

# 1/14/15

**46** A scientist investigates the effect of carbon dioxide on plant height. The scientist grows plants in several closed containers. All the plants receive the same amounts of water and light, but the air in each container has a different amount of carbon dioxide. What is the independent variable in this experiment?

- F** the amount of carbon dioxide in each container
- G** the number of plants in each container
- H** the amount of water provided to the plants
- J** the height of each plant after a period of time

**You must explain why your answer is correct.**

**Please write the page number in your book that supports your explanation.**

**Use the index of your book to help you.**

# Homework

# Pollution

## Chapter 12 section 2

Evaluate how human activities affect the condition of the earth's land, water and atmosphere. 0707.7.9

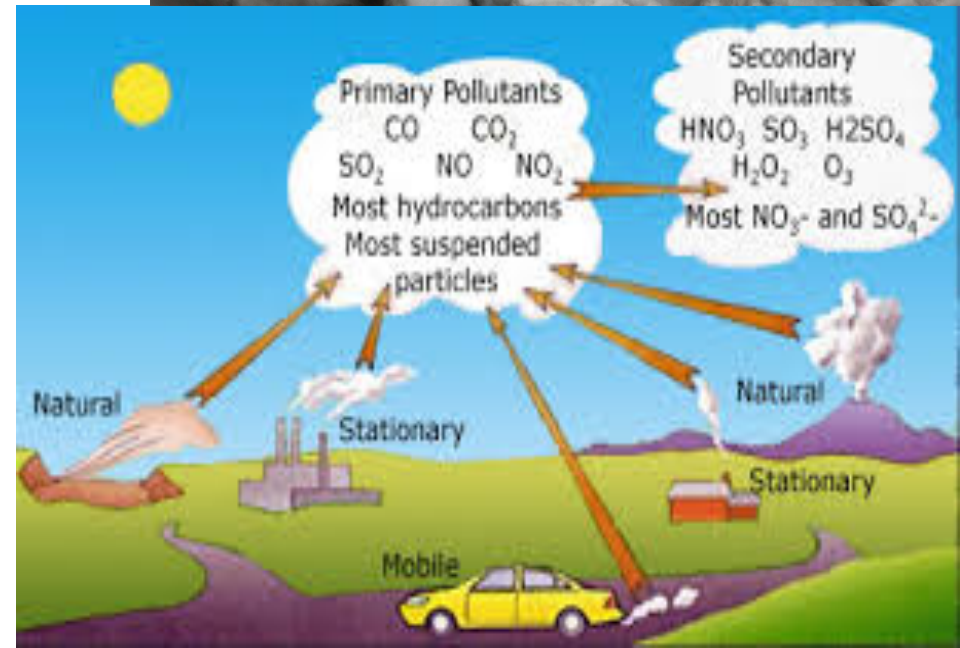
# What mastery looks like!

**Performance Indicator:**      **0707.7.7 Analyze and evaluate the impact of man's use of earth's land, water, and atmospheric resources.**

- 25** Which is the most likely effect of a rise in global temperatures caused by human activities?
- A** rising sea levels
  - B** more earthquakes
  - C** fewer tropical storms
  - D** increased soil erosion

# Air Pollution

- A pollutant is a substance that contaminates the environment.
  - What does contaminate mean?
- Air pollutants include soot, smoke, ash, and gases such as carbon dioxide, carbon monoxide, nitrogen oxides, and sulfur oxides.
- Cars, trucks, airplanes, factories, homes, or power plants cause air pollution.
- Air pollution also can be caused by volcanic eruptions, wind-blown dust and sand, forest fires, and the evaporation of paints and other chemicals.



- Smog is a form of air pollution created when sunlight reacts with pollutants produced by burning fuels.

- It can irritate the eyes and make breathing difficult for people with asthma or other lung diseases.

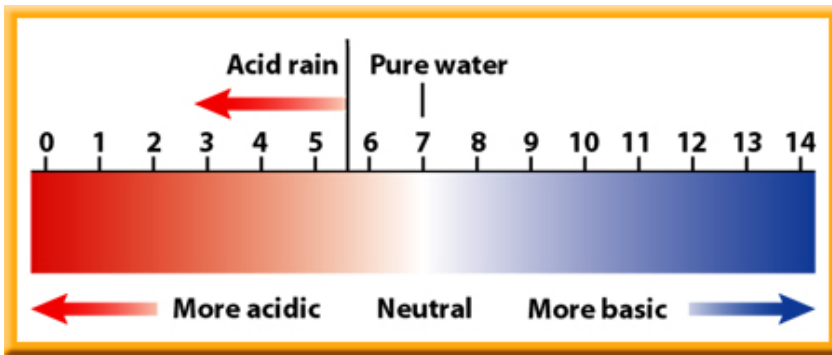


[https://www.youtube.com/watch?v=JVcFps\\_gWpk](https://www.youtube.com/watch?v=JVcFps_gWpk)



# Acid Precipitation

- Air pollutants from the burning of fossil fuels can react with water in the atmosphere to form strong acids.
- Acidity is measured by a value called pH.
- Acid Precipitation has a pH below 5.6.

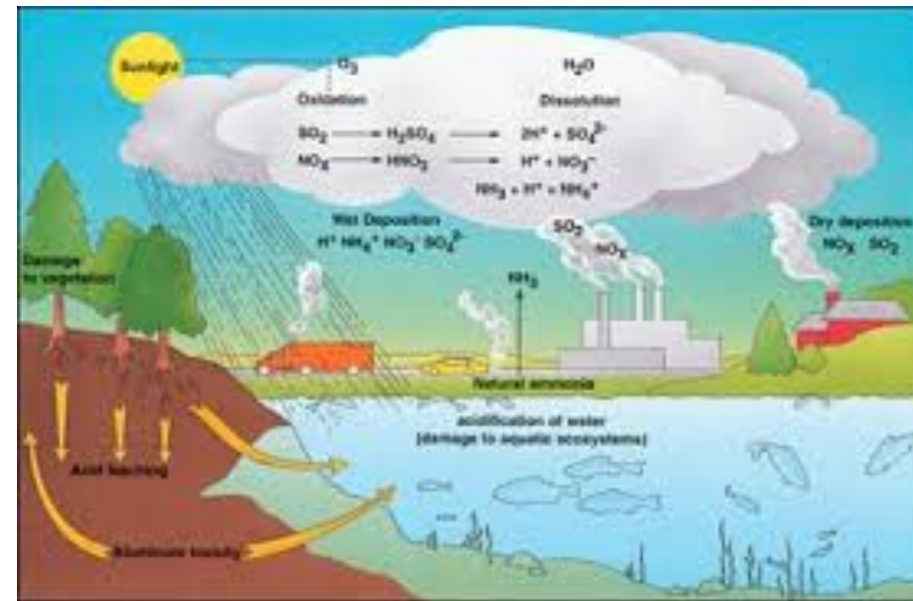


*A geyser, like the one shown here in Yellowstone National Park, is also a natural source of acid.*



# Effects of Acid Rain

- Acid precipitation washes nutrients from the soil, which can lead to the death of trees and other plants.
- Runoff from acid rain that flows into a lake or pond can lower the pH of the water.
- If algae and microscopic organisms cannot survive in the acidic water, fish and other organisms that depend on them for food also die.

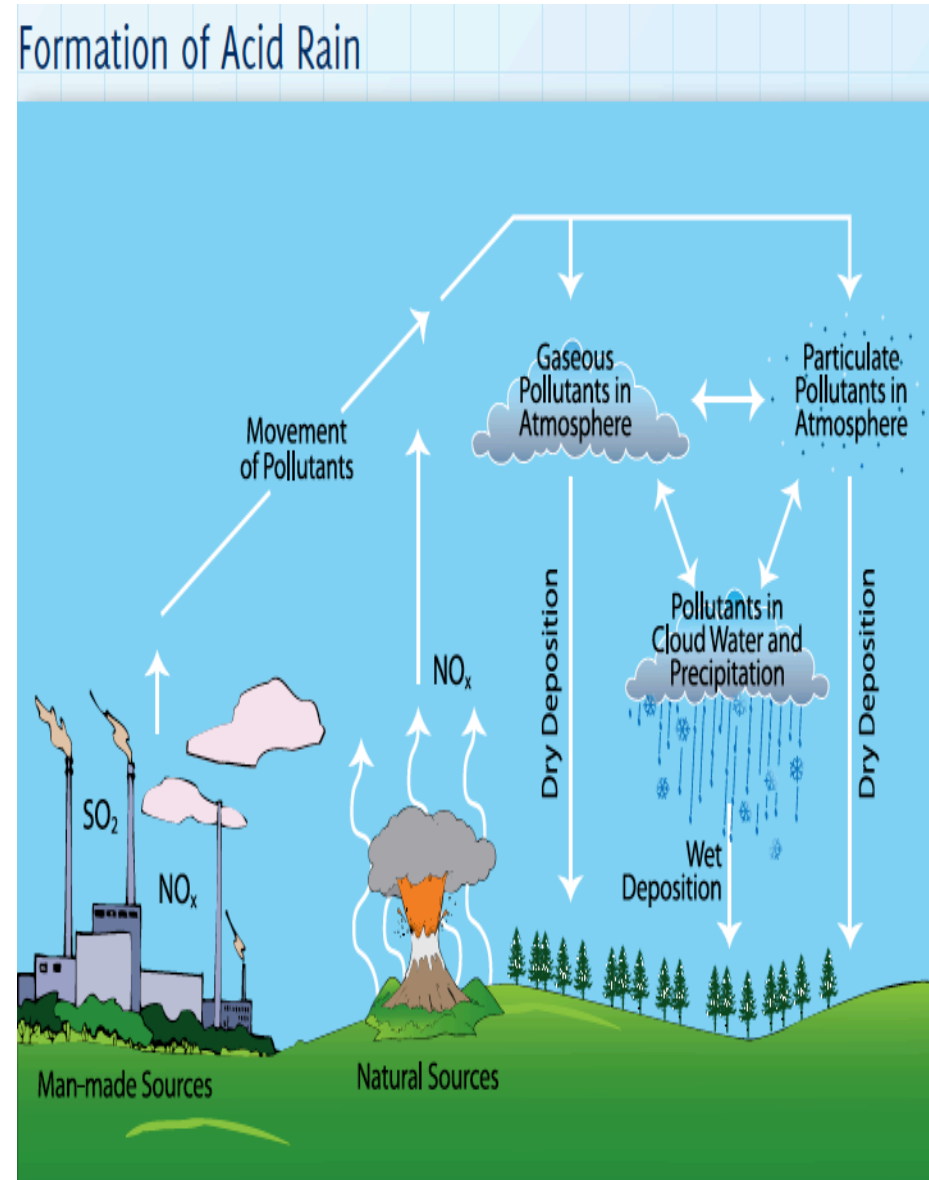




# Preventing Acid Rain

<http://channel.nationalgeographic.com/channel/videos/acid-rain-invisible-menace/>  
3:53

- Sulfur from burning coal and nitrogen oxides from vehicle exhaust are the pollutants primarily responsible for acid rain.
- Using low-sulfur fuels, such as natural gas or low-sulfur coal, can help reduce acid precipitation.
- However, these fuels are less plentiful and more expensive.



# Preventing Acid Rain

- Smokestacks that remove the sulfur dioxide before it enters the atmosphere also help.
- Reducing automobile use and keeping car engines properly tuned can reduce acid rain caused by nitrogen oxide pollution.
- The use of electric cars, or hybrid-fuel cars that can run on electricity as well as gasoline, also could help.
- <https://www.youtube.com/watch?v=nCyhwcs2wog>  
3.07 minutes
- What are some ways that you can prevent acid rain?

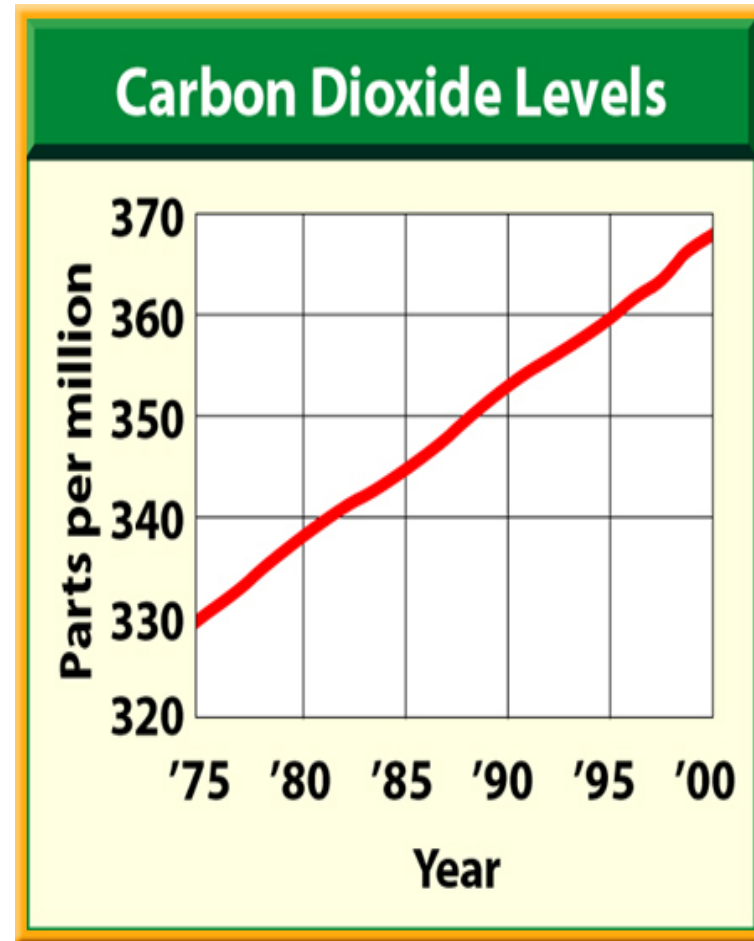


# Greenhouse Effect

- When sunlight travels through the atmosphere some is reflected back into space.
- The rest is trapped by certain atmospheric gases.
- <https://www.brainpop.com/science/earthsystem/greenhouseeffect/>
- This heat-trapping feature of the atmosphere is the greenhouse effect.
- Without it, temperatures on Earth probably would be too cold to support life.

# Greenhouse Effect

- Atmospheric gases that trap heat are called greenhouse gases.
- One of the most important greenhouse gases is carbon dioxide (CO<sub>2</sub>), a normal part of the atmosphere.
- It is also a waste product that forms when fossil fuels are burned.
- Over the past century, more fossil fuels have been burned than ever before, increasing CO<sub>2</sub> in the atmosphere.
- The atmosphere might be trapping more of the Sun's heat, making Earth warmer.
- A rise in Earth's average temperature is known as global warming.



How does knowing the Carbon Dioxide levels every 5 years help scientists?

# Quiz Time

- Whiteboard, marker, and eraser
- <https://www.brainpop.com/science/earthsystem/greenhouseeffect/quiz/>

# Exit Ticket

- Write down one things that you learned today and one thing that you want to learn more about.
- Place the note on the board before you leave.