

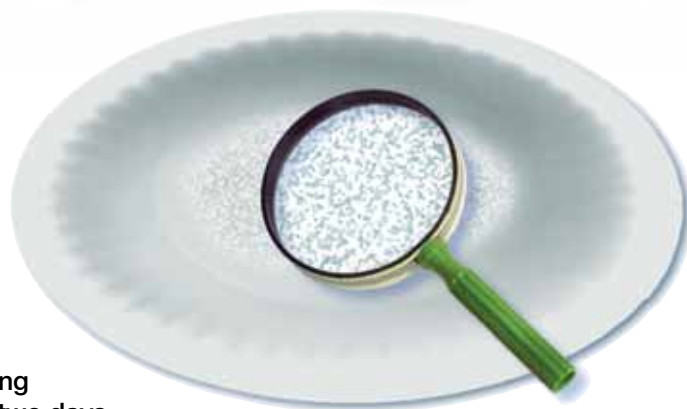
The **OUTSIDE** Page

How **CLEAN** is Your Air?

You can check the amount of particulate matter (dust) in the air around home with some simple items you probably already have.

- 👉 paper plates (one for each test site)
- 👉 petroleum jelly (e.g., Vaseline®)
- 👉 magnifying lens

Spread a very thin layer of petroleum jelly on the paper plates. Set the plates in the areas you want to test. Choose one indoor site, and several outdoor sites. You'll need to leave the plates there for a week. Choose your sites carefully so the plates won't blow away or be disturbed, and so they're sheltered from rain and snow. Use clothespins to hold them in place, if you need to. Using the magnifying lens, take a close look at each plate after two days. What's stuck in the petroleum jelly? Return each plate to the study site and look at them again after two more days. How do they compare with the first time you looked at them? Leave the plates for three days this time, so they are out for a total of one week. What do they look like now?



The dust on the plates fell there from the surrounding air. How clean is your air?

What's Your AQI?



The Air Quality Index (AQI) is a scoring system for outdoor air quality. Go to <http://airnow.gov/> and enter your zip code. The website will then provide you with a map and give the AQI for your area. Look for the overall score, from good (0 to 50) through hazardous (201 to 300). Look, too, for specific information about levels of ozone and particulates. Is it safe to be outside today? If not, what are the major pollutants? If the AQI is in a safe range, turn off your computer and head outdoors to enjoy yourself!

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A
Breath
of
Fresh Air

What's up with
AIR POLLUTION?

Welcome
to

NEW YORK STATE

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Want to receive
**Conservationist
for Kids**
at home?

In this issue:

How clean is our air?

It's a lot cleaner than
it used to be! In this
issue, we'll learn
about air pollution—
what it is, where it
comes from, and what
you can do to help
keep our air clean.

Send us a photo of yourself
enjoying the outdoors.

Contact us at
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It's all around us.

We can't see it, but we can see what it does.

The wind blows gentle breezes and raging gales.

Air contains the oxygen we need to breathe, and the carbon dioxide that plants require for photosynthesis.

Puffy clouds carry moisture from one part of our world to another, watering the earth below.

WE TAKE OUR AIR FOR GRANTED, UNTIL SOMETHING GOES WRONG.

When your bedroom is messy, you can see it, but when the air gets messy —polluted— we can't always see the mess. Air pollution may be particulate matter: tiny particles in the air that irritate our lungs and leave a fine dust on the things they land on. Air pollution may also be in the form of gas. Gasses can't be seen, but some in our air are harmful to us and to plants and animals around us.

Plants grow better when the air is clean.

Water and wildlife are healthier, too.

Clean air is important for our health.

When the air is clean, we can breathe more easily and be more active, running and playing outdoors. (People with asthma sometimes have a great deal of trouble breathing when the air is polluted.)



What's in the AIR gets Around!

Air pollution comes from many sources, both natural & manmade.

forest fires,
volcanic emissions

vehicle exhaust,
smokestack emissions



Air moves around when the wind blows.

Air pollution from one place can cause problems many miles from where it started.

Water falls from clouds that form in the air. Pollutants and tiny bits of soil are carried with it to the ground below.

1 The air is in constant motion around the earth (wind). As it moves, it absorbs water from lakes, rivers and oceans, picks up soil from the land, and moves pollutants in the air.

Earth's Air Cycle



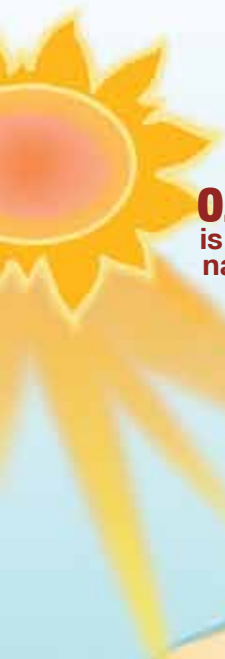
Plants use carbon dioxide from the air during photosynthesis, and release oxygen. They absorb water and pollutants carried in the air.



People and animals breathe in air. We use oxygen and exhale carbon dioxide.



How many manmade sources of air pollution can you find here?
Can you find people doing things to limit air pollution?



OZONE (GOOD) is a gas that occurs naturally in the upper atmosphere. It filters the sun's ultraviolet rays and protects life on the planet from the burning rays.

AIR AWARENESS:
Our air contains a combination of different gasses:
78% nitrogen, 21% oxygen,
plus 1% from carbon dioxide, water vapor, and other gasses.

ACID RAIN forms when sulfur oxides and nitrogen oxides mix with water vapor in the air. . . . Because wind moves the air, acid rain can fall hundreds of miles from its source. Acid rain can make lakes so acidic that plants and animals can't live in the water.

Forests can be harmed when nutrients are drained out of the soil by acid rain, and trees can't grow properly.

AIR MONITORING:
Scientists check the quality of our air every day and grade it using the Air Quality Index (AQI). We can check the daily AQI on the Internet or from local news sources.

Greenhouse gases, sulfur oxides and nitrogen oxides are added to the air when coal, oil and natural gas are burned to provide energy.

Smoke from **FACTORIES and POWER PLANTS** adds particulate matter (tiny particles) to the air.

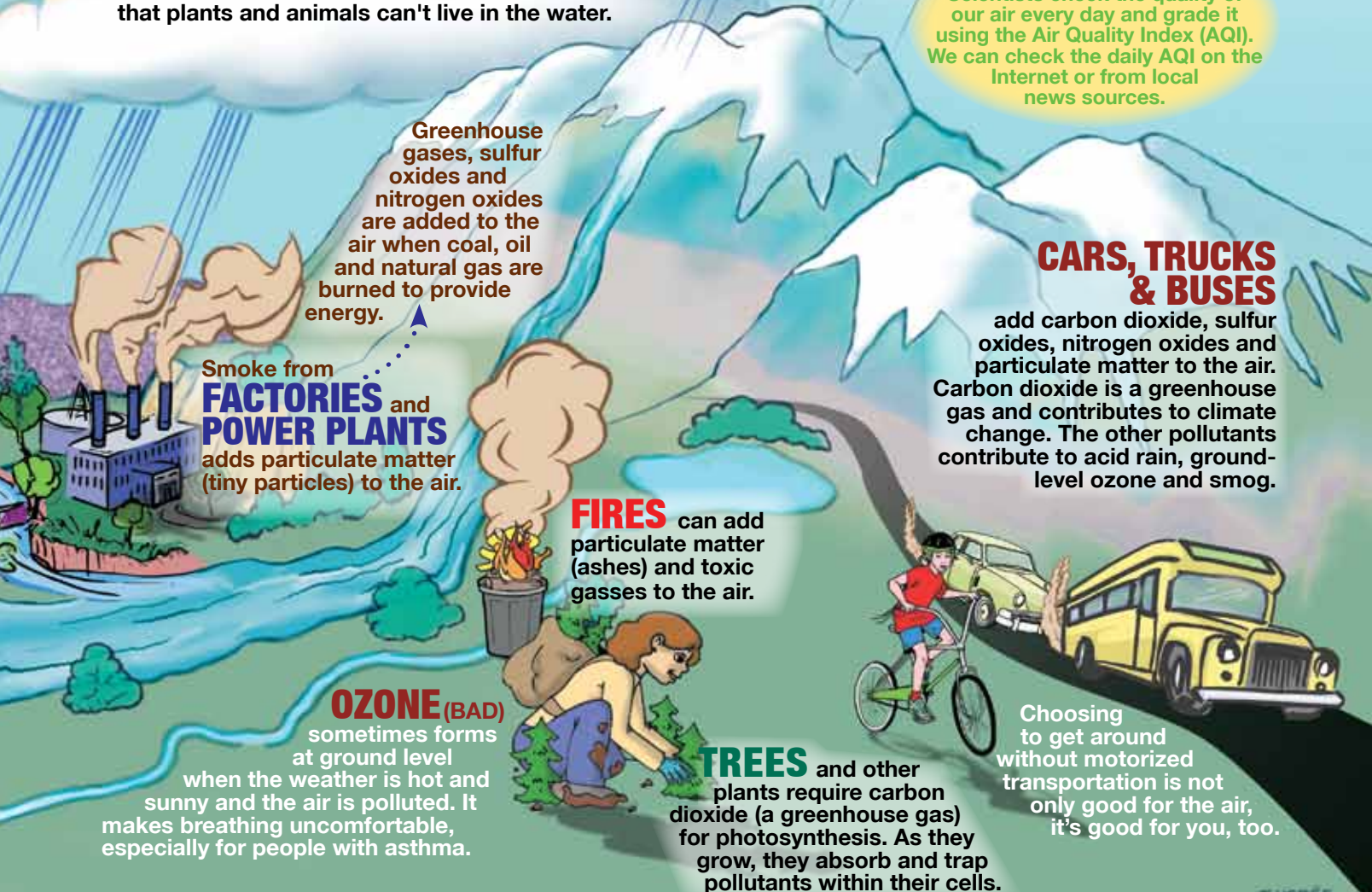
CARS, TRUCKS & BUSES add carbon dioxide, sulfur oxides, nitrogen oxides and particulate matter to the air. Carbon dioxide is a greenhouse gas and contributes to climate change. The other pollutants contribute to acid rain, ground-level ozone and smog.

FIRES can add particulate matter (ashes) and toxic gasses to the air.

OZONE (BAD) sometimes forms at ground level when the weather is hot and sunny and the air is polluted. It makes breathing uncomfortable, especially for people with asthma.

TREES and other plants require carbon dioxide (a greenhouse gas) for photosynthesis. As they grow, they absorb and trap pollutants within their cells.

Choosing to get around without motorized transportation is not only good for the air, it's good for you, too.



The Good News is...

Our air is healthier today than it was 50 years ago.

We've learned a lot, including how to clean our air, and how to keep it from getting polluted. We've also made laws, like the **Clean Air Act**, that set limits on air pollution.

Smog is air that is visibly polluted. It looks brown and hazy, and occurs in the air over larger cities and towns. Most smog comes from vehicle exhaust and factory smokestack emissions.

Power plants today have devices, known as "scrubbers," that limit what comes out of their smokestacks into the air.

While still of concern, acid rain is no longer as serious a problem as it once was. Lakes and forests are recovering from the damage done by acid rain, but it will take a long time for them to fully recover.

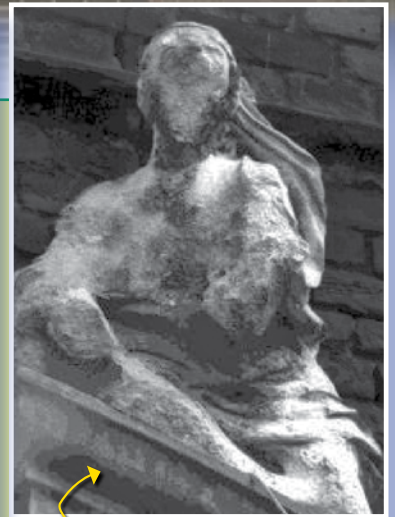


photo by Herr Schmidt-Thomsen

1908 **1968**

The first photo, taken in 1908, shows a 200-year-old statue at a castle in Germany. There were few changes during its first 200 years. After 1908, the amount of acid rain components emitted from human activities increased.

In just 60 years, the statue showed the effects of acid rain. What changes do you notice?



photo by Julia Goren

Can you spot the trees killed by the effects of acid rain?



photo courtesy of NARA, photo by Gene Daniels/U.S. EPA

Ozone-damaged plant (left)
normal plant (right)

Keep the **Good News** coming...

There are lots of things you can do to keep our air clean and keep yourself healthy. They're pretty simple, too.



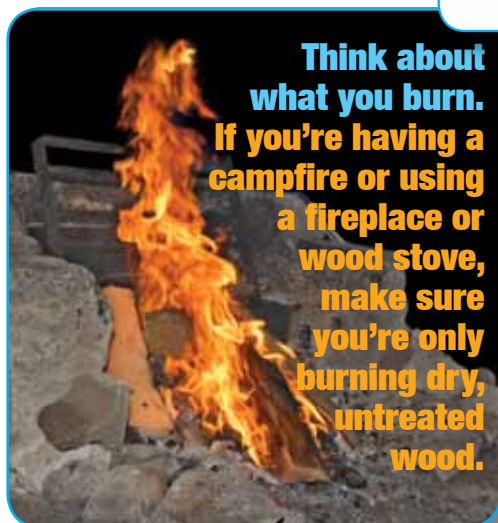
Plant trees. Trees absorb many pollutants from the air and “lock them away” as they grow.



Use less electricity. Turn off electrical devices when they're not in use.



Check the Air Quality Index each day in the summer. When the levels are safe, enjoy playing outside.



Think about what you burn. If you're having a campfire or using a fireplace or wood stove, make sure you're only burning dry, untreated wood.



Drive less. Walk, ride your bike or take public transportation to get around.

For more information:

Air Pollution by Heather C. Hudak (Weigl Publishers Inc., New York, 2007)

Air Pollution: A True Book by Rhonda L. Donald (Children's Press/Scholastic, Inc., New York, 2001)

Clean Air by Rufus Bellamy (Smart Apple Media, North Mankato, MN, 2006)

DEC's Teaching Children About Air Pollution www.dec.ny.gov/education/52185.html

DEC's Clean Air Starts at Home www.dec.ny.gov/chemical/49263.html

EPA Environmental Kids Club–Air (for grades PreK–4) www.epa.gov/kids/air.htm

EPA Student Center–Air (for grades 5–8) www.epa.gov/students/air.html

EPA's AirNow page for kids www.airnow.gov/index.cfm?action=student.main (links to Air Quality Index page for kids)

