



Winter Weather & Our Air

Did you know that people take about 20,000 breaths of air each day? That's 20,000 reasons why keeping our air clean and healthy is so important.

On most days in Spokane, our air quality is considered "good" or "moderate." But there are times when the air can become unhealthy. If you, a family member or friend has asthma or other health problems, it may be more difficult to breathe on "unhealthy" days.

What makes our air polluted?

Air pollution comes from many different activities. During winter, smoke from fireplaces and wood stoves can pollute the air. Automobiles also create air pollution. Automobile exhaust contains harmful pollutants that go directly into the air.

Can weather help or hurt our air?

What we call "weather" is really the daily changes in temperature, wind, precipitation (rain, sleet, or snow), and the movement of large masses of air, called weather systems. Weather systems are often defined as being either a high or low pressure system. In the winter, high pressure systems lead to cold temperatures, fog and low clouds, stagnant air, and a build up of pollutants in the air with a temperature inversion. Winter low pressure systems can bring winds and/or precipitation, which move out air pollutants. Wind, rain and snow storms are sometimes called scrubbers because they help clear out the air pollution.

What is a temperature inversion?

A temperature inversion is when a layer of warm air sits on top a layer of cold air.

When this happens near the Earth's surface, this traps air pollution near the Earth's surface where we



live and breathe. The warm air acts like a lid and doesn't let the air mix or disperse. This can happen with high pressure systems.

During most other weather conditions, warm air is near the ground and the air can rise easily and carry away air pollution. In a temperature inversion the reverse is true. Cold air is trapped near the ground by a layer of warm air. Warm air acts like a lid, holding pollutants down where we breathe.

How can I help clear the air?

Your family can help keep our air clean.

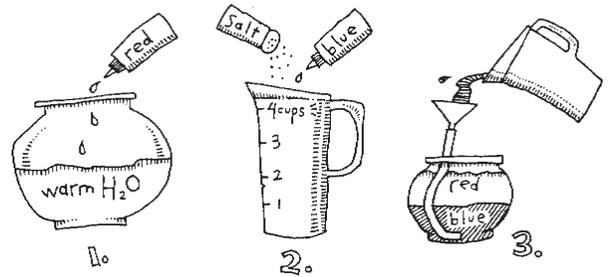
- Combine errands into fewer car trips.
- Carpool or ride the bus instead of driving alone.
- Keep your vehicle well maintained.
- If you heat with wood, burn only dry, seasoned wood.
- Recycle. Compost food and yard waste.
- Conserve electricity. Turn lights off.

Make Your Own Inversion at Home

As you have learned, air can create layers based on temperature. That's what holds in pollution during an inversion. Here is a model using water for air, so you can see what an inversion might look like. (If you are doing this at home, make sure to ask before using food coloring!)

What you need:

1. Quart-sized mayonnaise jar or small aquarium
2. Red, blue and green food coloring
3. Tap water
4. Salt (about 1/4 cup)
5. 4-cup measuring cup
6. Funnel
7. Plastic or rubber tubing that fits on funnel



Follow these easy steps:

1. Fill the container (jar or aquarium) a little less than half full with lukewarm water. Put two drops of red food coloring in. The red water represents warm air, which is lighter than cold air.
2. Fill a 4-cup measuring cup with water and saturate it with salt (add salt until no more will dissolve—about 1/4 cup). Adding salt makes the water more dense and heavy. Add two drops of blue food coloring. The blue water represents cold air, which is heavier than warm air.
3. Fit the tubing snugly on to the end of the funnel. Make sure the tubing is on the bottom of the jar or aquarium. Pour the blue water slowly and carefully through the funnel. There should be two layers—blue on bottom and red on top. This is what happens during an inversion!! The air is stable and the heavy and light air don't mix, making it easier for pollution to concentrate in the heavier air.

Optional Step 4:

4. Drop a few drops of green food coloring into the jar or aquarium to represent air pollution. Notice how the "pollution" remains held in one layer. Now, grab a spoon and create a "wind storm" by stirring up the water in your jar or aquarium. What happens to air pollutants when a storm comes along?



Community Calendar

- Feb 18:** **I Love Clean Air Day**
Mobius Science Center
10:30 a.m. - 1:30 p.m., admin fee
- April 5-11:** **EnviroKids Display & Activities**
Educational activities will visit
Spokane Library Branches
- March 21:** **Spring Green Event**
Spokane Downtown Library
11 a.m. - 4 p.m.
- April 18:** **Earth Day Spokane**
Riverfront Park
- April 25:** **Arbor Day & Compost Fair**
Finch Arboretum
11 a.m. - 2 p.m.

Air Quality

Parents! It's easy to find out what today's air quality is like. You can access current and forecasted air quality information several ways.

1. **Website:** Visit www.SpokaneCleanAir.org and click on the "Current Air Quality" button on the right. It will bring you to a web page that shows current air quality and a two-day forecast.
2. **Smartphone App:** Visit the Current Air Quality webpage listed in #1. Click on the free AIRNow Smartphone app for Android or iPhone link that is posted below current air quality.

Word Search

Members can earn 5 points by completing activities on this page!

On the front page you will see 18 words that are underlined. Each of these words is hidden in the word search below.

1. Transfer the underlined words to the spaces below.
2. Find the words in the puzzle.

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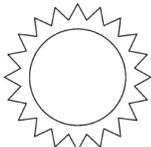
B	E	A	H	C	F	O	I	E	N	I	T	Q
R	E	U	Y	U	O	U	E	K	O	M	S	C
A	T	T	S	W	E	A	T	H	E	R	T	A
I	A	O	R	G	S	K	E	M	A	I	N	R
N	L	M	E	U	L	K	M	R	P	N	A	B
E	U	O	B	J	I	B	P	E	W	V	T	O
T	C	B	B	B	G	D	E	Y	A	E	U	N
R	I	I	U	A	L	A	R	A	R	R	L	M
A	T	L	R	O	C	D	A	L	M	S	L	O
P	R	E	C	I	P	I	T	A	T	I	O	N
P	A	S	S	F	D	L	U	O	R	O	P	O
E	P	R	E	S	S	U	R	E	E	N	S	X
D	B	R	E	A	T	H	E	D	N	I	W	I
O	V	W	O	O	D	S	T	O	V	E	S	D
W	I	N	A	E	L	C	S	D	S	I	T	E



Sudoku Weather Puzzle

Each row, each column, and each of the large four squares should have one of each image (cloud, snowflake, raindrop and sun). Fill in the blanks!





EnviroKids' Club

EnviroKids' Club
c/o Spokane Regional Clean Air Agency
3104 E. Augusta Ave.
Spokane, WA 99207

PRSR STD
U.S. Postage
PAID
Spokane, WA
Permit No. 722

**See inside for
Activity Details!**
Members can earn 5 points
by completing each special
EnviroKids' activity that is
marked with a gold star!

EnviroKids'... caring for the Earth

EnviroKids' Club provides its 200+ members with information and activities to explore aspects of the environment: air, water, weather, garbage and recycling, plants and animals. The Club is open to all Spokane County residents who are in grades K-6.

Club members receive a newsletter in the mail four times a year. The newsletter contains activities to complete and ideas for activities at home or in the community. Members who are interested can complete activities and/or participate in some of the events to earn points. Earned points can then be used to trade-in for prizes. **Members need to participate in at least one activity per calendar year to receive newsletters.** For more information, visit www.SpokaneEnvirokids.org.

To earn points, mail your completed activities by April 30, 2015 to:

EnviroKids' Club c/o National Weather Service
2601 N. Rambo Rd. Spokane, WA 99224

Fill in this form with the activities page complete and send it back to us to earn your points! Do you have a friend or sibling who would like to join EnviroKids' Club? Copy this page for them to send in and be added to our mailing list.

Name: _____ Age: _____ Grade: _____ School: _____

Home Mailing Address: _____ City: _____ Zip Code: _____

E-mail Address: _____ Phone: _____

My child has permission to participate in EnviroKids' Club activities that I accompany him/her to and permission is granted to use his/her photo that may be taken at such event, for promoting the Club (newsletter, flyers, ads, website, etc.)

Parent Signature. Please print name, then sign and date

EnviroKids' Club Partners: City of Spokane Water Quality & Solid Waste Departments, National Weather Service, Spokane Aquifer Joint Board, Spokane Conservation District, Spokane County Water Resources, and Spokane Regional Clean Air Agency.

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