

Ecology

Ecology is the study of interaction of living organisms with their environment. The word *ecology* means “the study of homes.”

Air pollution effects on humans



People experience a wide range of health effects from being exposed to air pollution. Effects can be broken down into short-term effects and long-term effects. Short-term effects, which are temporary, include illnesses such as pneumonia or bronchitis. They also include discomfort such as irritation to the nose, throat, eyes, or skin. Air pollution can also cause headaches, dizziness, and nausea. Long-term effects of air pollution can last for years or for an entire lifetime. They can even lead to a person's death. Long-term health effects from air pollution include heart disease, lung cancer, and respiratory diseases such as

emphysema. Air pollution can also cause long-term damage to people's nerves, brain, kidneys, liver, and other organs. Some scientists suspect air pollutants cause birth defects.

Air pollution effects on the environment

Like people, animals, and plants, entire ecosystems can suffer effects from air pollution. Haze, like *smog*, is a visible type of air pollution that obscures shapes and colors. Hazy air pollution can even muffle sounds.

Air pollution particles eventually fall back to Earth. Air pollution can directly contaminate the surface of bodies of water and soil. This can kill crops or reduce their yield. It can kill young trees and other plants.

Sulfur dioxide and nitrogen oxide particles in the air can create *acid rain* when they mix with water and oxygen in the atmosphere. These air pollutants come mostly from coal-fired power plants and motor vehicles. When acid rain falls to Earth, it damages plants by changing soil composition; degrades water quality in rivers, lakes and streams; damages crops and can cause buildings and monuments to decay.

Like humans, animals can suffer health effects from exposure to air pollution. Birth defects, diseases, and lower reproductive rates have all been attributed to air pollution.

Smog is a complex mixture of chemicals of which the key ones are ground-level ozone and nitrogen dioxide.

Ozone is formed when pollutants from cars, industry and other sources react chemically in strong sunlight. These pollutants are commonly referred to as NO_x (oxides of nitrogen) and VOCs (volatile organic compounds).

NO_x is mainly made up of nitric oxide and nitrogen dioxide. These are primary pollutants emitted when fossil fuels are burnt, i.e. fuel in motor vehicles, coal in industry.

VOCs mainly come from unburnt petrol and diesel from motor vehicle exhaust, fuel vapors from petrol stations and petrochemical industries, vapors from paints, aerosols and solvents used in commercial and domestic activities, as well as natural emissions from vegetation and fires.

Ground-level ozone is the "bad" ozone. **Ozone** is a good thing in the stratosphere, around 10–50 km above the earth's surface, where the ozone layer offers some protection against damaging radiation from the sun.

Chlorofluorocarbons (CF₂Cl₂, CFCI₃) are a family of chemicals that do not occur in nature, but were produced in large quantities in the last century. These chemically inert compounds rise into the stratosphere and cause disruptions in the ozone layer.

