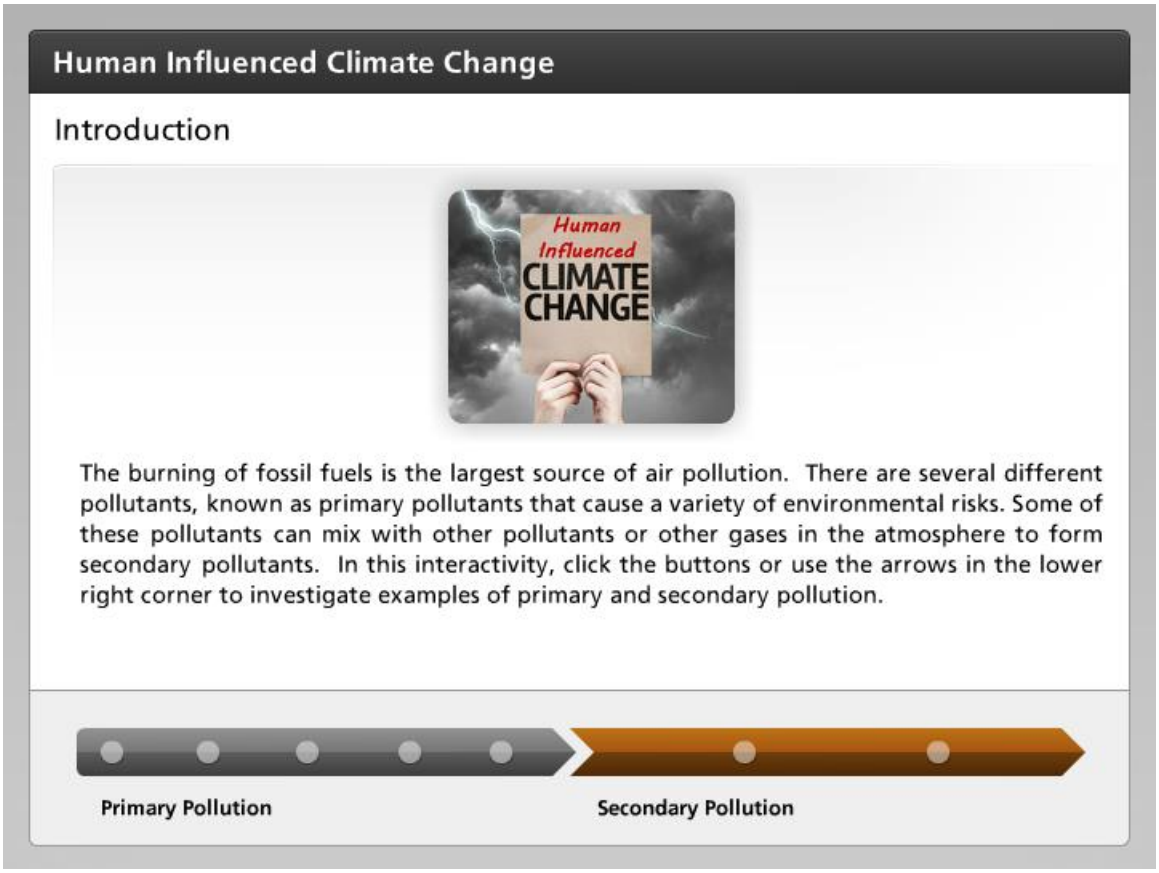
Module 11: Meteorology
Topic 7 Content: Human Influenced Climate Change Notes

Introduction



The burning of fossil fuels is the largest source of air pollution. There are several different pollutants, known as primary pollutants that cause a variety of environmental risks. Some of these pollutants can mix with other pollutants or other gases in the atmosphere to form secondary pollutants. In this interactivity, click the buttons or use the arrows in the lower right corner to investigate examples of primary and secondary pollution.

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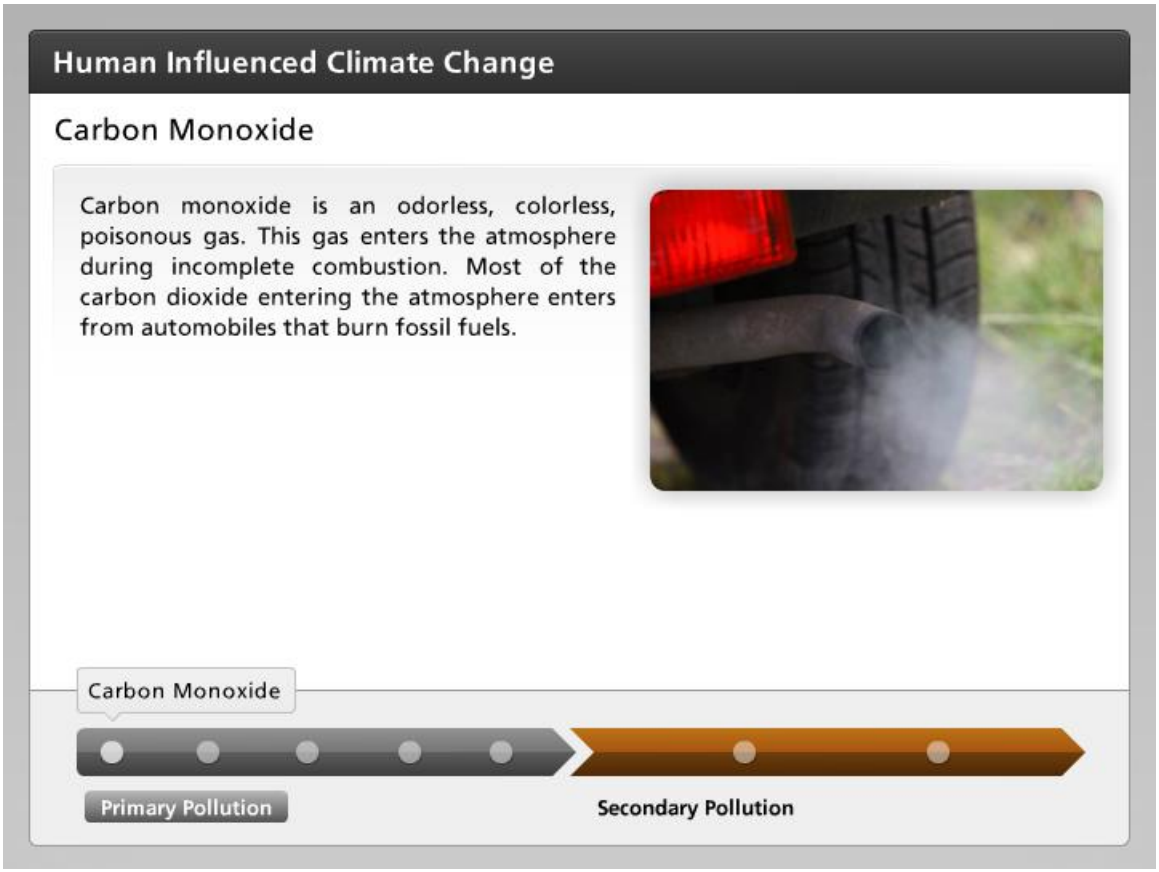
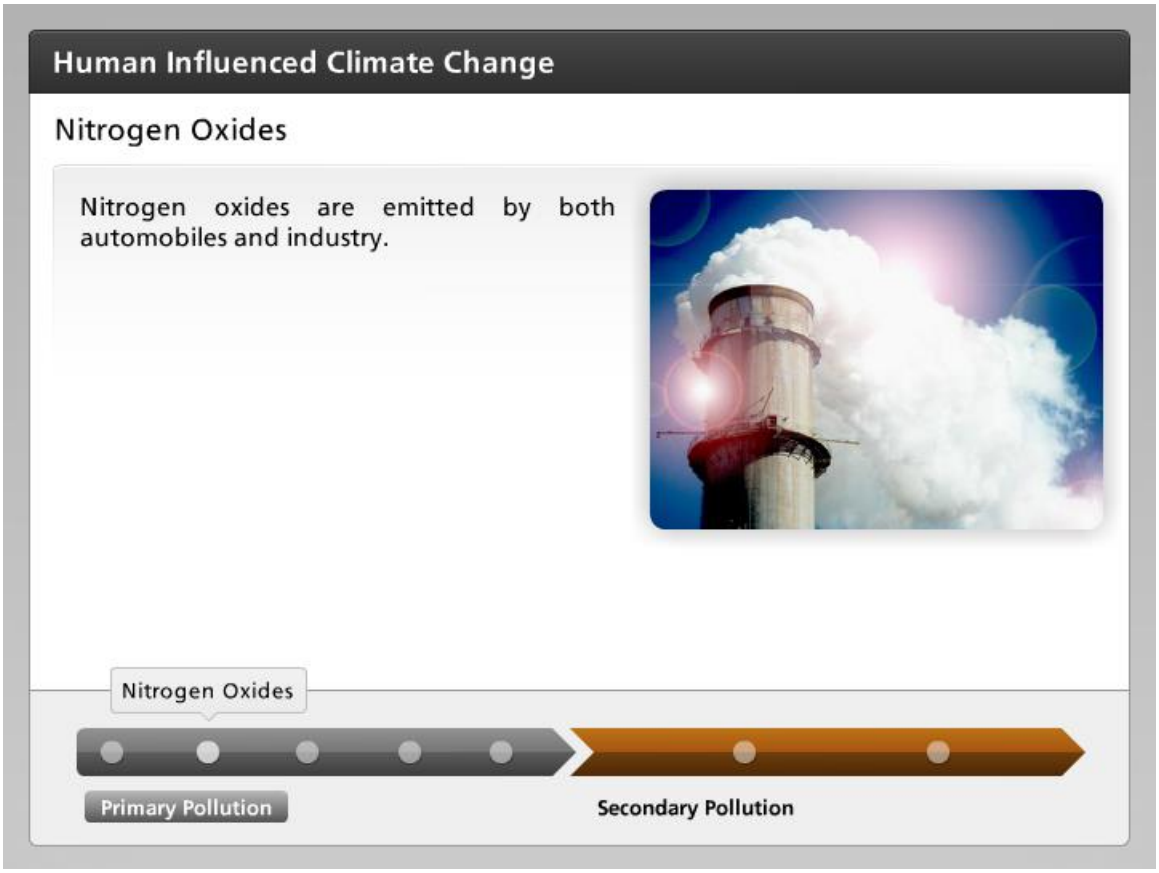
Carbon Monoxide



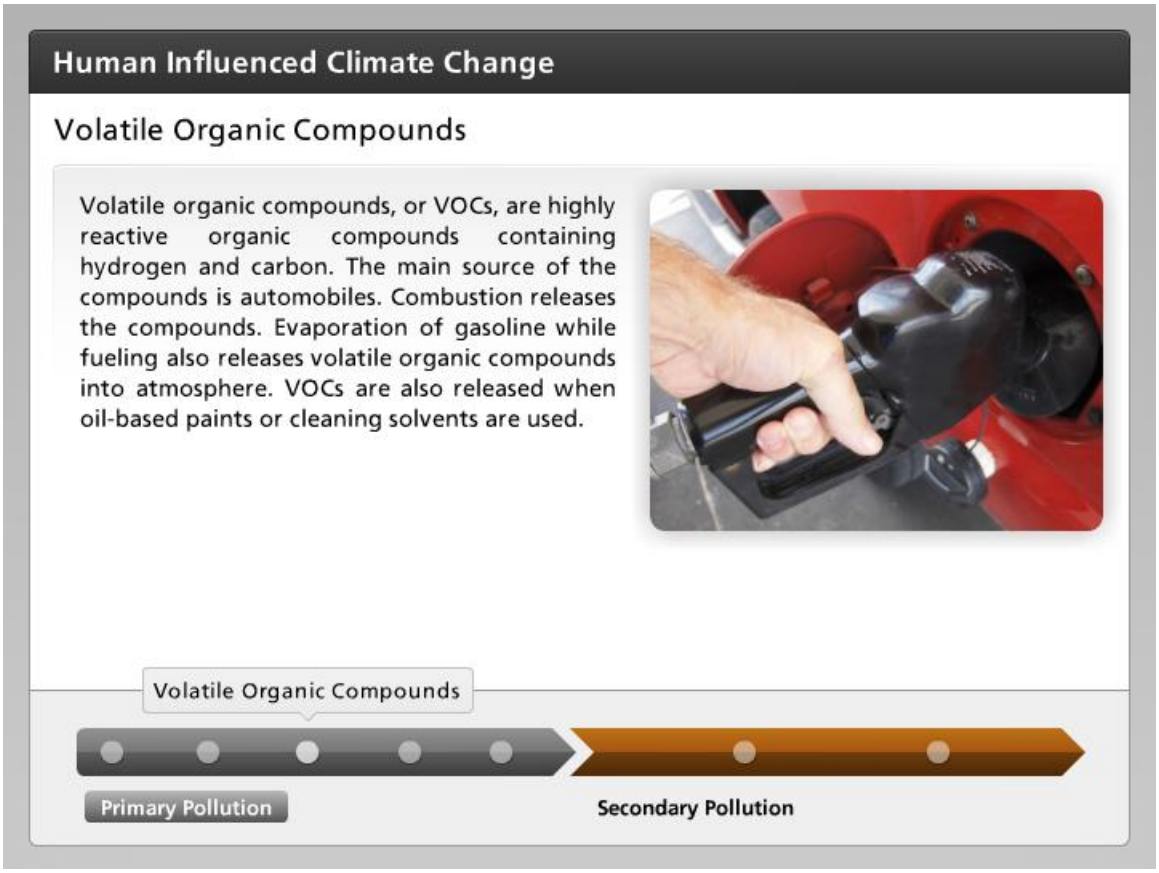
Carbon monoxide is an odorless, colorless, poisonous gas. This gas enters the atmosphere during incomplete combustion. Most of the carbon dioxide entering the atmosphere enters from automobiles that burn fossil fuels.

Nitrogen Oxides



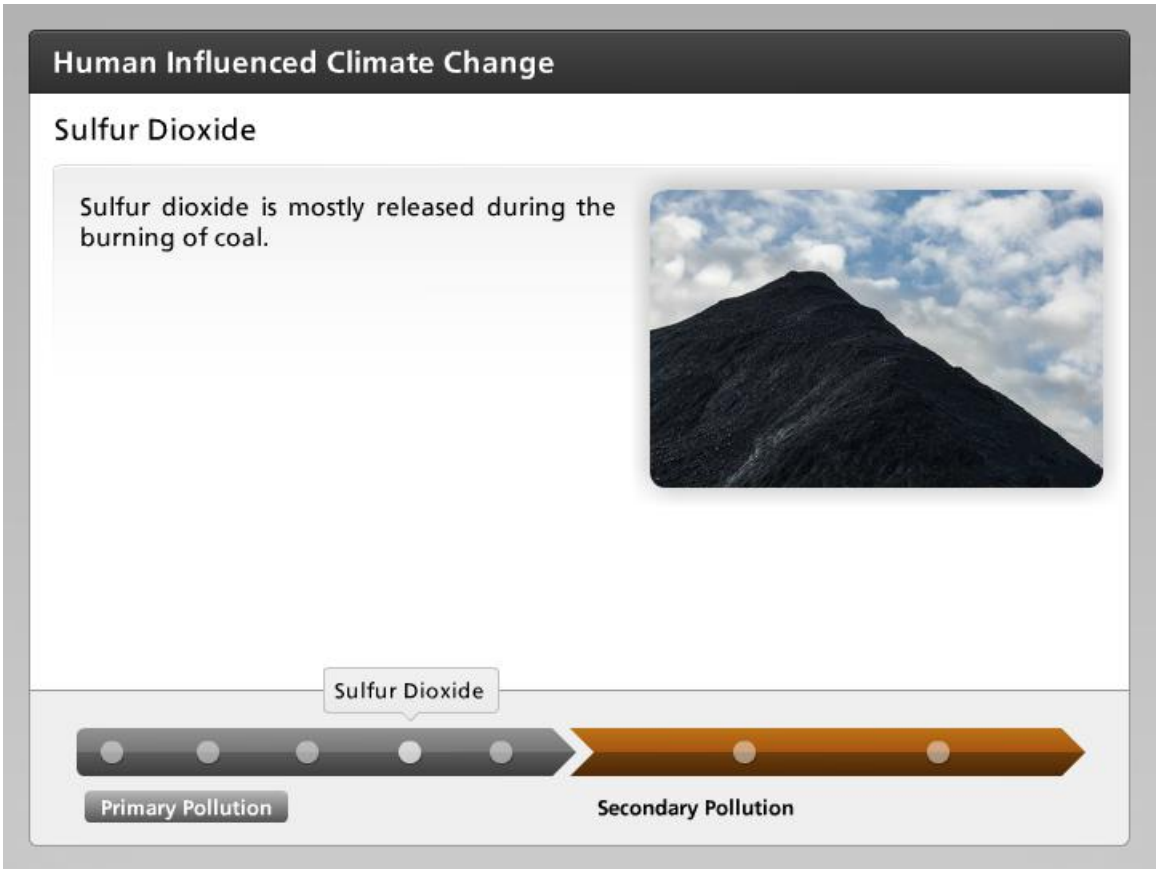
Nitrogen oxides are emitted by both automobiles and industry.

Volatile Organic Compounds



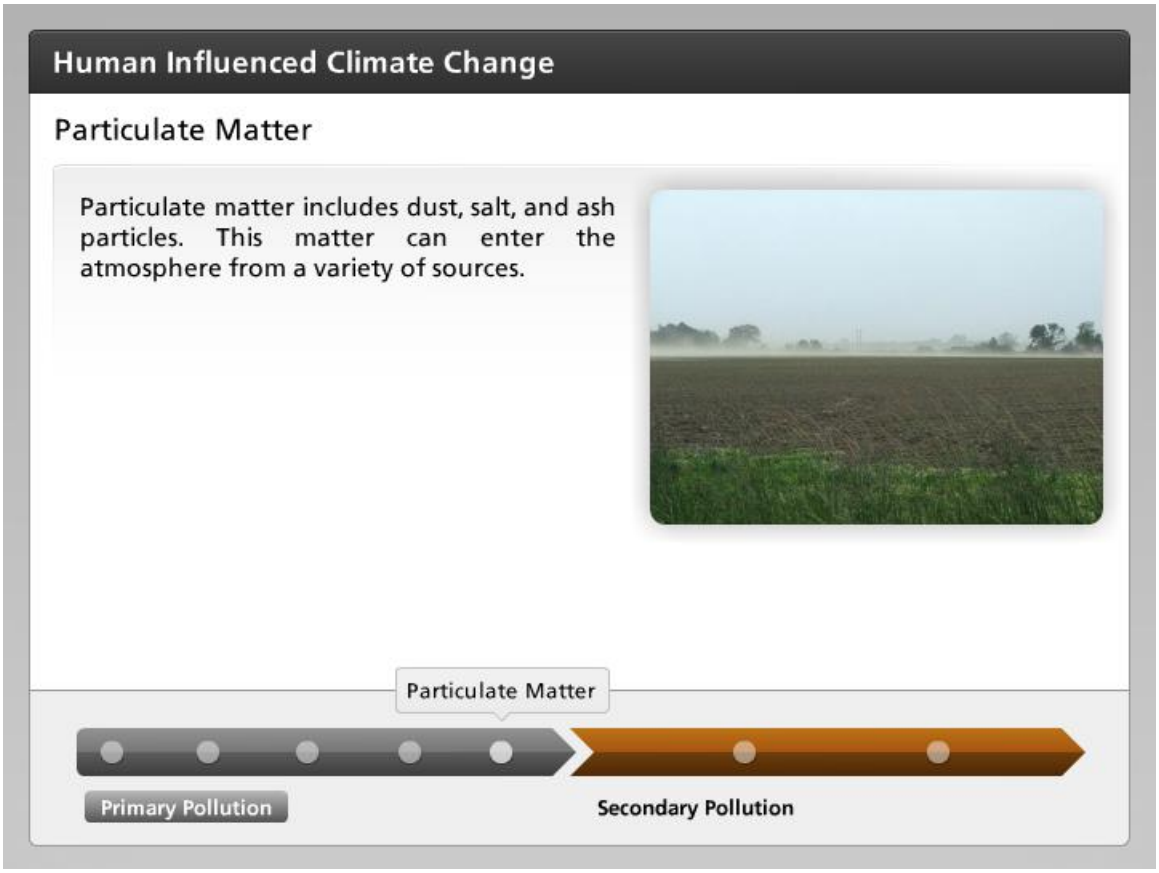
Volatile organic compounds, or VOCs, are highly reactive organic compounds containing hydrogen and carbon. The main source of the compounds is automobiles. Combustion releases the compounds. Evaporation of gasoline while fueling also releases volatile organic compounds into atmosphere. VOCs are also released when oil-based paints or cleaning solvents are used.

Sulfur Dioxide



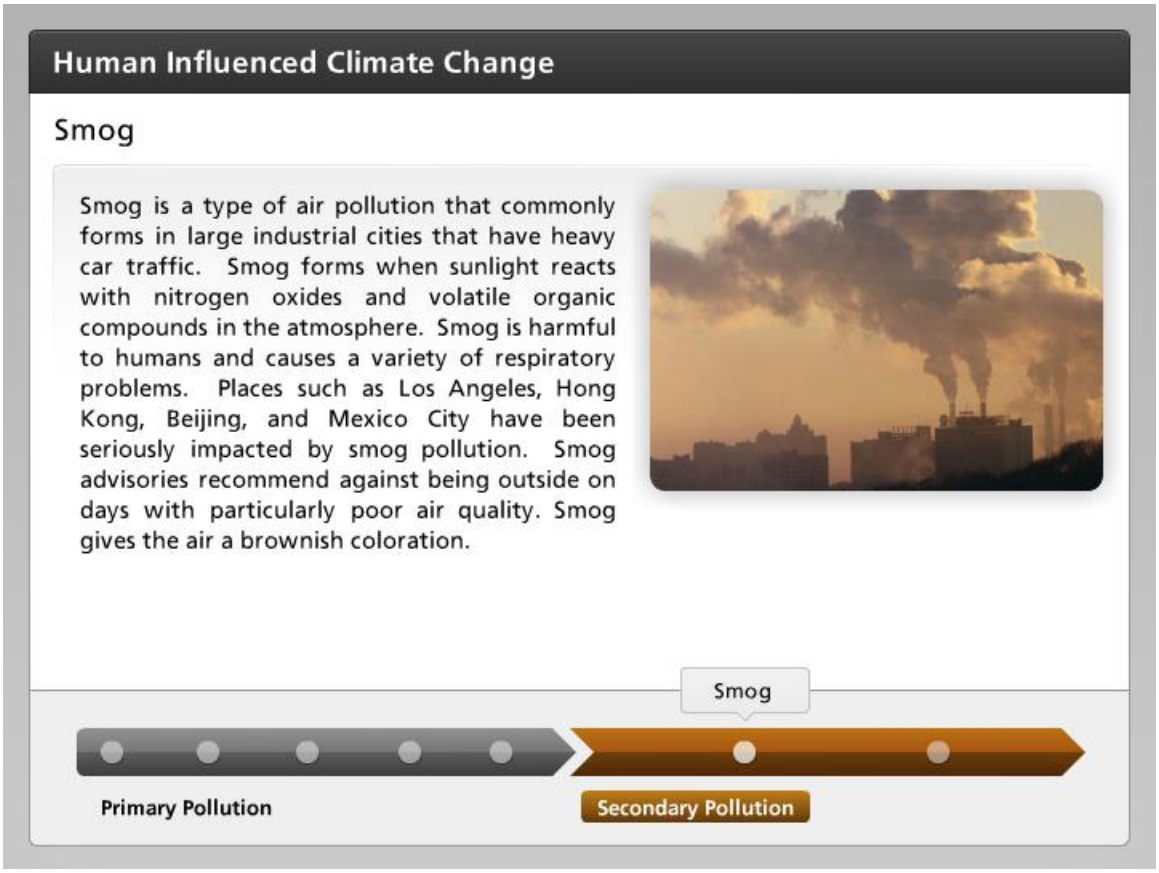
Sulfur dioxide is mostly released during the burning of coal.

Particulate Matter



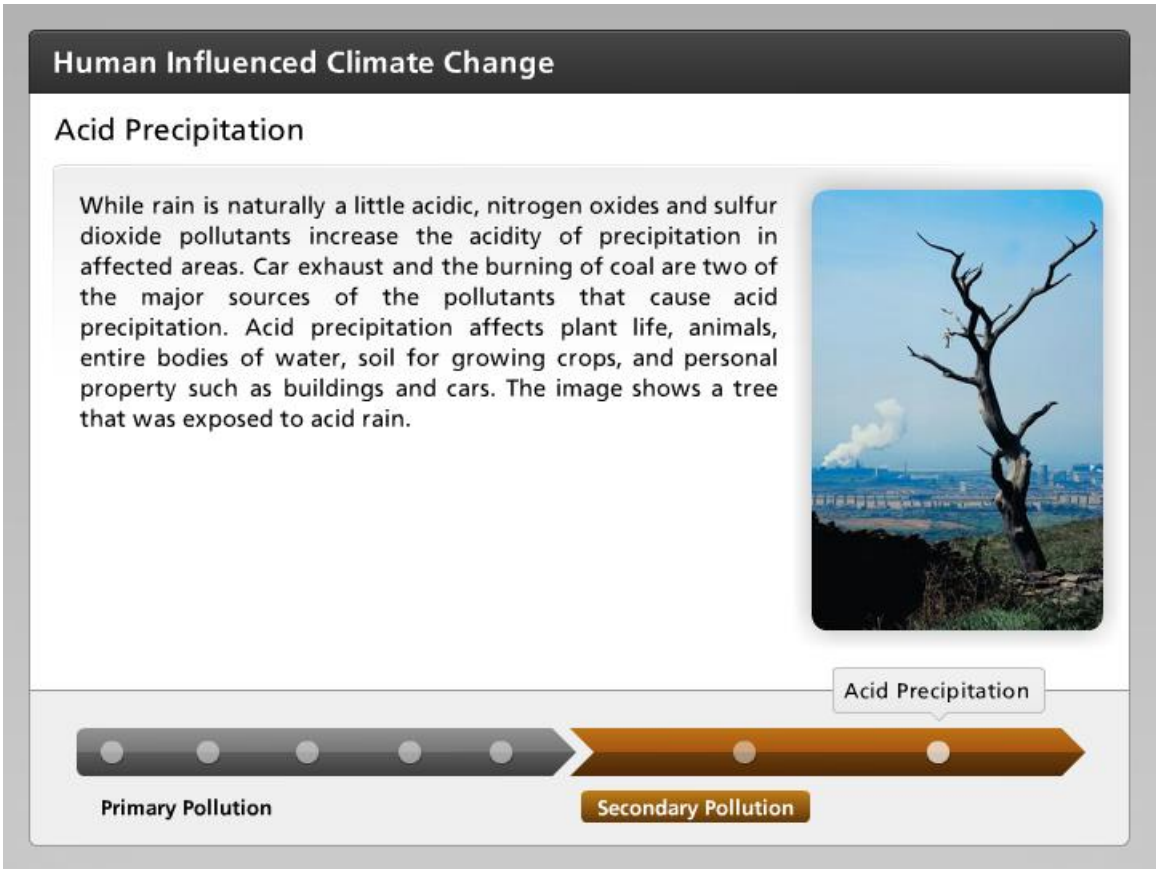
Particulate matter includes dust, salt, and ash particles. This matter can enter the atmosphere from a variety of sources.

Smog



Smog is a type of air pollution that commonly forms in large industrial cities that have heavy car traffic. Smog forms when sunlight reacts with nitrogen oxides and volatile organic compounds in the atmosphere. Smog is harmful to humans and causes a variety of respiratory problems. Places such as Los Angeles, Hong Kong, Beijing, and Mexico City have been seriously impacted by smog pollution. Smog advisories recommend against being outside on days with particularly poor air quality. Smog gives the air a brownish coloration.

Acid Precipitation



While rain is naturally a little acidic, nitrogen oxides and sulfur dioxide increase the acidity of precipitation in affected areas. Car exhaust and the burning of coal are two of the major sources of the pollutants that cause acid precipitation. Acid precipitation affects plant life, animals, entire bodies of water, soil for growing crops, and personal property such as buildings and cars. The image shows a tree that was exposed to acid rain.