Greenhouse gases are atmospheric gases that trap heat, keeping the Earth's surface warmer than it would be otherwise. This process, known as the greenhouse effect, is essential for life, but human activities have significantly increased gas concentrations, leading to global warming.

Carbon Dioxide (CO_2): The most prevalent greenhouse gas emitted through human activities, primarily the burning of fossil fuels (coal, oil, and natural gas), deforestation, and cement production.
Methane (CH_4): Emitted during the production and transport of coal, natural gas, and oil. It also results from livestock farming, agricultural practices, and the decay of organic waste in municipal solid waste landfills.
Nitrous Oxide (N_2O): Emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste.
Fluorinated Gases: These are synthetic, powerful greenhouse gases emitted from a variety of industrial processes (such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride). They are often used as substitutes for stratospheric ozone-depleting substances.
Water Vapor: The most abundant greenhouse gas overall. While not directly increased by human activity in the same way as CO_2, a warmer atmosphere holds more water vapor, which further traps heat in a feedback loop.