Methodology

Children are uniquely susceptible to the dangers posed by many sorts of toxic chemicals because they breathe more deeply than adults, and because their bodies are still developing. That's why USA TODAY worked with the researchers and scientists at the University of Massachusetts-Amherst, Johns Hopkins University in Baltimore, and the University of Maryland in College Park to analyze exposure to industrial pollution at schools across the nation. The goal: To determine what sort of toxic chemicals children breathe when they go to school.

Schools List

USA TODAY gathered information on about 127,800 public and private schools from the National Center for Education Statistics and more than two dozen state education agencies. While we attempted to make the list as comprehensive as possible, it may not include some recently opened buildings. It also includes some schools that have closed since 2005. We also excluded some schools whose locations we could not map. If you don't find your school among those listed in our database, let us know by sending the school's name and address to smokestack@usatoday.com.

Toxicity Assessments

Toxicity assessments for each school are based on emissions data collected by the U.S. Environmental Protection Agency as part of its Toxics Release Inventory program, also known as TRI. More than 20,000 industrial and government facilities are required to tell the agency about their emissions of hundreds of chemicals that are known to harm humans or the environment. Most facilities do not measure their emissions; rather, their reports to the TRI are estimates (PDF). It is difficult to verify the accuracy of those estimates, but some critics have complained that TRI reports generally understate emissions. Generally, only large industrial and government facilities are required to report to the TRI, meaning there are many other potential sources of pollution that are not included in the agency's data. As a result, those sources also are not included in toxicity assessments for schools.

To assess how those emissions affect the air outside nearby schools, USA TODAY partnered with researchers from the University of Massachusetts-Amherst's Political Economy Research Institute. After more than two years of effort, the researchers obtained data from an EPA model known as the Risk-Screening Environmental Indicators, which scores chemicals based on their potential danger. The model also uses information about industrial facilities – such as the height of its smokestacks and the way each chemical disperses in the air – to estimate where concentrations of the chemicals they release will be highest. The model allows the EPA to assess pollution's impact on every square kilometer of the nation, and the agency uses that information to help identify potential problems spots. The University of Massachuestts researchers used those findings to produce lists of chemicals that contributed to the air toxicity at each of the nation's 127,800 schools in 2005, the most recent year for which the EPA has completed its model. With
the help of the University of Massachusetts researchers and other experts, and after consulting with the EPA, USA TODAY used those records to create three measures of a school's exposure to industrial toxics:

- **Overall toxicity**: This is the primary measure of toxicity from industrial pollution outside a school. It reflects both the concentration of chemicals the EPA's model shows impacted the school in 2005, as well as the potential harm associated with those chemicals. That measurement is ranked against each of the other 127,800 schools for which USA TODAY developed toxicity information, and is displayed as a percentile. For example, if you see a school whose overall toxicity shows up in the second percentile, you'll know only 1% of the nation's schools had higher toxicity levels.

- **Exposure to cancer-causing chemicals**: This ranking is similar to the overall toxicity measure, but includes only those chemicals known or thought to cause cancer. The measure shows how one school ranks relative to all of the nation's other schools.

- **Exposure to other toxic chemicals**: This ranking shows the potential severity of exposure to chemicals that do not cause cancer. For each chemical thought to cause health problems other than cancer, we compared the likely concentration of that chemical at each school to the EPA's reference concentration, the agency's exposure threshold. In other words, the higher a school ranks on this scale, the more likely it is that non-carcinogens could exceed that threshold.

Because these measures are based on a model and estimates of emissions, they are subject to some limitations. For example, the model makes certain assumptions about topography, the height of smokestacks and the toxicity of certain chemicals, any of which could influence the assessment of toxicity in a particular location. In some cases, the EPA model appeared to underestimate exposure to toxic chemicals. In others, it appeared to overstate it. Also, the model is not meant to assess risk – your chances of getting sick.

Because it is based on reports from 2005 and includes only some potential sources of pollution, the model may not fully reflect the current situation at each school. For example, some facilities have closed since 2005, and others have opened. Also, large industrial sites account for only a fraction of the nation's toxic air pollution. The EPA estimates that in 2002, cars, smaller businesses and other sources accounted for 85% of the toxic chemicals in the nation's air.

### Monitoring

Under the guidance of scientists from Johns Hopkins University and the University of Maryland School of Public Health, USA TODAY monitored air quality near 95 public and private schools throughout the nation. We placed monitors mainly – but not exclusively – near schools the EPA model suggests face higher exposure to industrial pollution. To make the most complete assessment possible, we used three main types of monitors, depending on the types of chemicals the model suggested would be present:

- **Badges**: We hung simple badge-like monitors near 95 schools in 30 states. The badges collect a class of chemicals known as volatile organic compounds. We also used a similar badge to detect ethylene oxide, a known carcinogen, near 23 schools. We left the badges in place for between four days and a week before returning them to the University of Maryland for analysis.
• **Active monitors:** Because some chemicals, such as metals, cannot be picked up on badge monitors, USA TODAY employees set up pumps to collect samples of metals near 17 schools and polycyclic aromatic compounds near 23 schools. At those schools, we monitored the air for between 72 and 96 hours. Filters that picked up metals were analyzed by Johns Hopkins; the rest were analyzed by the University of Maryland.

• **Ultraviolet monitors:** To find chemicals that cannot be easily measured either by badges or active samplers, we used an ultraviolet detection system made by Cerex Monitoring Solutions to conduct additional monitoring near eight schools in Ohio, Pennsylvania and Texas. That monitor delivers its findings in real time and does not require laboratory analysis.

The monitoring work was conducted by employees of USA TODAY and other affiliated newspapers and television stations. In every case, we attempted to place the monitors within about 100 yards of a school, though a few had to be placed slightly farther away. Scientists at the University of Maryland and Johns Hopkins analyzed each sample, and interpreted those results.

Because USA TODAY was able to monitor near schools only for a comparatively short period of time, our findings may not reflect the extent of long-term exposure to pollutants at a particular location. For example, changes in wind direction or activity levels at a particular industrial facility can significantly influence the concentration levels near a school on any given day.

1 See, for example, *A Framework for Addressing Health Risks of Environmental Exposure to Children* by the EPA's National Center for Environmental Assessment, published in 2006.

2 Includes Alabama, California, Colorado, Georgia, Hawaii, Illinois, Kansas, Kentucky, Massachusetts, Michigan, Missouri, Montana, New Jersey, North Dakota, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Utah, Wisconsin, and Wyoming.

3 For example, Houston Mayor Bill White asked the EPA this year to adjust its emissions estimates for petrochemical and refining plants, pointing to studies showing their emissions were under-reported.

4 For chemicals that are linked to both cancer and other health effects, we used the severity weighting the EPA assigned to the cancer-causing attributes of the chemical.

5 At Salina Elementary in Dearborn, Mich., for example, the EPA model did not suggest students were exposed to acrolein, but an air monitoring station near the school detected high levels of the chemical.

6 At Cesar Chavez High School in Houston, for example, the EPA model suggests students were exposed to levels of 1,3-butadiene significantly higher than the levels detected by an air monitoring station about a block away.
Gary Schools on List

Chemicals most responsible for the toxicity for most Gary Schools

- Manganese and manganese compounds 90% of overall toxicity
- Disocyanates 2% of overall toxicity
- Lead and lead compounds 1% of overall toxicity
- Sulfuric acid 1% of overall toxicity
- Polycyclic aromatic compounds 1% of overall toxicity

Polluters most responsible for toxics outside of Gary schools

- Uss Gary Works Gary, Indiana
- Levy Indiana Slag Co Gary, Indiana
- Mittal Steel Usa Inc Indiana Harbor East East Chicago, Indiana
- Lsg Burns Harbor Llc Burns Harbor, Indiana
- Ugn, Inc. Valparaiso, Indiana
- Weil-McLain Michigan City, Indiana
- North American Refractories Co. Gary, Indiana
- Union Tank Car Co - Plant 1 East Chicago, Indiana
- 

Jefferson Elementary School

601 Jackson Street, Gary IN

National Rank - 3rd percentile

2,633 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 2 of 10

Exposure to other toxic chemicals: Ranked 1 of 10

Thea Bowman Leadership Academy

975 W. 6th Avenue, Gary, IN 4640

National Rank - 3rd percentile

2,633 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 2 of 10

Exposure to other toxic chemicals: Ranked 1 of 10

21St Century Charter Sch Of Gary

556 Washington Street, Gary, IN
National Rank - 3rd percentile
2,742 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 1 of 10

**M C Bennett Holiness School**
2134 W 5th Avenue, Gary, IN

National Rank - 5th percentile
5,644 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 2 of 10
Exposure to other toxic chemicals: Ranked 1 of 10

**John H Vohr Elementary School**
1900 W 7th Ave., Gary, IN

National Rank - 7th percentile
7,437 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Charter School Of The Dunes**
860 North Lake Street, Gary, IN 46403

National Rank - 7th percentile
7,973 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Emerson Vpa**
716 E. 7th Avenue, Gary, IN 4640

National Rank - 8th percentile
8,910 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Beveridge Elementary School**

1234 Cleveland St., Gary, IN

National Rank - 9\(^{th}\) percentile

10,456 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Spirit Of God Accelerated Educ**

1010 Roosevelt Street, Gary, IN

National Rank - 9\(^{th}\) percentile

10,456 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**William A Wirt Sr High Sch**

210 N. Grand Blvd., Gary, IN 46403

National Rank - 9\(^{th}\) percentile

10,834 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Jacques Marquette Elem School**

6401 Hemlock Ave Gary, IN 46403

National Rank - 9\(^{th}\) percentile

10,834 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

Horace S Norton Elem Sch
1356 Harrison Blvd Gary, IN
National Rank - 10th percentile
11,348 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 4 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

Kipp Lead High School
150 W 15th Ave., Gary, IN
National Rank - 10th percentile
11,348 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 4 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

Chase Alternative School
711 Chase St Gary, IN
National Rank - 10th percentile
12,087 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

Lincoln Achievement Center
1988 Polk St Gary, IN
National Rank - 10th percentile
12,303 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 4 of 10
Exposure to other toxic chemicals: Ranked 2 of 10
**Kennedy-King Elementary School**

301 Parke St Gary, IN 46403

National Rank - 10th percentile
12,330 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Treasure's Child Dev Ctr**

435 Clark Road Gary, IN

National Rank - 10th percentile
12,384 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Dunbar-Pulaski Middle School**

920 E 19th Ave Gary, IN

National Rank - 11th percentile
12,764 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 4 of 10
Exposure to other toxic chemicals: Ranked 2 of 10

**Daniel Hale Williams Elem Sch**

1320 E 19th Ave Gary, IN

National Rank - 11th percentile
12,764 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 4 of 10
Exposure to other toxic chemicals: Ranked 2 of 10
**Christ Baptist Christian Academy**

4700 E 7Th Avenue Gary, IN

National Rank - 12th percentile
14,018 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10

Exposure to other toxic chemicals: Ranked 2 of 10

**Sda Mizpah Church Shool**

2350 Jefferson St. Gary, IN

National Rank - 12th percentile
14,816 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 4 of 10

Exposure to other toxic chemicals: Ranked 2 of 10

**George Washington Carver School**

2535 Virginia St Gary, IN

National Rank - 12th percentile
14,816 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 4 of 10

Exposure to other toxic chemicals: Ranked 2 of 10

**Brunswick Elementary School**

5701 W 7Th Ave Gary, IN

National Rank - 13th percentile
15,035 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 4 of 10

Exposure to other toxic chemicals: Ranked 2 of 10
**Frankie W Mccullough Acad For Girl**

1110 W 21St Ave Gary, IN

National Rank - 13\textsuperscript{th} percentile  
15,588 of 127,800 schools have worse air.

**Exposure to cancer-causing toxics:** Ranked 4 of 10  
**Exposure to other toxic chemicals:** Ranked 2 of 10

**Theodore Roosevelt High Sch**

730 W 25Th Ave Gary, IN

National Rank - 13\textsuperscript{th} percentile  
15,588 of 127,800 schools have worse air.

**Exposure to cancer-causing toxics:** Ranked 4 of 10  
**Exposure to other toxic chemicals:** Ranked 2 of 10

**Tolleston Middle School**

2700 W 19Th Ave Gary, IN

National Rank - 13\textsuperscript{th} percentile  
15,808 of 127,800 schools have worse air.

**Exposure to cancer-causing toxics:** Ranked 4 of 10  
**Exposure to other toxic chemicals:** Ranked 2 of 10

**Ernie Pyle Elementary School**

2545 W 19Th Pl Gary, IN

National Rank - 13\textsuperscript{th} percentile  
15,808 of 127,800 schools have worse air.

**Glen Park Acad For Excel In Lrn**

5002 Madison St Gary, IN

National Rank - 15\textsuperscript{th} percentile  
17,617 of 127,800 schools have worse air.
Exposure to cancer-causing toxics: Ranked 4 of 10

Exposure to other toxic chemicals: Ranked 2 of 10

Ivanhoe Elementary School

5700 W 15th Ave Gary, IN

National Rank - 15th percentile
17,714 of 127,800 schools have worse air.

Benjamin Banneker Elementary Sch

1912 W 23Rd Ave Gary, IN

National Rank - 15th percentile
18,013 of 127,800 schools have worse air.

Tender Loving Care Academy

2316 Cleveland St Gary, IN

National Rank - 15th percentile
18,013 of 127,800 schools have worse air.

Mary M Bethune Early Child Dev Ctr

2367 E 21St Ave Gary, IN

National Rank - 15th percentile T
The air is worse at 18,165 schools across the nation

Dr Bernard C Watson Acad For Boys

2065 Mississippi St Gary, IN

National Rank - 15th percentile
The air is worse at 18,685 schools across the nation

West Side High School

9Th/Gerry Sts Gary, IN

National Rank - 16th percentile
The air is worse at 19,128 schools across the nation
Alain L Locke Elementary Sch
3757 W 21St Ave Gary, IN

National Rank - 16th percentile
The air is worse at 20,093 schools across the nation

Grissom Elementary School
7201 W 25Th Ave Gary, IN

National Rank - 16th percentile
The air is worse at 20,147 schools across the nation

Benjamin Franklin Elem School
600 E 35Th Ave Gary, IN

National Rank - 17th percentile
The air is worse at 20,587 schools across the nation

Martin Luther King School Alt
1800 E 35Th Ave Gary, IN

National Rank - 17th percentile
The air is worse at 20,587 schools across the nation

Gary Career Center
1800 E 35Th Ave Gary, IN

National Rank - 17th percentile
20,587 of 127,800 schools have worse air.

Gary Lighthouse Charter School
3201 Pierce St Gary, IN

National Rank - 18th percentile
The air is worse at 22,773 schools across the nation

Ambassador Academy
1001 W Ridge Rd Gary, IN

National Rank - 18th percentile
The air is worse at 22,773 schools across the nation

**Daniel Webster Elem Sch**

3720 Pierce St Gary, IN

**National Rank - 20\(^{th}\) percentile**
The air is worse at 24,441 schools across the nation

**Lew Wallace High School**

415 W 45Th Ave Gary, IN

**National Rank - 20\(^{th}\) percentile**
The air is worse at 25,189 schools across the nation

**Bailly Middle School**

4621 Georgia St Gary, IN

**National Rank - 21\(^{st}\) percentile**
The air is worse at 25,603 schools across the nation

**Arthur P Melton Elem School**

4581 Fillmore St Gary, IN

**National Rank - 21\(^{st}\) percentile**
The air is worse at 25,989 schools across the nation

**The Ensweiler Academy**

6111 W Ridge Rd Gary, IN

**National Rank - 21\(^{st}\) percentile**
The air is worse at 25,989 schools across the nation

**Calumet High School**

3900 Calhoun St Gary, IN

**National Rank - 21\(^{st}\) percentile**
The air is worse at 26,050 schools across the nation
**Kuny Elementary School**

5050 Vermont St Gary, IN

National Rank - 21st percentile
The air is worse at 26,514 schools across the nation

**Hosford Park Elementary**

4735 Arthur St Gary, IN

National Rank - 21st percentile
26,514 of 127,800 schools have worse air.

Exposure to other toxic chemicals: Ranked 3 of 10

**Lake Ridge Middle School**

3601 W 41St Ave Gary, IN

National Rank - 22nd percentile
The air is worse at 26,933 schools across the nation

**Longfellow Elementary School**

45Th/Calhoun Sts Gary, IN

School District: Lake Ridge Schools

National Rank - 22nd percentile
26,933 of 127,800 schools have worse air.

Exposure to cancer-causing toxics: Ranked 3 of 10

Exposure to other toxic chemicals: Ranked 3 of 10

**Nobel Elementary School**

8837 Pottawatomie Tr Gary, IN

INCORRECT DATA ON SITE
Questions and Answers

Question: What is considered a high or dangerous ranking on this database — top 1%, top 10%, everything above 50%, or something else?

Answer: There is no clear line between dangerous and safe in these rankings. The lower the ranking, the greater the likelihood that toxic chemicals could be present at levels that could threaten children's health. Those schools that rank above or just below Meredith Hitchens Elementary School, about 450th in the rankings, would seem most at risk; Hitchens, near Cincinnati, was closed in 2005 after Ohio EPA found high levels of two cancer-causing chemicals in the air.

Question: When I type in the name of my school, it shows me all the chemicals outside and tells me how it ranks compared to other schools. My school seems to rank pretty high. Should I be worried?

Answer: Experts say the model is meant as "a screening tool. It isn't an in-depth analysis," says Nick Bouwes, who helped create the model for EPA. That means you should take what the model says and ask more questions. Its purpose is to compare one location against another to determine which one might indicate more pollution problems.

Question: Why did USA TODAY choose to use this particular computer simulation to identify schools that might be in toxic hot spots? I've heard the EPA has said it's not the proper tool.

Answer: After weeks of talking with officials at the U.S. EPA and those who created the model, USA TODAY determined that Risk-Screening Environmental Indicators, or RSEI, offered the most current way to track industrial pollution around the nation. In many discussions with EPA officials, reporters explained exactly how USA TODAY planned to use the model. During one interview, for instance, the EPA official who helps oversee the model, Bob Lee, told a reporter that USA TODAY's efforts "strike me as a highly appropriate use for RSEI and the kind of thing that makes a lot of sense." Nick Bouwes, a former EPA staff member who helped create the model, also said the way USA TODAY used the model to identify schools that may be in hot spots is "exactly" how it is supposed to be used.

Question: How accurate are the school rankings?

Answer: The EPA model produces estimates of how each school ranks nationally based on its exposure to industrial air pollution, and the hazards those chemicals can pose. But those rankings are estimates. They are based on emission reports companies filed each year with the EPA. The model also makes other assumptions about how those chemicals will travel through the air. For more information about how the model works and its limitations, see a description of our methodology.

In some places, the model likely overstates the levels of toxic chemicals in the air. For example, the model ranks Ashland City Elementary School in Ashland City, Tenn., as having the worst air in the country. That estimate is based on emissions reports by a hot water heater manufacturer in
the city. A spokesman says most of the manganese is trapped in tiny shards of steel that are swept up from the shop floor and discarded, but is not emitted into the air, as its report said. USA TODAY monitored the air near Ashland twice, and both times found manganese levels significantly lower than what the model predicted. That said, environmental experts such as Johns Hopkins University scientist Patrick Breysse stress that monitoring for longer periods is necessary before residents can know for certain what's in the air.

In other cases, the model understates the extent to which children are exposed. For example, it ranked Pacific Elementary School, in Davenport, Calif., among the best in the country, but this summer a state agency found high levels of hexavalent chromium, which can cause cancer, near the school. The discrepancy appears to have been caused by the model misplacing a cement plant in town, moving it much farther from the school.

When the model overstates or understates emissions, the effect can reach far beyond the school closest to the plant. Sometimes, a mistake in one place can change the ranking of schools as much as 30 miles away; for example, the high emission reports in Ashland City affected the ranking of schools in other areas around Nashville.

The most important point to remember: The EPA's model cannot say definitively whether anyone is at risk. Instead, it is a screening tool to help identify places where industrial pollution might pose problems.

**Question: I tried to find my school in the database and couldn't. Why not?**

**Answer:** USA TODAY collected data from the U.S. Department of Education and at least two dozen states in an attempt to account for as many public, parochial and private schools as possible. In some cases, states might not have submitted the most recent addresses for some new schools. In other cases, schools may have moved or closed since the data were reported. USA TODAY used the best data the government made available. If you know of a school that is not included in the database, please email us at smokestack@usatoday.com.

**Question: What does it mean if my school ranks low compared to other schools?**

**Answer:** Experts say a low ranking means your school is probably exposed to fewer chemicals from industrial sources. But that's not the same as a clean bill of health. The EPA model includes only emissions from large industrial and government facilities; it does not account for toxic chemicals released by smaller businesses or automobiles.

**Question: I don't see any chemicals or industries associated with my school. Why not?**

**Answer:** That happens when the model indicates very low pollution levels around a school. In some cases, the levels reported by any facility are too low to be meaningful. That doesn't mean the model indicates no chemicals in the air; it means it estimated them at extremely low levels.

I've heard environmental or school officials in my state say the information isn't up-to-date or doesn't offer a full picture of what's really happening near my school. Is that true?
Answer: USA TODAY used the most current version of the model, which contains data from 2005. In that sense, it represents a snapshot in time of what pollution might have been like at these locations then. Some companies say they've curbed emissions since. In a news release, the Pennsylvania Department of Environmental Protection said USA TODAY's analysis "fails to take into account mobile sources that can greatly elevate health risks." That's correct. Experts tell us that what we identified was the tip of the pollution iceberg, and as we pointed out, other sources -- such as cars and smaller polluters -- might contribute as much as five or six times the level of pollution that the model we used shows.

Question: What do I do with this information?

Answer: The first step is to see whether the company that the government model indicates is responsible is 1) still operating; and 2) has reported its emissions correctly. Although the model is the government's most up-to-date gauge of industrial pollution, the emissions reports it uses come from 2005. That means some of the companies might have gone out of business or cut production. One way to check is to see whether that company reported emissions last year. Also, contact your local school district and ask officials what they know. They should be able to direct you to local environmental authorities who can tell you whether they have monitored the air nearby.

You can also contact environmental advocacy groups that might help you find relatively inexpensive ways to determine what's in the air. Groups such as Global Community Monitor work with local groups to develop ways to check air quality in their communities.

Question: Until I know for sure, should I pull my kids from school and put my house up for sale?

Answer: No, say environmental experts. Don't panic, but push for answers. Most of the chemicals that might be outside your school are in small enough quantities that they likely pose no immediate threats.

Question: Then why should I be concerned?

Answer: For many reasons. First, scientists aren't certain how specific chemicals affect children. Kids are particularly vulnerable because they're still growing and they breathe more air than adults, but safety standards are based largely on how chemicals affect adults in the workplace. Second, the same companies that may be responsible for the pollution sometimes have spills or accidents during which much larger amounts of toxic chemicals are released. The model does not account for those. Third, thousands of other, smaller businesses aren't obligated to report their emissions to the government. That means monitoring the air might be the only way to account for what they release. Fourth, if you don't push for answers, no one else might; laws in most states don't require school or environmental authorities to examine toxic chemicals in the air outside schools.

Question: What about the air inside my school?

Answer: The model deals with the air outside the building, but experts say air quality outside affects air quality inside. "You probably have a lot of pollutants collecting on the inside," says
Claire Barnett, executive director of the non-profit group Healthy Schools Network. "You do need some very close monitoring to find out what's actually going on. You need to look indoors as well."

**Question:** Why do two schools near each other have very different rankings?

**Answer:** To measure industrial pollution across the country, the EPA model divides the USA into thousands of squares, each measuring one kilometer by one kilometer. Then it estimates the potential impact of industrial pollution for each of those areas. Any schools within the same square will have the same ranking. Sometimes, however, two schools near each other will be in different squares. Their rankings will be different. Sometimes - especially for chemicals not likely to travel very far in the air - the differences will be substantial.