

Vocabulary List Answer Key

Fill in definitions for each term below. Save this list as a useful resource throughout the project.

gas-phase pollutant: A compound comprised of multiple atoms (such as carbon dioxide with 1 carbon and 2 oxygens) existing in the gaseous physical phase.

particulate matter: A microscopic solid or liquid compound that may be natural or human-made. Very small particulate matter may be a conglomerate of gas-phase compounds; larger particulate matter can be dust or pollen.

primary pollutant: A pollutant that is directly emitted by a source. For example, exhaust from a tailpipe or smokestack, material erupted from a volcano, or the CO₂ exhaled by humans.

secondary pollutant: A pollutant that is formed via atmospheric chemistry from the byproducts of primary emissions.

organic compound: In chemistry, any compound that contains carbon atoms. For example, living things are organic, while rocks are inorganic.

temperature inversion: When a warm air mass moves on top of a cold air mass, creating stagnate conditions, which can prevent dispersion and trap pollutants.

greenhouse gas: A gas in the atmosphere that absorbs certain wavelengths of light, thereby radiating that heat back into the atmosphere, as opposed to not absorbing the light so that it escapes the atmosphere.

Pollutants

carbon dioxide (CO₂): A gas-phase pollutant. Composed of 1 carbon atom and 2 oxygen atoms. Generated by the respiration of animals and the combustion (burning) of fuels that contain carbon. Abbreviated as CO₂.

nitrogen dioxide (NO₂): A gas-phase compound made of 1 nitrogen atom and 2 oxygen atoms. It is formed during high-temperature combustion from the nitrogen that exists in the air. High temperature combustion also makes NO. Together, NO and NO₂ are considered NO_x (NO + NO₂ = NO_x).

volatile organic compound (VOC): An organic chemical that has a high vapor pressure at ordinary room temperature, such that it volatilizes (enters the gas phase) at room temperature and pressure. An example is formaldehyde (CH₂O, 1 carbon, 2 hydrogens, and 1 oxygen atom). Abbreviated as VOC. VOCs are also gas-phase compounds. VOCs also include products of incomplete combustion (when a carbon-fuel is not completely burned, resulting in only CO₂).

hydrocarbon (HC): A compound that contains only carbon and hydrogen atoms. Another term for VOC.

ozone (O₃): A secondary pollutant formed by NO_x and VOCs in the presence of sunlight. Dangerous to human health at ground level, but high in the stratosphere it protects humans from harmful UV rays. Mnemonic: "good up high, bad nearby."

carbon monoxide (CO): A compound that is a product of incomplete combustion and is dangerous to human health. Composed of 1 carbon atom and 1 oxygen atom.

Air Quality Monitoring and Solutions

monitoring technology: In terms of pollution, technology and tools that engineers and scientists use to quantify exactly how much of a particular pollutant exists either indoors or outdoors.

control technologies: Technologies that capture or change pollutants in emissions from cars, factories, power plants, and oil and gas operations, thereby resulting in cleaner final emissions. Example: catalytic converters in cars.

mitigation: In terms of pollution, limiting the amount of a pollutant emitted or produced; this may be done through better technologies, regulation changes or attempts to change human behavior.