



The Earth is surrounded by a bubble of gas known as the atmosphere. Many of the other planets in our solar system are also enclosed in gas bubbles, but the mixture of gases on Earth is unique. This mixture is called air. We cannot see the air in our atmosphere and we cannot smell it—but the air is there. We can feel air as it blows across our skin, and we breathe it in and out of our noses and mouths. But what is air really, and is it the same everywhere?

Air is made mostly of nitrogen and oxygen, with small amounts of argon, carbon dioxide, and other gases. Although air contains very little of these other gases, they can make a big difference in how easily we breathe.

The quality of Earth's atmosphere is not the same everywhere. In big cities, the air has more exhaust fumes from cars than in small towns. But air blows around and mixes, so that on a windy day the exhaust fumes from cars may seem to go away. In reality, the exhaust fumes are still there but are spread out over a greater space, and we don't notice them as much. In the past few years, chemists and other

scientists have been working on new fuels to reduce the amount of pollution in our atmosphere, so that we can breathe easier on high-traffic days.

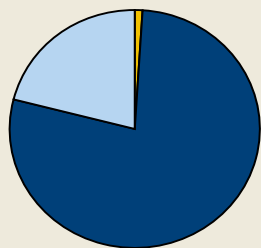
Many places on Earth have almost no air or very little of it. Although we cannot breathe at the bottom of the ocean, air is there. This air is mixed with the water, like gases in a can of soda. Fish can breathe the air in water because they have gills instead of lungs. Their gills let them pull the air out of the water, but our lungs do not. To go to the bottom of the ocean, we would need to take along a tank of air.

Very high mountaintops have more air than the ocean depths, but not enough for humans to breathe comfortably. That is because Earth's atmosphere is quite thin, with most of the air down near sea level. If we imagine the Earth as an orange, then we could say that the atmosphere is no thicker than the orange peel. As we climb up to a high mountaintop, the air gets thinner and there is less oxygen to breathe. Climbers on top of tall mountains like Mount Everest (8,850 meters above sea level) or K2 (8,611 meters above sea level)

have very little energy and must wear oxygen masks for part of each day.

No air is on the moon or in outer space. Astronauts must stay inside their spacecraft or put on space suits with tanks of air to breathe when they are away from Earth. Astronauts on Mars or Venus would find an atmosphere made of various gases, but it would not be air. There is no special name for the gas mixtures on other planets. The name "air" is reserved for planet Earth. Therefore, we simply refer to the gases surrounding Mars as the Martian atmosphere and the gases surrounding Venus as the Venutian atmosphere.

Earth's Atmosphere—Air



- Nitrogen
- Oxygen
- Argon, Carbon Dioxide, and Other Gases

