Directed Reading for **Content Mastery**

Overview Our Impact on Water and Air

Directions: Complete the concept map using the terms in the list below.

pesticide runoff

carbon monoxide

sulfurous smog

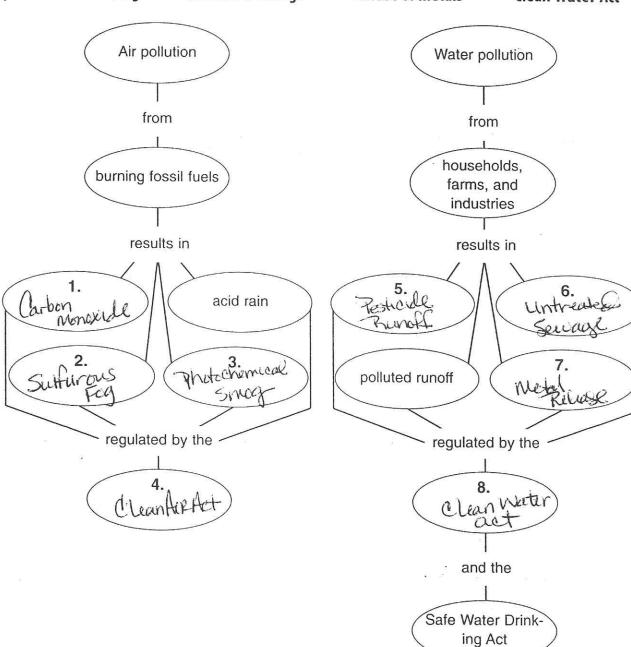
Clean Air Act

photochemical smog

untreated sewage

release of metals

Clean Water Act



Directed Reading for Section 1 = Water Pollution

Directions: Use the terms and clues below to complete the crossword puzzle.

sediment

point source

acid rain

algae

lead

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water pollution

Clean Water Act

sewage

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Across

- 2. A danger to streams and lakes
- 5. Largest source of water pollution
- 6. A law to protect our water
- 8. A water pollutant that can damage the nervous system

Down

- 1. Pollution from a specific location
- 3. Can decrease the pH of lakes and streams
- 4. Household wastes that often pollute water
- 7. Can grow too much when fertilizers are present

Directed Reading for Section 2 = Air Pollution

Directions: Explain how each situation below increases air pollution.

1. On a crowded highway, each car contains only the driver.

More Exhaust produced to pollute

2. A community allows residents to burn leaves in an open fire.

Adds Smoke to pollute Air

3. A temperature inversion occurs, and warm air traps cool air near the ground.

causes pollutants to accumulate in our air we breath

4. A power plant burns coal that is high in sulfur.

with moisture to create Sulfuric Acid in

Directions: Explain how each situation below reduces air pollution.

5. People who live close to their workplace ride bicycles to work on nice days.

Cuts down on Fossil Fuel use

6. A factory uses windmills to produce some of its electricity.

Alternate Energy Sources Cuts down pollution

7. A power plant passes smoke through a scrubber.

Passing Smoke thru a Scrubber removes
Sulfur

8. Countries signing the Montreal Protocol agree to phase out chlorofluorocarbons (CFCs).

Cuts down on CFC's destroying 02 one Layer

Key Terms Our Impact on Water and Air

Directions: Match the terms in Column II with the descriptions in Column I. Write the letter of the correct term in the blank at the left.

Column I

- 1. substance with a pH above seven
- 2. chemical used by farmers and homeowners
- 3. fine solids in the air that irritate and damage the lungs
- 4. removes sulfur by dissolving gases in water
- 5. pollution entering water from a specific location
- 6. substance with a pH lower then seven
- 7. pollution entering water over a large area
- 8. water containing human waste
- 9. pollution that can corrode buildings and lower the pH of lakes and streams
- __ 10. a gas you can't see or smell that replaces oxygen in the blood
 - 11. forms when nitrogen and oxygen compounds react with the help of sunlight
 - 12. passed by the United States Congress in 1990 to address problems of air pollution
 - 13. By 1999, 184 countries had signed this agreement made during a meeting in Canada.

Column II

- a. acid rain
- b. scrubber
- c. sewage
- d. nonpoint source pollution
- e. acid
- f. pesticide
- g. carbon monoxide
- h. base
- i. photochemical smog
- j. point source pollution
- k. particulate matter
- I. Montreal Protocol
- m. Clean Air Act

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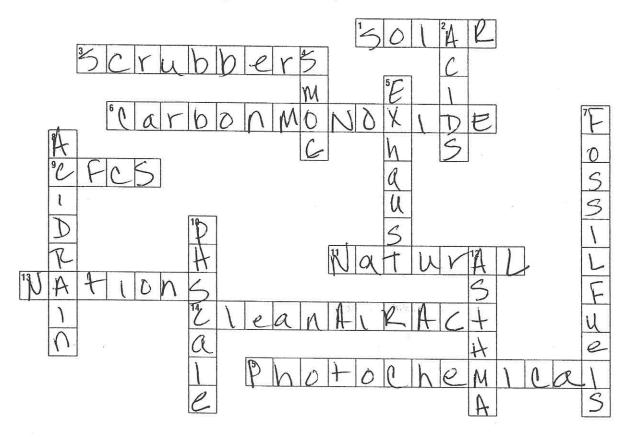


Water Pollution

Directions: Classify each of the following as point source or nonpoint source pollution.
MONPant Source 1. sediment from widespread deforestation washes into rivers
NonPoint Source 2. acid rain reduces the pH of a lake
POINT Sourcl. 3. a factory releases waste water containing lead
Non-Point Source 4. runoff from farms and lawns containing fertilizer
Directions: Complete the following sentences using the correct terms.
5. Most water pollution is caused by Sediment.
6. Harmful organisms in the water can come from Sewage.
7. Pesticides and herbicides in the water come from Farms lawns
8. Factories pollute water by dunping toxic Materials in 40 Heated
Directions: Answer the following questions on the lines provided.
9. How do the 1996 Safe Drinking Water Act Amendments help reduce pollution?
Protects rivers, Lakes, Streams
that are sources of Drinking Water.
10. How does conserving water help reduce pollution?
Reduces Need For Water treatment
11. If you wanted to dispose of hazardous materials, such as household chemicals or used oil from the car, where would you get information about their proper disposal?
Read the Labels. Call Local
Government.
- Government.
12. How does acid rain link air pollution and water pollution?
Acid Rain Lowers PH, Making
Water More acidici
TOURCE MITAIL

Air Pollution

Directions: *Use the clues below to complete the crossword puzzle.*



Across

- 1. Type of alternative power that uses the sun
- 3. Used in smokestacks to reduce air pollution
- 6. Colorless, odorless gas that replaces oxygen in the blood (2 words)
- Pollutants from air conditioners and refrigerators (abbreviation)
- 11. Landforms and temperature inversions are ____ conditions that contribute to air pollution.
- 13. The Montreal Protocol has been signed by 184 different _____.
- 14. Passed in 1990 to attack problems of automobile exhaust, factory pollution, destruction of the ozone, and acid rain (3 words)
- 15. Type of smog formed from fossil fuel pollutants with the aid of light

Down

- 2. Substances with a pH lower than 7
- 4. Combination of smoke and fog
- 5. ____ from buses and trucks contains particulate matter.
- 7. The burning of _____ for energy adds polluting chemicals to the air. (2 words)

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- 8. Pollutant created when sulfur dioxide from coal-burning power plants combines with moisture in the air to form sulfuric acid (2 words)
- 10. Measures whether a substance is an acid or a base
- 12. Breathing ozone and other smog damages people's lungs, making them more susceptible to pneumonia and _____.

Meeting Individual Needs



Our Impact on Water and Air

Water Pollution Section 1

- A. Clean water is important to maintain all organisms
- B. Point Sources pollution comes from a specific location; Non point Source pollution enters water from large, or multiple, areas.
- C. More than ________ percent of water pollution in the United States is from nonpoint sources.
- D. Types of pollution
 - 1. Sediment __ the largest source of water pollution in the United States; makes water cloudy, blocks light from plants, and interferes with organisms that live in water.
 - 2. Pesticides, substances which destroy pests, could also harm people and other organisms.
 - 3. Levilizers add too much nitrogen and phosphorus to water sources—causes algae to multiply, using up oxygen that fish and other organisms need to live.
 - 4. Sewage can contain detergents, bacteria, chemicals, and human waste.
 - 5. Metal 5 pollute waters for many years and remain in the environment for a long time.
 - and <u>Gaspirl</u> can leak from tanks and wash off roads, contaminating water supplies ____ gallon of gasoline can make an entire water supply unsafe for drinking.
 - water released from industrial activities can reduce the oxygen available for organisms or change the water temperature they need to survive.
 - E. Reducing water pollution

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- 1. Treating water and remove pollutants before returning the water to the environment.
- 2. Countries can Cooperatt to reduce pollution as the U.S. and Canada have done with the Great Lakes.
- 3. Indulation and industry efforts are needed.
 - a. Hazardous wastes such as paint or motor oil should be disposed
 - b. Conserve water, using only what is needed.

Meeting Individual Needs

Note-taking Worksheet (continued)

Section 2 Air Pollution

A. ______ pollution sources include burning fuel, factories, electricity generation, burning trash, dust from fields and other locations, radon, and gases from volcanoes and fires.

B. Ex Vause—urban pollution, resembling a yellowish-brown haze, caused by cars, factories, and power plants

1. PhotoChemical smog forms from a chemical reaction between car exhaust and sunlight.

2. Natival Conclitation's mountains or atmospheric conditions such as temperature were contribute to urban smog.

C. Coal burning power plants and car exhaust can form <u>Ocid Rain</u> which corrodes structures, damages vegetation, and harms animals.

1. Amount of acid is measured using the PH Scall.

2. A pH lower than 7 indicates _____ Class

3. A pH above 7 indicates _____

4. The _______ pH for lakes and streams is between 6 and 8; acidic rain may decrease the ______ in bodies of water, making it impossible for some organisms to live.

D. <u>CFC's</u>, or chlorofluorocarbons, can destroy the Earth's protective ozone layer.

E. Some city dwellers have to avoid the outdoors during high smog levels to avoid health problems.

1. Smog compounds can cause eye irritation.

2. Ozone can burn the nose and throat, cause headaches, and damage lung tissue.

3. Even small amounts of Arbon Monovall can be dangerous because it replaces oxygen in the blood.

4. Acid Rayin can damage lungs and increase infections.

5. Particulate matter such as dust, pollen, mold, and soot can irritate and damage the lungs.

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Note-taking Worksheet (continued)

- F. HealtCING air pollution
 - 1. International Cooperation can help reduce air pollution.
 - 2. The Clean Air Act of 1990 regulates car emissions, energy production, and other industries.
 - 3. Sulfur dioxide from coal-burning power plants can be removed with a

So rubber which dissolves smoke gases in water, removing some sulfur.

- 4. Electric power plants can use an ElectroStatus separator to reduce particulates.
- 5. _____ can change their lifestyles and reduce their driving to help reduce air pollution from cars.



Our Impact on Water and Air

Part A. Vocabulary Review

Directions: Write the term that matches each description below on the spaces provided. The boxed letters will spell the answer to question 11.

1. pollution that enters a body of water from a large area

- 2. chemicals that help plants grow
- 3. hazy, yellowish smog that forms with the help of sunlight

4. pollution that enters water from a particular location

- 5. substance with a pH lower than 7

6. consists of fine solids and liquid droplets

- 7. Sulfur dioxide can be removed from smoke by passing it through a
- 8. human waste and household materials that go into drains
- 9. acidic moisture that falls to earth
- 10. substances that destroy pests

11. What Act passed by the United States Congress in 1990 addressed some air pollution problems by regulating emissions from cars, energy production, and other industries?

Part B. Concept Review

Directions: Match the actions in the first column with their goals in Column II. Write the letter of the correct statement in the blank at the left.

- 1. Safe Drinking Water Act
- 2. Clean Water Act
- 3. Clean Air Act
- 4. Water quality agreements
- a. Canada and the United States helped to stop the sewage problem in Lake Erie.
- b. This law ensures that drinking water in our country is safe.
- c. It set goals for reducing point and nonpoint pollution sources.
- d. Its goals include reduction of auto exhaust.