile: 860

URL: <http://www.bcairquality.ca>

### [Mud Worth More Than Gold](#)

Grade Level:



Find out why the ancient muck beneath Antarctica is so valuable. Costly to retrieve, it is worth more than its weight in gold. The layers of mud come from the bottom of an ancient lake far beneath the ice. This muck might reveal the answers to mysteries about ancient organisms. To reach the mud, engineers had to drill a hole half a mile deep. Hoping for a mud sample in the same way a fisherman hopes for a fish, they pulled up the cable. Scientists found the shells of diatoms, creatures that use photosynthesis and need sunlight to survive.

Topic: Soils, Soil biology

Language: English

Lexile: 990

URL: <https://student.societyforscience.org>

### [How Hot Is the Sun?](#)

Grade Level:



The sun is one big nuclear fusion plant, burning millions of tons of hydrogen every second! This fusion gives off heat and light that help sustain life on Earth. Because the Earth is ninety-three million miles away, that is just the right distance for humans to be able to live. If the Earth were closer, we would cook; if it were further away, we would freeze. The hottest thing on the planet is lava, which can reach 2,200 degrees Fahrenheit. The surface of the sun is 10,000 degrees Fahrenheit, and the sun's core is 3.6 million degrees Fahrenheit!

Topic: Sun

Language: English

Lexile: 960

URL: <http://wonderopolis.org>

### [Digital Lighting Goes Organic](#)

Grade Level:



Incandescent bulbs and fluorescent tubes have lit up homes, schools, and businesses for many decades. While incandescent bulbs lose most of their energy as heat, fluorescent tubes contain toxic mercury. There must be a better option. Glowing sculptures, windows, ceilings, or walls might provide the next generation of programmable lighting. Organic light-emitting diodes don't require the vacuum or gases found in bulbs and tube lighting. LEDs, like those in your computer screen, use electroluminescence. OLEDs are flexible sheets instead of flat wafers.

Topic: Electric lighting

Language: English

Lexile: 950



URL: <https://student.societyforscience.org>

 Add to this List

### [Pacific Rim of Fire](#)

Grade Level:



A diagram that offers evidence for seafloor spreading also reveals the volcanoes that are located around the rim of the Pacific Ocean. This brief fact sheet reveals that this area is also an area that experiences many earthquakes as well. The connection between the volcanoes and subduction is made and you will learn the name for the volcanoes around the Pacific Rim. You will notice that diagram has highlighted the earth's boundaries or plates as well.

Topic: The Ring of Fire

Language: English, Spanish

Lexile: 880

URL: <http://www.windows2universe.org>

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### [Meet Dinosaur Expert Sue Hendrickson](#)

Grade Level:



As a paleontologist, Sue Hendrickson searches for fossils and discovered the biggest Tyrannosaurus Rex skeleton in the world. As a marine archeologist, she searches for shipwrecks and ancient underwater cities. Each search starts with research. Archived documents like diaries and ships' logs narrow the search. A type of metal detector led them to one ship's anchor and cannons. Like a time capsule or treasure chest, the shipwreck contained coins and ceramics. While looking for fossils, she searches for the thin layers of rock that might have preserved prehistoric bones.

Topic: Paleontologists

Language: English

Lexile: 930

URL: <http://www.scholastic.com>[Who Killed the Woolly Mammoth?](#)

Grade Level:

6-8

9-12

To uncover the mystery behind the mammoth's extinction, scientists trace debris from a meteor that could have caused an apocalypse of cosmic proportions. The cosmic impact may have been the equivalent of one hundred nuclear bombs. The meteor likely impacted the Laurentide Ice Sheet. The thick layer of ice may be why they never found an impact crater. See experiments in re-creating the impact craters and how ice may have formed a shield for the Earth's surface. The heat and shrapnel are the deadly part.

Topic: Meteorite craters

Language: English

Lexile: 900

URL: <http://www.watchknowlearn.org>[Do Reindeer Live Outside the North Pole](#)

Grade Level:

Pre K-2

3-5

6-8

You might be surprised to learn that reindeer live in other places than the North Pole. Reindeer herds live in Northern Asia, Europe, Siberia, Alaska, Canada and Greenland. Reindeer in North America are called "caribou." Reindeer don't stay in one place for very long; in fact, a herd can travel up to 3,000 miles in just one year! Reindeer are used to living in cold environments, and their fur coats have two layers of different types of hair to help keep them warm and dry. Since their food sources are often buried in snow, their noses help them find food.

Topic: Reindeer

Language: English

Lexile: 950

URL: <http://wonderopolis.org>

## [What's in the Air?](#)

Grade Level:



You can tell when someone is baking cookies even if you can't see them because of the scent in the air. This fact sheet explains how the air plays an important role in your ability to smell. It also points out that there are many things in the air that you cannot smell and explains how scientists can detect these molecules. First you will learn about volatility and find some examples of chemicals with high volatility. Information on these chemicals in layers of the atmosphere can also be found along with information on the impact of chemicals on health.

Topic: Air (Composition)

Language: English

Lexile: 910

URL: <http://www.unsignedmysteries.oregonstate.edu>

## [Wetland](#)

Grade Level:



If you ever see an area that is flooded or water-soaked and covered with water plants, you can bet that it is a wetland. You will learn all about wetlands in this article and find out why they are so important to the environment around them. You will learn about the different types of wetlands, the different layers of the wetland, the species that are native to wetlands, and the threats that could harm the wetlands. Information on conservation efforts can also be found along with a list of fast facts, a photo gallery, and videos.

Topic: Wetlands

Language: English

Lexile: 980

URL: <http://old.glossopedia.org>

## [How Rocks and Minerals are Formed](#)

Grade Level:



See how rocks and minerals are formed as you explore this site from Rocks for Kids. You will find out how the crust of the earth is like the shell of an egg. Learn the difference between a rock and a mineral, and find out the importance of soil. The rock cycle is explained, and the three main types of rocks are described. See what qualities make up igneous, sedimentary, and metamorphic rocks. Erosion is also defined.

Topic: Minerals, Rocks

Language: English

Lexile: 820

URL: <http://rocksforkids.com>



### [The Alvin](#)

Grade Level:



There are some places in the ocean that are too deep for a diver to go. The pressure is extreme when you are miles below the surface of the sea. The Alvin is an underwater submersible designed for exploring deep sea trenches and the ocean floor. More than 10,000 scientists have taken a ride in Alvin to study underwater geology, chemistry, and biology. They search for shipwrecks and discover unusual creatures like the tubeworm that lives near hydrothermal vents.

Topic: Underwater exploration

Language: English

Lexile: 890



URL: <http://www.windows2universe.org>



### [Earth Rocks On](#)

Grade Level:



Solid ground provides a firm footing under our feet. The rocks and continents seem unchanging. Over millions and billions of years, the ground has actually been slipping and sliding under our feet. Scientists investigate how the shape of the continents and the ocean's floor has changed. Researchers believe the Earth's surface was once molten from asteroid bombardment. As the Earth's surface cooled, a crust formed. Discover how some parts sank back into the magma and reformed. In other parts of the Earth, scientists have found parts of the crust that are still billions of years old.

Topic: Earth (Planet)--Surface

Language: English

Lexile: 950

URL: <https://student.societyforscience.org>



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### [Mercury: The Hot Planet](#)

Grade Level:



The closest planet to the Sun, Mercury is really hot, at least on the side that faces the Sun. There is a side of Mercury that faces away from the Sun. In spite of being so close to the Sun, the temperature on that part is 640 degrees colder than the part that faces the Sun. The planet rotates very slowly, taking 58 Earth days to rotate once. Mercury gets bombarded with space dust and asteroids that Earth's atmosphere would burn up. Learn about Mercury's magnetic field. Find out why it's hard to see Mercury in the sky.

Topic: Mercury (Planet)

Language: English

Lexile: 950

URL: <http://www.cosmos4kids.com>



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### [Scientists Who Study Rocks](#)

Grade Level:



Geologists study rocks. There are many different types of rocks on Earth, and there are many different kinds of geologists, too. Mineralogists study minerals, paleontologists study fossils, and structural geologists study rocks and plate tectonics. Learn more about these scientists and their specific field of study on this informative Web page. Be sure to click onto the different terms printed in blue for additional information on each topic. You also have the opportunity to read about several famous geologists on this site.

Topic: Geologists

Language: English, Spanish

Lexile: 840

URL: <http://www.windows2universe.org>



Sun

Grade Level:



We need the sun to keep us warm, for plants to grow, and to create patterns in weather and sleep. The sun is very important and this article tells us exactly what the sun is. It explains what the sun is made of, how it was created, and how the sun produces energy. You will learn about sun storms and related events, what you need to do to protect yourself from the sun, and how the sun is celebrated. A list of fast facts, a photo gallery, and a joke are included in the article as well.

Topic: Sun

Language: English

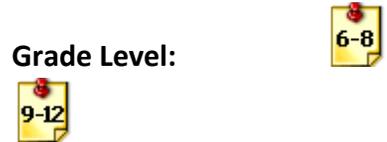
Lexile: 890

URL: <http://old.glossopedia.org>

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Global Warming and Greenhouse Gases

Grade Level:



Imagine Earth as one big greenhouse, surrounded by a protective atmosphere instead of glass. This article explains how greenhouses work to trap natural light and regulate temperature so plants will grow, and discusses how Earth's atmosphere behaves in the same way to make life on the planet possible. It goes on to discuss how the production of too many greenhouse gases has contributed to global warming.

Topic: Global warming, Greenhouse gases

Language: English

Lexile: 910

URL: <http://www.humantouchofchemistry.com>

A button with a green checkmark icon and the text 'Add to this List'.

The Atmosphere

Grade Level:



Both the structure and the composition of the atmosphere are explained at this web site. Learn about the four different layers of the atmosphere. There is both an explanation of and an image of the layers. Find out why temperature and pressure decrease with height. Read about the different

gases found in the atmosphere and see which gas is the most abundant. Two graphs show the concentration of the different atmospheric gases. Greenhouse gases are also discussed.

Topic: Atmosphere, Earth (Planet), Air (Composition)

Language: English

Lexile: 830

URL: <http://www.nc-climate.ncsu.edu>



### [Cloud Types](#)



Clouds are grouped according to the height of the bottom of the clouds from the ground. The high clouds are cirrus, cirrocumulus, and cirrostratus. Click on each picture to learn more about them, for example, cirrus clouds are often called 'mare's tails' because of their long, wispy appearance. The middle clouds are altostratus and altocumulus, which are made of ice crystals and water droplets. Learn to read the weather by identifying the clouds. The low clouds include stratus, stratocumulus and nimbostratus. Click on the level you are: beginner, intermediate or advanced.

Topic: Clouds--Identification

Language: English, Spanish

Lexile: 870



URL: <http://www.windows2universe.org>



### [All About Human Skin: Structure and Functions](#)



Skin protects your insides and helps keep germs out. The outside layer, the epidermis, has hair and pores. The surface of the epidermis has dead skin cells. The inside layer, the dermis, has nerves and blood vessels. Melanin makes some people's skin darker than other people's skin, and gives other people freckles. Your skin can sweat to cool your body. Find out why your skin might turn red. Discover why it doesn't hurt to cut your hair.

Topic: Skin

Language: English

Lexile: 820



URL: <http://easyscienceforkids.com>



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### [Learning about Uranus](#)

Grade Level:



One of four gas giants in our solar system, Uranus is far from the Sun. We don't know a lot about this distant planet but one Voyager probe did fly by it. Its blue color is from the methane in its atmosphere. While the Earth spins at a slight tilt, Uranus spins on its side. Swirling storms keep the surface of the planet smooth, even after an asteroid hits. Hydrogen takes a different form on Uranus than on other gas giants.

Topic: Uranus (Planet)

Language: English

Lexile: 960

URL: <http://www.cosmos4kids.com>

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### [Alpine](#)

Grade Level:



The alpine biome covers approximately 16% of the earth's surface. Alpine biomes are found in mountain regions worldwide, including the Andes, Alps, and Rocky Mountains. Since this region is at a high altitude, the weather is colder. A few animals adapted to this climate are chinchillas, ptarmigan, and the snowshoe rabbit. Read about the weather of this region, the plants that grow in the alpine region, and the animals that live in the alpine biome on this Web page.

Topic: Mountain ecology, Mountain plants, Mountain animals

Language: English

Lexile: 930

URL: <http://kids.nceas.ucsb.edu>

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### [Rising Tide: Will Climate Change Drown Coastal Wetlands?](#)

Grade Level:



Coastal wetlands are being threatened by rising sea levels. Federal flood insurance has led developers to build on land adjoining salt marshes when coastal areas are full. These houses and restaurants are built just out of the reach of high tide. Over the next 50 years, many of these areas may flood and become salt marshes. Flood walls or dredging simply moves the problem somewhere else. The ocean layers are warming from the effects of the Industrial Revolution, causing thermal expansion. Realize that a one inch rise in sea level can impact 100 inches from the shoreline.

Topic: Sea level, Natural resources--South Carolina

Language: English

Lexile: 930

URL: <http://www.scseagrant.org>



## Mammoths

Grade Level:



When Estonian farmers first found big bones in their fields, they thought the bones belonged to enormous burrowing animals. Maa Mutt means earth mole, so these extinct animals came to be called mammoths. Related to today's elephants, they were the biggest land mammals. Elephants live in tropical climates but woolly mammoths could live in colder places during the Ice Age. Identify three types of mammoths and discover where else their fossil remains have been found. Find out why scientists think mammoths might have been left or right-tusked. Investigate why mammoths might have become extinct.

Topic: Mammoths

Language: English

Lexile: 900

URL: <http://idahoptv.org>



## Volcanic Ash

Grade Level:



Volcanic ash is one of the underestimated hazards of a volcanic eruption. It can travel for thousands of miles in the air, cause plane engines to stall, cause roofs to collapse, and have a terrible effect on breathing. A table illustrates the various sizes of ash particles. Find out about the properties of ash and how it can form columns, plumes, and fields. Read about the impact of ash on humans, buildings, agriculture, communications, water supply, and transportation. Hover over the pictures and map to see a larger version.

Topic: Volcanic ash

Language: English

Lexile: 980

URL: <http://geology.com>

Add to this List

### [Can We Make It to Mars?](#)

Grade Level:

6-8

9-12

To make it to Mars, we would need healthy space food that would keep for years instead of going bad in a few days. Next-generation spacesuits need to be easier to work and walk in than the bulky spacesuits used in the past. The spacecraft would need to withstand meteorites and cosmic radiation. Astronauts would need a way to prevent muscles and bone deterioration. Artificial gravity may provide something that exercise cannot. Biomimicry may help engineers to pressurize a spacesuit that can also provide mobility. Speeding up the trip is important for carrying fewer supplies.

Topic: Space flight, Space biology

Language: English

Lexile: 890

URL: <http://www.pbs.org>

Add to this List

### [Snow](#)

Grade Level:

3-5

6-8

Not only is snow is a fascinating and beautiful form of precipitation, but it can sometimes cause problems for people. This article explains the important purpose of snow and how each flake is formed. It tells you where in the world it snows, where snow never melts, and terms used to describe snow. Information on avalanches and blizzards can be found along with information on animals that have adapted to snowy climates. The uses of snow are also discussed and you will find a list of fast facts, a photo gallery, and videos.

Topic: Snow, Snowflakes

Language: English

Lexile: 960

URL: <http://old.glossopedia.org>

Add to this List

[How Do You Build a Road?](#)

Grade Level:



It's much easier to travel from one place to another when there is a road to use. Watch this video to see a road built from start to finish. You can learn about all the people and equipment it takes to build a road. First you will learn about the planning stage and who is involved. Learn about the different stages of construction and why the first part is one of the most important. Explore the different materials it takes to build a road. Take the Wonder Words challenge!

Topic: Roads--Design and construction

Language: English

Lexile: 940

URL: <http://wonderopolis.org>[Kings of Camouflage](#)

Grade Level:



Quite possibly the oddest creature in the ocean, the cuttlefish is also the brainiest, according to NOVA's web companion to Kings of Camouflage. The cuttlefish can change its appearance, speed away from dangers, and create decoys of itself to flummox predators. Learn more about this bizarre cephalopod through the four features (comprising video, text, and images) at this site: Quick Change Artists (how the cuttlefish alters its appearance), Anatomy of a Cuttlefish, Spineless Smarts (an animal behaviorist reflects on what the cuttlefish can teach us about human intellect), and Mating Trickery.

Topic: Cuttlefish

Language: English

Lexile: 920

URL: <http://www.pbs.org>[A Biography of Carole Marsh](#)

Grade Level:



Meet author Carole Marsh on the web page of her company Gallopade. In her words, Ms. Marsh tells about her childhood, her education, and her interest in writing. Find out why she always had the sharpest pencils in the class and how she learned to read even though she was legally blind. She shares some of her favorite books and explains how she pursued her dream to become a writer. Discover how successful she has become with her mysteries, her state trivia books, and other projects. Her enthusiasm for books is contagious.

Topic: Marsh, Carole, American children's literature

Language: English

Lexile: 840



URL: <http://www.gallopade.com>

Add to this List

### [What Is Fluoride?](#)

Grade Level:



Fluoride is known for fighting tooth decay and is usually in toothpaste, but it could also be in your tap water at home, too. Fluoride comes from the common element fluorine, which exists naturally in many sources of water. Bacteria breaks down the sugar remaining on your teeth after you eat, turning it into an acid. The way fluoride helps your teeth is that it prevents the acid that bacteria produces from dissolving the enamel on your teeth. Flossing and regular teeth brushing with a fluoride toothpaste helps fight plaque, a clear film caused by bacteria build up.

Topic: Water fluoridation, Fluorine, Teeth--Care and hygiene

Language: English

Lexile: 990

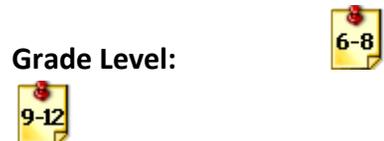


URL: <http://wonderopolis.org>

Add to this List

### [How to Grow the Tomato and 115 Ways to Prepare it for the Table](#)

Grade Level:



George Washington Carver published a guide to growing and preparing tomatoes and for human consumption and you have the opportunity to read that guide. It begins with facts about the publication of the guide and a list of the benefits of growing tomatoes. It includes step by step instructions on how to grow tomatoes beginning with selection of soil all the way to harvesting. It addresses problems that may arise and lists 115 different ways to prepare tomatoes.

Topic: Carver, George Washington, Tomatoes

Language: English

Lexile: 920

URL: <http://aggie-horticulture.tamu.edu>



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## Symbolism

Grade Level:



Writers like to use symbols to add interest and a deeper meaning to their work. For example, the use of particular animals, colors, or places in a story requires the reader to think deeper. It allows the author to provide more meaning to a story. For example, nighttime can symbolize death. A sunrise can symbolize a new beginning or birth. Read more about symbolism in literature and examine some of the examples offered on this online lesson.

Topic: Symbolism in literature

Language: English

Lexile: 930

URL: <http://www.studyzone.org>



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## How to Grow the Peanut and 105 Ways of Preparing it for Human Consumption

Grade Level:



When learning about George Washington Carver you will most likely learn that he was responsible for many publications related to his agricultural research. You have the opportunity to read one of Carver's publications on how to grow the peanut and prepare it for human consumption. The publication contains production and printing information and a long list of the benefits to growing peanuts. You will learn about the varieties of peanut, the necessary soil, and all of the steps leading up to harvesting. Nutritional information on the peanut is provided along with a list of 105 ways to use the peanut.

Topic: Carver, George Washington, Peanuts

Language: English

Lexile: 910

URL: <http://aggie-horticulture.tamu.edu>



[Human Hibernation](#)

Grade Level:

6-8

9-12

Medical miracles include stories of people buried in snow or drowned in icy water who are revived from the cold even though they weren't breathing and their heart had stopped beating. Find out why doctors sometimes intentionally induce hypothermia to mimic hibernation. After a cardiac arrest, a lower need for oxygen could be beneficial. Scientists are studying ground squirrels to learn about hibernation. The animals survive for months with their heart barely beating and their oxygen needs much lower. They wake up just fine. Meet a man who survived cardiac arrest, thanks to this new therapy.

Topic: Hypothermia

Language: English

Lexile: 900

URL: <http://www.pbs.org>
[Ask a Scientist](#)

Grade Level:

3-5

6-8

Scholastic's Science Explorers chats let you see what it's like to be a scientist. The scientist featured in this chat is Niles Eldredge, a paleontologist who works at the American Museum of Natural History. In the interview, Eldredge talks about what a paleontologist does and what they study. Learn why the Galapagos Islands are important to paleontologists and find out what new technology is used to find fossils. Discover what Eldredge has to say about the disappearance of the dinosaurs and about several other scientific topics.

Topic: Paleontologists, Eldredge, Niles

Language: English

Lexile: 980

URL: <http://teacher.scholastic.com>