

The School Flag Program: Protecting Students' Health Through Air Quality Awareness



US Environmental Protection Agency
September 19, 2012

Today we'll talk about...

- The purpose of the flag program
- Air Quality Index - what it means
- Health and air pollution
- Starting a program
- Air quality resources



What is the School Flag Program?

- Schools raise a flag each day
- Flag colors are based on the colors of the AQI (Air Quality Index)
- The flag color indicates the local air quality forecast
- Provides guidance on how to modify outdoor activities when the air quality is unhealthy



History

- 2004: San Joaquin Valley starts school flag program.
- 2009: Over 750 schools in Valley raising flags, and program expanding to other states.
- 2010: EPA takes the program national to promote and maintain consistency across the country
- Today: Over 700 schools in 12 states participate



What is the Air Quality Index?

- Guide for reporting daily air quality
- Indicates how clean or dirty the air is
- Explains health effects
- EPA calculates the AQI for five major air pollutants:
 - **Ozone** (O₃)
 - **Particulate Matter** (PM₁₀ and PM 2.5)
 - Nitrogen Dioxide (NO₂)
 - Sulfur Dioxide (SO₂)
 - Carbon Monoxide (CO)

Good

Moderate

Unhealthy for
Sensitive Groups

Unhealthy

Very Unhealthy

Air Quality Index (AQI) Colors

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
<i>When the AQI is in this range:</i>	<i>...air quality conditions are:</i>	<i>...as symbolized by this color:</i>
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

How Air Pollutants Can Effect You

- Coughing
- Difficulty breathing
- Decreased lung function
- Stronger and more frequent asthma attacks
- Development of chronic bronchitis
- Chest tightness; chest pain
- Irregular heartbeat
- Premature death in people with heart or lung disease
- Stunted lung growth in children



Some Groups Are More Sensitive to Air Pollution

- Children (birth to age 18)
 - More active
 - Breathe more air per pound of body weight
 - Developing bodies
- People with asthma
 - Around 7 million children
- People with heart or lung disease
- Older adults (age 55 and older)



Children active outdoors can be sensitive to some air pollutants.



Sometimes people with asthma need help breathing.

Wood-Burning Stoves



Power Plants



Heavy Duty Diesel Engines



Natural Sources



Air Pollution Comes from
Many Different Sources

Cars and Trucks



Non-Road Vehicles



Forest Fires



Industrial Sources

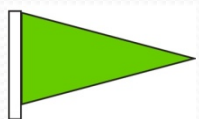


What the School Flag Program Does for You

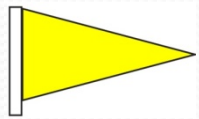
- Easy 4 step process
- Better health of your students, staff, and community
- Increase public awareness of air quality issues
- Provide activity guidelines to reduce exposure to harmful air pollutants
- Recognition on EPA web site



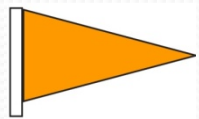
Start Your Flag Program: 4 Easy Steps



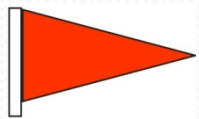
Purchase flags



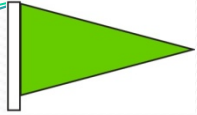
Educate and inform the school and community



Check the daily air quality forecast and fly the corresponding flag



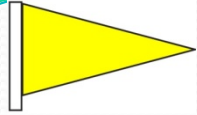
Follow the recommendations for outdoor activities



Purchase Flags

- Flags cost about \$100
- Funding from PTA, a local health organization or business
- Order from local flag vendor or online
- Set of five flags: green, yellow, orange, red, purple
 - Use pennant style flags, 5 x 3 ft.
 - Plain flags are best

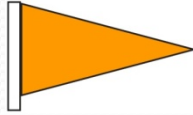




Educate and Inform

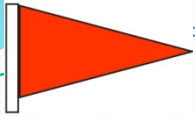
- Educate and inform teachers and parents
- Recruit 1-2 teachers to be the Flag Program Coordinator(s)
- Inform the school and surrounding community through:
 - Newsletters
 - Emails
 - Flyers
 - Local newspaper
 - Radio station
 - Word-of-mouth





Check the Air Quality Forecast

- Sign up for an email: www.airnow.gov/enviroflash
- Check your local paper
- Local weather report on tv
- Check www.airnow.gov
 - Free air quality app
 - Free widget: post the air quality forecast on your school website



Recommendations for Schools and Others on Poor Air Quality Days

Air Quality Index (AQI) Chart for Ozone (8-hr standard)

ACTIVITY	0 to 50 GOOD	51 to 100 MODERATE	101 to 150 UNHEALTHY FOR SENSITIVE GROUPS	151 to 200 UNHEALTHY	201 to 300 VERY UNHEALTHY
Recess (15 min)	No Restrictions	No Restrictions	Make indoor space available for children with asthma or other respiratory problems.	Any child who complains of difficulty breathing, or who has asthma or other respiratory problems, should be allowed to play indoors.	Restrict outdoor activities to light to moderate exercise.
P.E. (1 hr)	No Restrictions	No Restrictions	Make indoor space available for children with asthma or other respiratory problems.	Any child who complains of difficulty breathing, or who has asthma or other respiratory problems, should be allowed to play indoors.	Restrict outdoor activities to light to moderate exercise not to exceed one hour.
Scheduled Sporting Events	No Restrictions	Individuals who are unusually sensitive to ground-level ozone should limit intense activities.	Individuals with asthma or other respiratory or cardiovascular illness should increase rest periods and reduce activities to lower breathing rates.	Consideration should be given to rescheduling or relocating event.	Event should be rescheduled or relocated indoors.
Athletic Practice and Training (2 to 4 hrs)	No Restrictions	Individuals who are unusually sensitive to ground-level ozone should limit intense activities.	Individuals with asthma or other respiratory or cardiovascular illness should increase rest periods and reduce activities to lower breathing rates.	Activities over 2 hours should decrease intensity and duration. Add rest breaks or substitutions to lower breathing rates.	Sustained rigorous exercise for more than one hour must be rescheduled, moved indoors or discontinued.

Principles Behind Recommendations

- **Dose = Concentration x Breathing rate x Time**
 - Concentration – amount of pollutant in air
 - Breathing rate – how fast you breathe
 - Time - time spent outdoors
- Reduce any or all of these factors to reduce dose
- **Pay attention to symptoms**



School Flag Program Website

www.airnow.gov/schoolflag

- Registration form
- Fact sheet
- Coordinator's handbook
- Recommendations chart/activity guidelines
- Press release template
- Student activities
- Teacher and student resources
- List of participating schools



Air Quality Resources

- Resources for teachers are available on the AirNow.gov website: www.airnow.gov
 - Online curricula
 - Interactive games
 - Air quality simulator
 - AirNow Learning Center
 - Children's picture book (free at www.epa.gov/nscep)



Start a Flag Program at Your School

- Go to www.airnow.gov/schoolflag to learn more
- For questions, contact Ellen Wildermann
 - wildermann.ellen@epa.gov
 - (919) 541-5408

