

March 16, 2015

Warm-Up

Today you will need your notebook and pencil.
Homework Page due Friday.

- How do you contribute to air pollution?

Air Pollution

March 16, 2015

Video: Contributing to Air Pollution

- <https://www.youtube.com/watch?v=jT7t5bMAkI>
- 3:20

Air Pollutant

Defined:
Substance in the air that can cause harm to humans and the environment

Can be solid particles, liquid droplets, or gases; natural or man-made

Examples of Air Pollutants

Six Common Pollutants

- Carbon Monoxide
- Ground-level Ozone
- Lead
- Sulfur Dioxide
- Particulate Matter
- Nitrogen Dioxide



Major Sources of Air Pollutants

What do you think the four major source areas are?

Whiteboards

Source	Percentage
Cars & Trucks	38%
Non-Road Engines	23%
Household & Other Products	21%
Industry	18%

Sulfur Dioxide (SO₂)

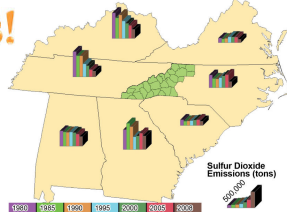



Air Pollutant	Major Sources	Environmental/Health Effects
Sulfur Dioxide (SO ₂)	Industry that make paper or fuel; Combustion (burning) of fossil fuels	Precursor to acid rain, which damages lakes, rivers, trees; damage to cultural relics

Sulfur dioxide emissions from coal-fired power plants

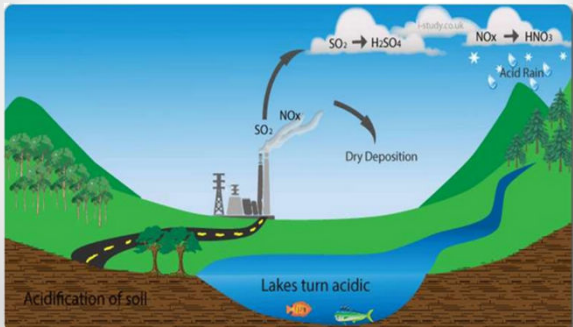
Good News!

Decreasing levels in states near Western North Carolina!




Acid Rain

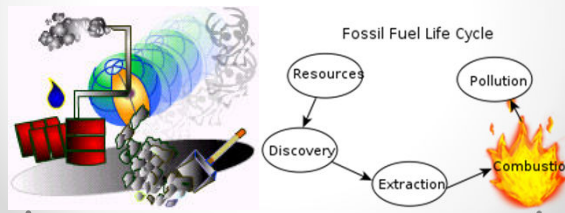
- Defined:** Precipitation that is unusually acidic (low pH)





Fossil Fuels




- Defined:** General term for organic materials that are combusted (burned) for fuel
- Examples:** Oil, Coal, Natural Gas




Nitrogen Dioxide (NO₂)

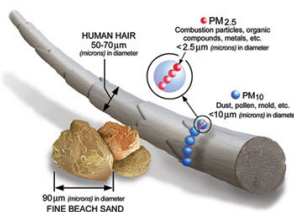
Air Pollutant	Major Sources	Environmental/Health Effects
Nitrogen Dioxide (NO ₂)	Combustion (Burning) of fossil fuels	Precursor to acid rain



Particulate Matter (PM)



Air Pollutant	Major Sources	Environmental/Health Effects
Particulate Matter (PM)	Vehicles; Industry; Fires	Visibility; Respiratory Problems



Carbon Monoxide (CO)




Air Pollutant	Major Sources	Environmental/Health Effects
Carbon Monoxide (CO)	Vehicles; Burning fossil fuels	Human Health: Dizziness, headaches, fatigue, extreme exposure leads to death

 CEMETARY
 FURNACE
 ATTACHED GARAGE
 FIREPLACE
 WATER HEATER
 INDOOR GRILLING
 RANGE HOOD
 CLOTHES DRYER
 PORTABLE HEATER



POTENTIAL SOURCES OF CARBON MONOXIDE IN THE HOME

CARBON MONOXIDE KILLS DON'T LET IT BE YOU

ANYONE CAN BE AT RISK

- Kim (21) and her baby were poisoned by her oil heater.
- Edith (82) collapsed and died from carbon monoxide poisoning caused by her coal-fired stove.
- Alli (1) killed by carbon monoxide from a faulty gas fire.
- Jake (20) died because his landlord missed the annual gas safety checks.
- Rhona (88) killed by her badly-fitted gas boiler, installed by an unqualified engineer.
- Her grand-daughter Olivia (2) also died.
- Rex tried to ring the alarm.

PROTECT your family with annual safety checks
CONNECT an audible carbon monoxide alarm
REJECT appliances fitted by unqualified people
SUSPECT CO poisoning if you recognise the signs

Lead

Air Pollutant	Major Sources	Environmental/Health Effects
Lead	Vehicles (burning leaded gasoline)	Fish/animal kills

Good News!

USA's environmental protection agency has set regulations to remove lead from gasoline in the 1980s. This is why you see signs for unleaded gasoline!

Smog

- Defined:** Yellow/Black-ish fog formed by a mixture of pollutants
- Application:** Often caused by heavy traffic, high temperatures, sunshine and calm winds.

Volatile Organic Compounds (VOCs)

Air Pollutant	Major Sources	Environmental/Health Effects
Volatile Organic Compounds	Vehicles; industrial processes	Smog precursor

Meet the VOCs

Health Concerns:

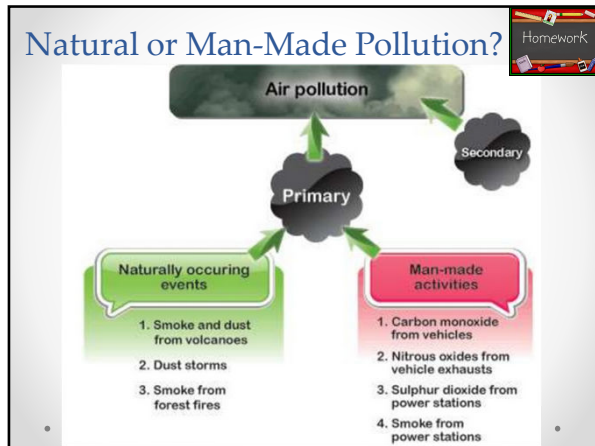
- headaches
- loss of coordination
- nausea
- eye, nose, and throat irritation

Learn more at WildMintShop.com/Learn

- Ground level ozone – Major Source:** Formed from reaction of NO_x and VOCs

Health Effects

Health effects of pollution



Review

Whiteboards

- Which direction do the westerlies blow across the united states?
- What major country lies to the west of us across the pacific ocean?

China



Video: Air in China

- <https://www.youtube.com/watch?v=16b-GJ5a2H0>
- 1:30

Humans Impact on the Atmosphere

- Our industries and form of transportations overall have greatly impacted the atmosphere

Hope!

- U.S. and China join in plan to cut air pollution, hope others follow

The Right to Breathe

- <https://www.youtube.com/watch?v=B1M894GH4q4>
- In your notebook:

Air Pollution

- 1. One thing I found interesting
- 2. Two things I learned