

Asthma, Climate Change, and You



Thursday, August 17, 2017
10:30 AM – 12:30 PM

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Who are we?

What do we do?

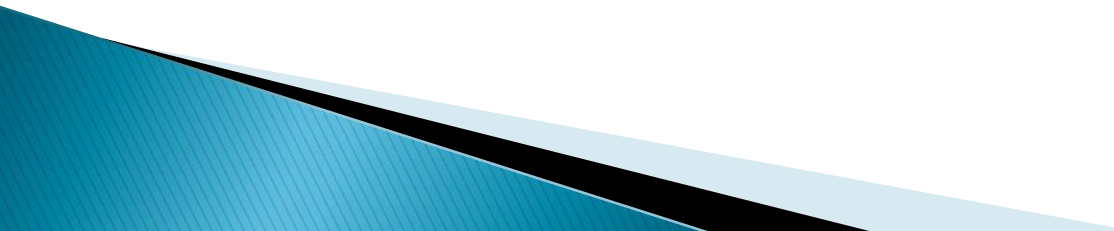
Why are we here?



**NATIONAL
NURSE-LED CARE
CONSORTIUM**

a **PHMC** affiliate

Today's Agenda

- ▶ Climate Change and Health
 - ▶ Curriculum Overview and Discussion
 - ▶ Asthma Action Plans with Students
 - ▶ Communicating Climate Change
 - ▶ Evaluating Behavior Change
 - ▶ Questions
- 

What is climate change?

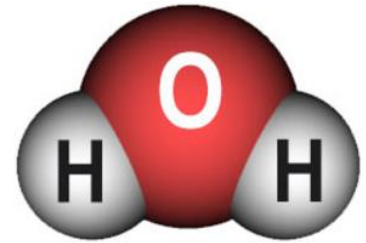
“Climate change is any change in average weather that lasts for a long period of time, like warming temperatures. Climate change affects the **food we eat, the air we breathe, and the water we drink.** It also leads to extreme weather events, like flooding, droughts, and wildfires. **All of these impacts affect human health.**”

-U.S. EPA

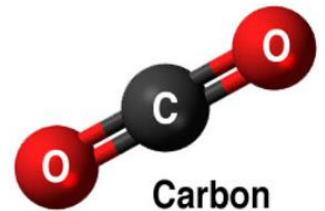
How does it happen?

Sunlight passes through the atmosphere and warms the Earth's surface. This heat is radiated back toward space.

Most of the outgoing heat is absorbed by greenhouse gas molecules and re-emitted in all directions, warming the surface of the Earth and the lower atmosphere.

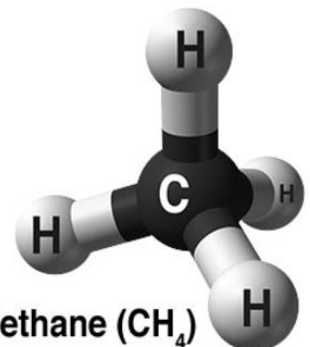
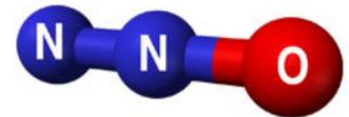


Water vapor (H_2O)



Carbon dioxide (CO_2)

Nitrous oxide (N_2O)



Methane (CH_4)

<https://climate.nasa.gov/causes/>

Human activities contribute to rising levels of greenhouse gases

Some examples:

- ▶ Burning fossil fuels like coal and oil
- ▶ Deforestation, land use changes
- ▶ Agricultural changes and cultivation practices used for grain and soil

“Humans have increased atmospheric CO₂ concentration by more than a third since the Industrial Revolution began”

–NASA

Climate Change and Health

Health



- Weather-related deaths
- Infectious diseases
- Air quality - respiratory illnesses

Climate Changes

Temperature

Sea Level Rise



Precipitation



Ecosystems



- Loss of habitat and diversity
- Species range shifts
- Ecosystem services
- Land degradation
- Stratospheric ozone depletion

Agriculture



- Pest management
- Irrigation demand
- Crop yields
- Desertification and land degradation

Forests



- Geographic range
- Health, composition, and productivity

Water Resources



Changes in water quality, precipitation, and water supply

Coastal Areas



- Erosion and inundation of coastal lands
- Costs of protecting vulnerable lands

“Asthma, Climate Change, and You”

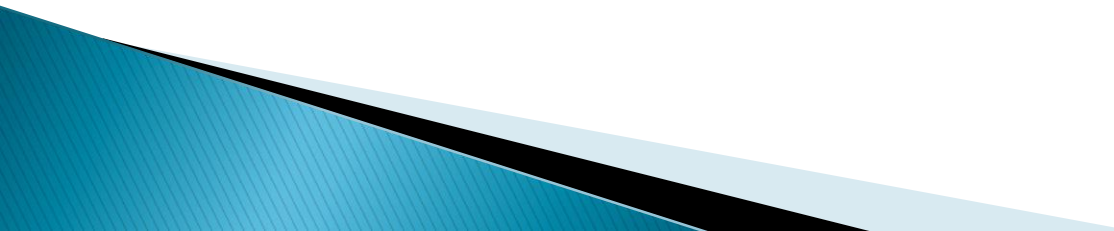
This curriculum is meant to explain climate change and its impact on those with asthma

Students learn what they can do to help with climate change, so they feel empowered to make a difference

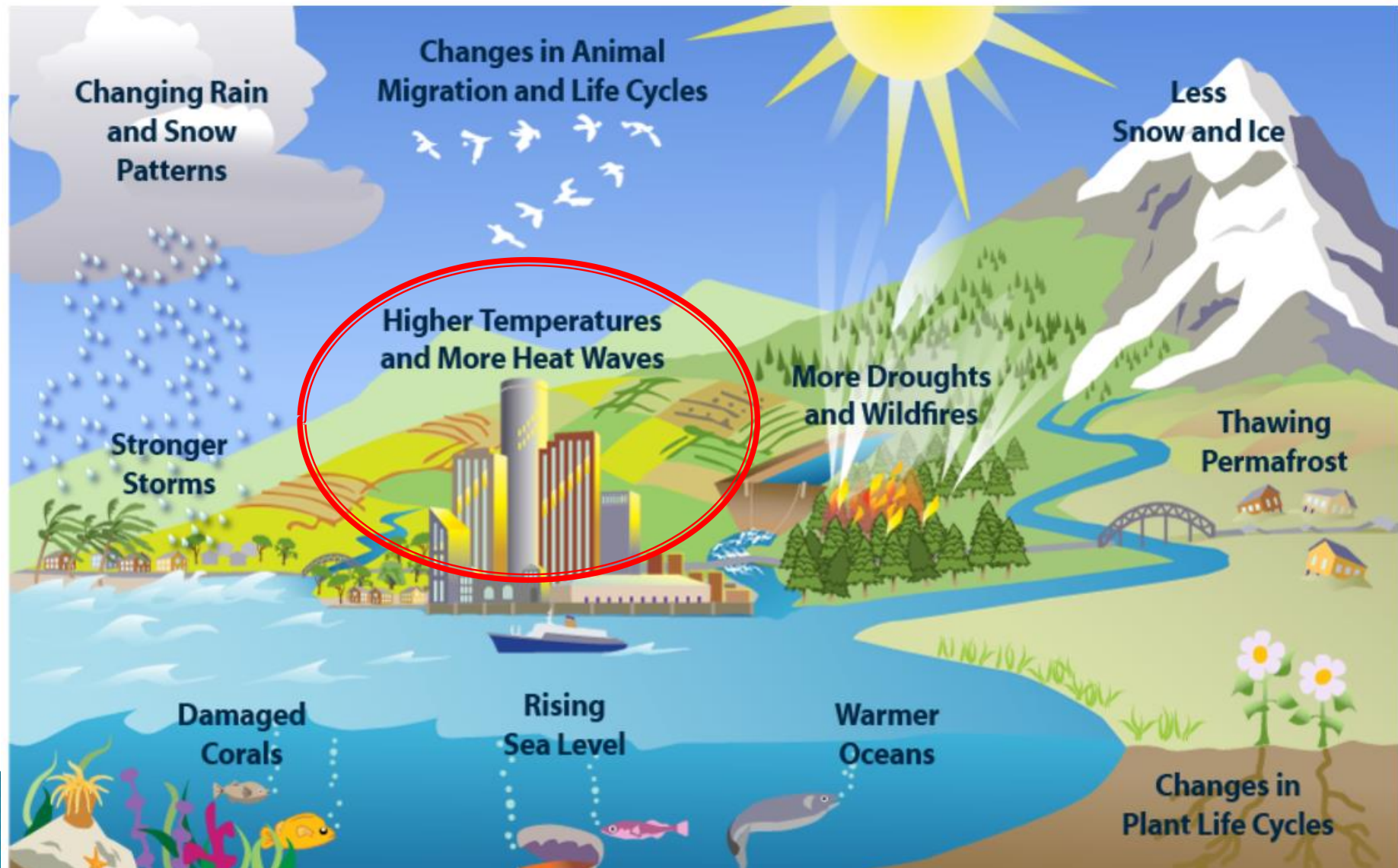
We provide a take home kit for a natural cleaner that is eco-friendly and asthma-friendly



Curriculum Overview

- ▶ Introduce Climate Change
 - ▶ How Climate Change Impacts Asthma
 - ▶ Asthma symptoms
 - ▶ Asthma triggers
 - ▶ Protecting your health
 - ▶ Integrated pest management
- 

Signs of Climate Change



How Does Climate Change Affect Your Health?

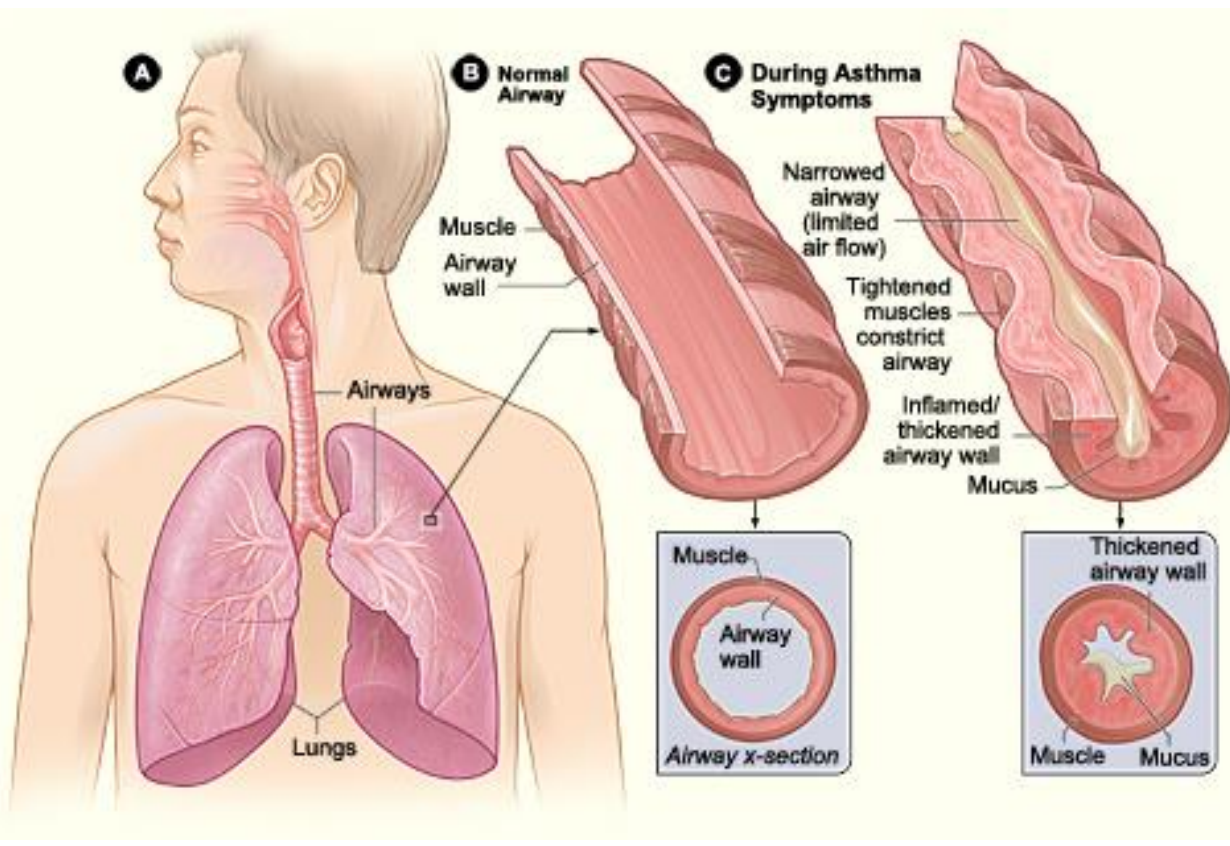
Climate change causes more air pollution and allergens.

This affects people with allergies and **asthma**.

Air pollution gets trapped in warm city air, so people who live in cities are affected even more.



Asthma: Health condition that affects the airways of your lungs and makes it harder to breathe.



Symptoms

Wheezing
Coughing
Chest Tightness
Shortness of Breath

[Let's Learn More!](http://www.asthma.com/what-is-asthma/asthma-symptoms.html)

You Can Control Your Asthma!

- Using an inhaler and doctor-recommended medications (for quick relief and to prevent symptoms)
- Making changes in your environment to manage asthma triggers.





Pets



Exercise



Pollen



Pests in the home



Rodents



Anger



Candles



Air fresheners & cleaners



School supplies



Smoke



Dust



House mold



Cold air

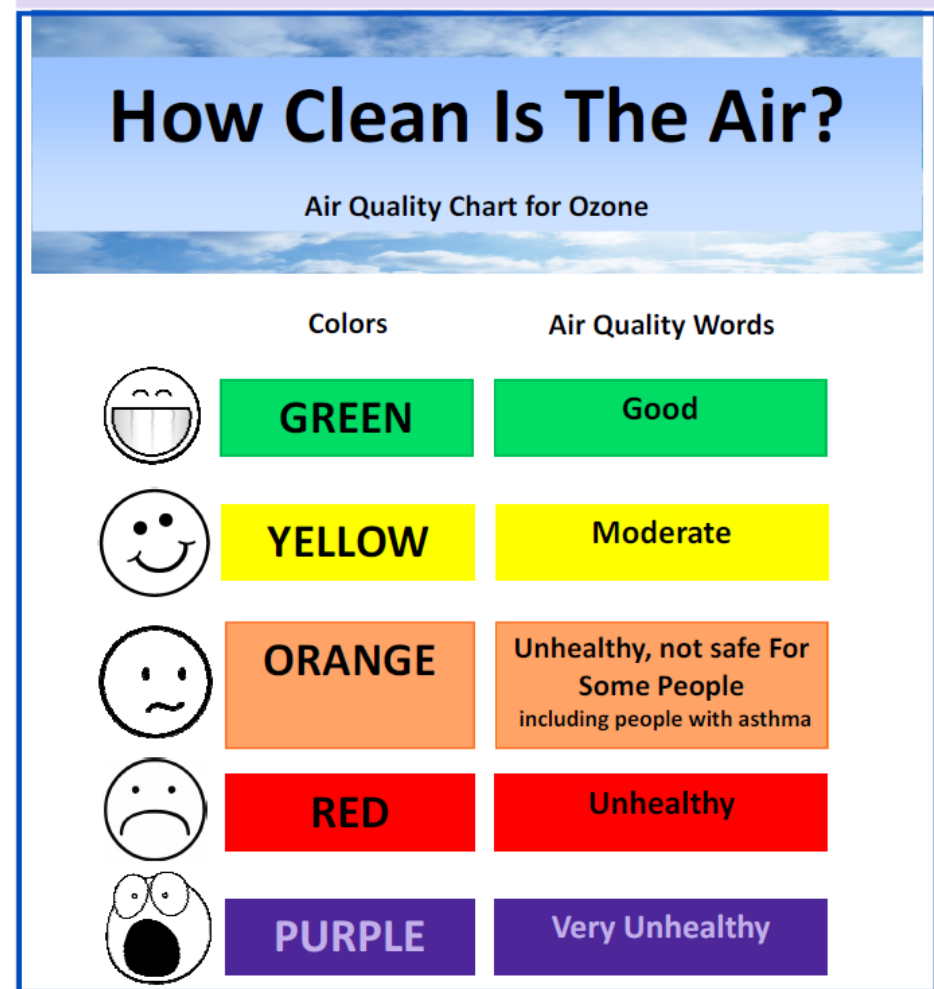
Asthma Triggers

What Can You Do to Protect Your Health?

Check the daily
Air Quality forecast

- ▶ Good air days–
when it is okay to
go out and play
- ▶ Unhealthy air days–
when you should
limit outdoor
activities.

Visit www.airnow.gov



Air Quality August 2, 2017



Checking Pollen Level



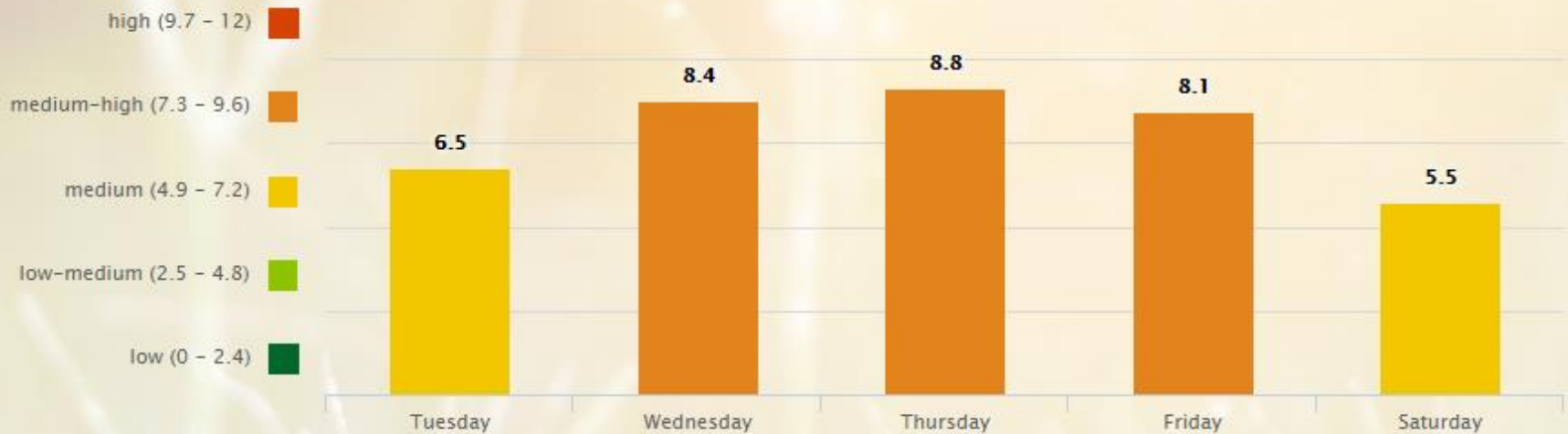
Enter city or ZIP to get your allergy forecast

[HOME](#)

[FORECAST](#)

[AI](#)

5 Day Allergy Forecast for Philadelphia, PA



What Can You Do to Protect Your Health?



What Can You Do to Protect Your Health?

Decrease asthma triggers inside your home...

Let in fresh air



What Can You Do to Protect Your Health?

Stay away from products with
toxic chemicals

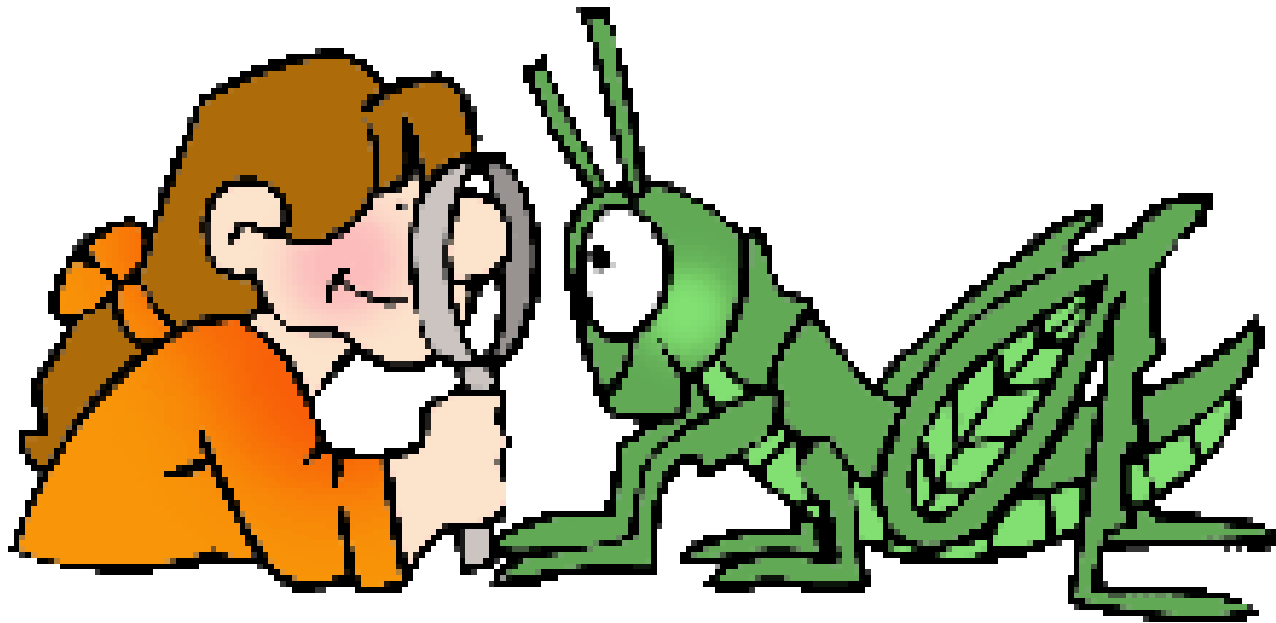


What Can You Do to Protect Your Health?

Integrated Pest Management... What is that?!



Let's Take a Closer Look at Pests



What is a pest?

“Any destructive or troublesome organism”

- ▶ Affect public health
- ▶ Destroy food or property
- ▶ Create a nuisance

*Something we don't like,
where we don't want it!*



Rodent-chewed wire – fire hazard!



Cockroaches on trap – diseases



Mice nesting – wherever! - allergens

What do pests want?

Food

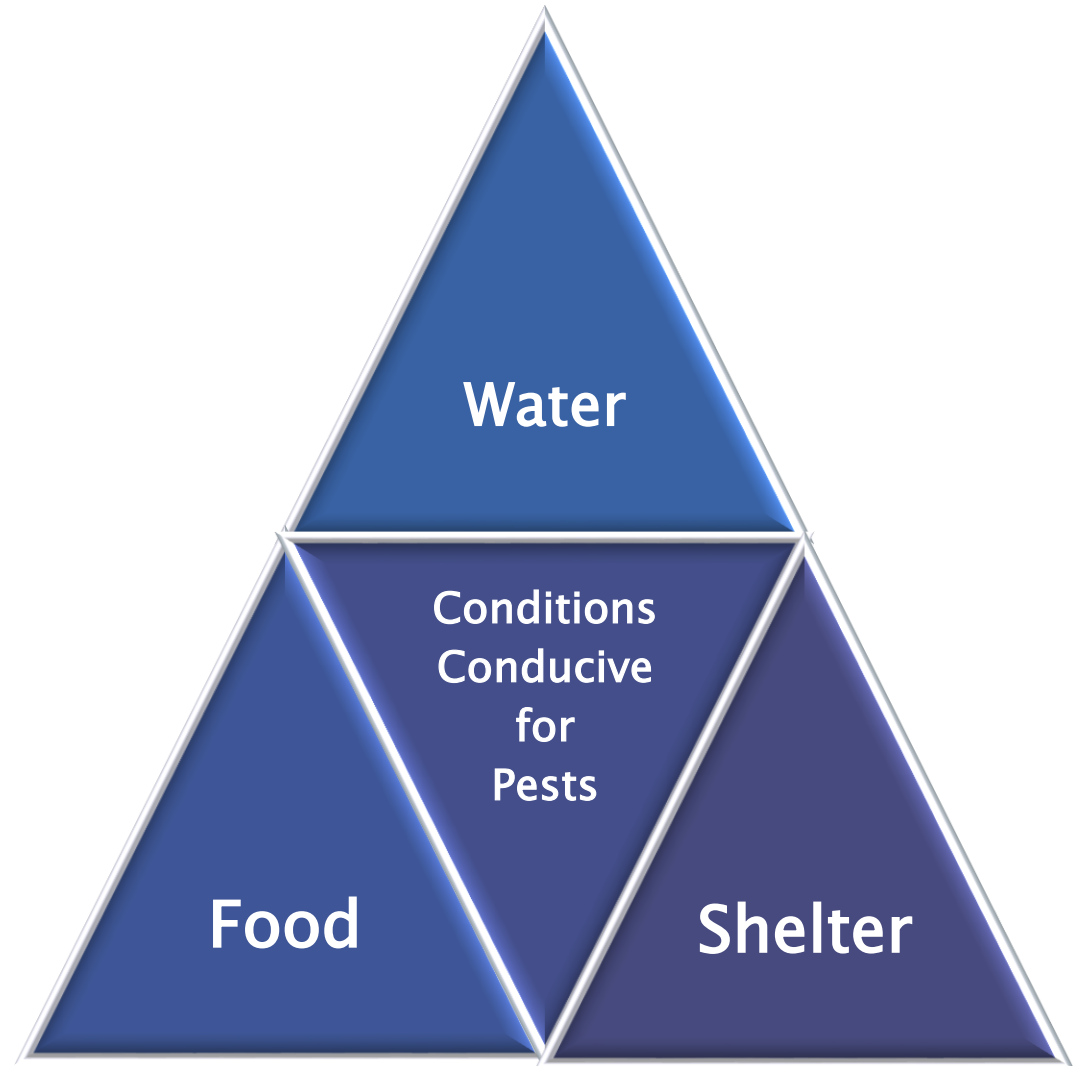
- It's why they are there!

Water

- Every day

Harborage

- Places to hide & nest



Next Steps

- ▶ Talk to the school nurse about your asthma action plan.
- ▶ Teach your friends and family about climate change and what they can do about it.
- ▶ Take steps to make your home and neighborhood healthier.
 - Get started by using our take-home kit!

Let's take a quick break

» 5 minutes

How Nurses Can Be Involved

- ▶ Discuss the health impact of climate change with asthmatic students.
- ▶ Make sure every asthmatic student has an asthma action plan that includes environmental triggers to avoid.
- ▶ Check the daily air quality forecast www.airnow.gov and advise students accordingly.
 - Additional: EPA Air Quality Flag Program

**Air Quality Flag
PROGRAM**
Know Your Air Quality
to Protect Your Health



Asthma Action Plans

My Asthma Action Plan

Name: _____ Date: _____

Parent/Guardian: _____




Healthcare Provider: _____

Phone for healthcare provider: _____

Phone for taxi or friend: _____ Emergency #911 _____

Other instructions: _____

Daily controller medication is written here. You do not normally give this at school.

I feel GOOD (Green) 	<ul style="list-style-type: none"> Breathing is easy. No cough or wheeze. Can work and play 	<input type="checkbox"/> Use asthma long-term control medicine.			
	Peak Flow Numbers: _____ to _____	Medicine: _____ _____ _____	How taken: _____ _____ _____	How much: _____ _____ _____	When: _____ times a day _____ times a day _____ times a day
I do NOT feel good (Yellow) 	<ul style="list-style-type: none"> Cough Wheeze Hard to breathe Wake up at night. Can do some, but not all activities. 	TAKE _____ puffs of quick-relief medicine. If not back in the Green Zone within 20 to 30 minutes, take _____ more puffs.			
	Peak Flow Numbers: _____ to _____	Medicine: _____ _____ _____	How taken: _____ _____ _____	How much: _____ _____ _____	When: _____ times a day _____ times a day every _____ hours
I feel AWFUL (RED) 	<ul style="list-style-type: none"> Medicine does not help. Breathing is hard and fast. Can't walk well. Can't talk. Feel very scared 	Get help now! Take these quick-relief medicines until you get emergency care.			
	Peak Flow Number: Under _____	Medicine: _____ _____ _____	How taken: _____ _____ _____	How much: _____ _____ _____	When: _____ _____ _____

Rescue Medication

Asthma Resources

CDC: [Resources for Addressing Asthma](#)

Asthma and the Environment: A Strategy to Protect Children. This document, prepared by the Presidential Task Force on Environmental Health and Safety Risks to Children, describes environmental factors associated with the onset of asthma and triggers of asthma attacks. Four recommendations for federal action to address childhood asthma are presented.

<http://aspe.hhs.gov/sp/asthma/appxd.pdf>

Asthma and Outdoor Air Pollution. This fact sheet provides information for people with asthma on understanding and using outdoor air quality warnings. www.epa.gov/airnow/health-prof/Asthma_Flyer_Final.pdf

Breathing Difficulties Related to Physical Activity for Students With Asthma: Exercise-Induced Asthma. This resource, developed by the NAEPP, offers tips for addressing exercise-induced asthma and is aimed at school personnel who are responsible for physical activity and sports programs for students. This is a handy tool that can be used in conjunction with asthma education programs for school personnel and as a quick reference on coaches' clipboards. www.nhlbi.nih.gov/health/prof/lung/asthma/exer_induced.htm

American Association of School Administrators:

Checklist for School Districts

D. Reducing Environmental Contributors	CHECK THE APPROPRIATE COLUMN		
	NOT YET	IN PROCESS	YES
1. The district uses the Environmental Protection Agency's "Tools for Schools" toolkit to improve indoor air quality (available at www.epa.gov/iaq/schools/).			
2. The district focuses on eliminating mold, mildew and leaks and reduces indoor humidity and dust as much as possible.			
3. The district ensures that bus exhaust fumes do not enter schools or outdoor areas used by students.			
4. The district prohibits furred and feathered animals from classrooms and monitors plants for mold.			
5. The district reduces the amount of carpeting in schools and requires the use of special vacuuming procedures/equipment where carpeting remains.			
6. The district reviews building maintenance procedures periodically, updates them as necessary, and ensures that all maintenance staff is properly trained in these procedures.			
7. School personnel review all requirements in the materials safety data sheets concerning the handling of caustic and other dangerous substances and ensure that the requirements are met.			
8. School personnel regulate the use of potentially dangerous supplies and chemicals, including science and art supplies.			
9. The district ensures that integrated pest management techniques are used on school property.			
10. The district enforces a tobacco-free environment for all students, staff, and visitors on all school properties, in all school vehicles, and at all school-sponsored events – on and off campus.			

Pennsylvania Asthma Partnership (PAP)

School Nurse Checklist

1. MAINTAINING STUDENT HEALTH

	Yes	No	N/A
1a. Completed health records for each student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1b. Updated health records, as appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1c. Obtained necessary information about student allergies and other health factors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1d. Developed a system to log health complaints (note symptoms, location and time of symptom onset, and exposure to pollutant sources)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1e. Monitored trends in health complaints (especially in timing or location of complaints)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1f. Investigated potential causes of health complaints (for example, school was renovated or refurnished recently; individual recently started working with new or different materials or equipment; new practices or products, such as cleaners or pesticides, were introduced into the school)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1g. Ensured that the school prohibits smoking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1h. Noted any new warm-blooded animals introduced into classrooms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1i. Reviewed and understood indicators of IAQ-related problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PAP – Is the Asthma Action Plan Working

With good asthma management, students should:

- Be free from asthma symptoms or have only minor symptoms:
 - no coughing or wheezing
 - no difficulty breathing or chest-tightness
 - no waking at night due to asthma symptoms
- Be able to go to school every day, unhampered by asthma.
- Be able to participate fully in regular school and daycare activities, including play, sports, and exercise.
- Have no bothersome side effects from medications.
- Have no emergency room or hospital visits.
- Have no missed class time for asthma-related interventions or missed class time is minimized.

Signs that a student's asthma is not well controlled:

Indicate by checking the appropriate box whether any of the signs or symptoms listed below have been observed or reported by parents or children within the past 2-4 weeks (6 months for history). If any boxes are marked, this suggests difficulty with following the treatment plan or need for a change in treatment or intervention (e.g., different or additional medications, better identification or avoidance of triggers).

- | | |
|--|---|
| <input type="checkbox"/> Asthma symptoms more than two days a week or multiple times in one day that require quick-relief medicine (short-acting beta2-agonists, e.g., albuterol). | <input type="checkbox"/> Having to stop and rest at PE, recess, or during activities at home because of symptoms. |
| <input type="checkbox"/> Symptoms get worse even with quick-relief meds. | <input type="checkbox"/> Exacerbations requiring oral systemic corticosteroids more than once a year. |
| <input type="checkbox"/> Waking up at night because of coughing or wheezing. | <input type="checkbox"/> Symptoms require unscheduled visit to doctor, emergency room, or hospitalization. |
| <input type="checkbox"/> Frequent or irregular heartbeat, headache, upset stomach, irritability, feeling shaky or dizzy. | <input type="checkbox"/> 911 call required. |
| <input type="checkbox"/> Missing school or classroom time because of asthma symptoms. | |

Asthma 101 Training

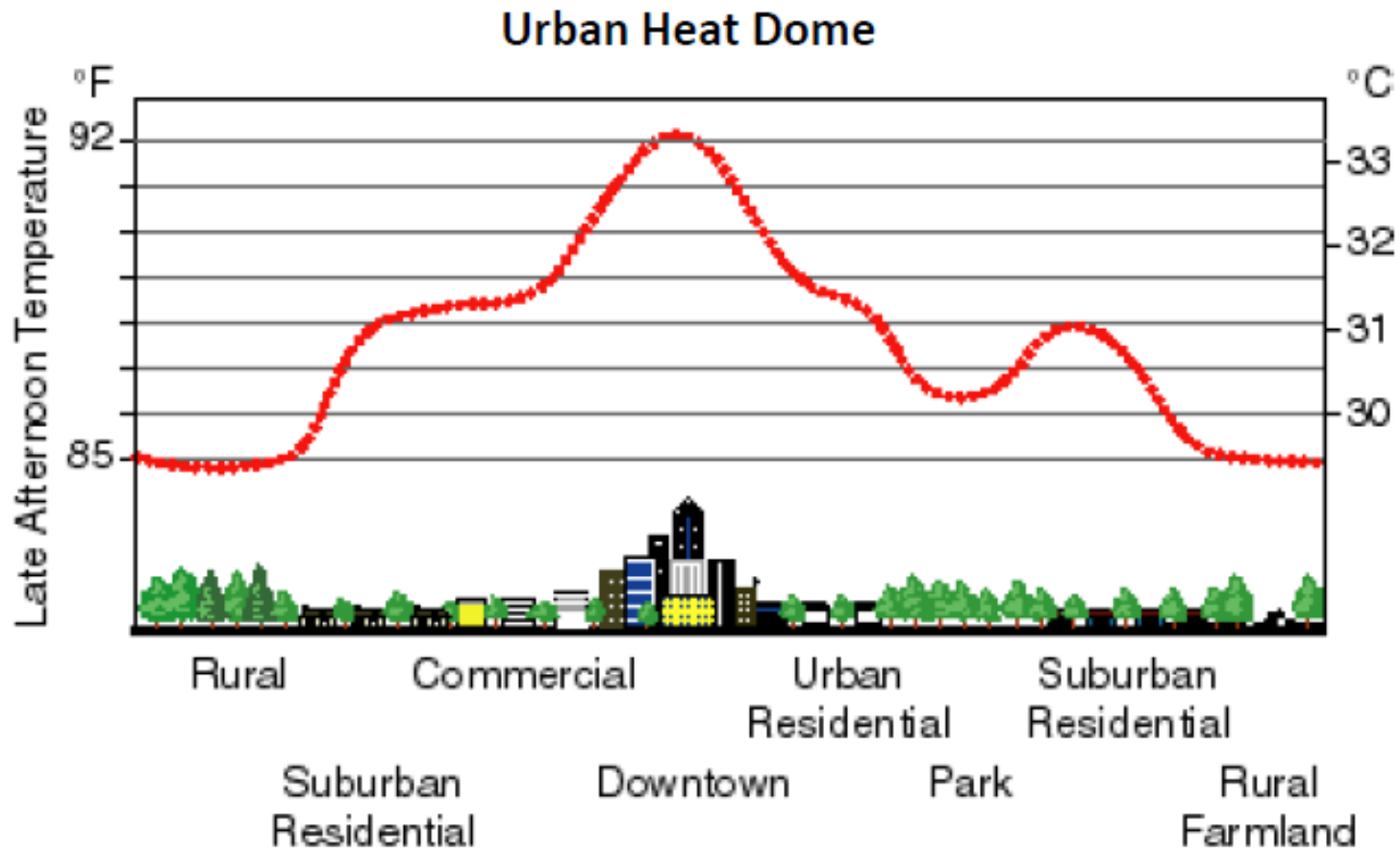
Triggers in Schools

- ▶ Insects
- ▶ Rodents
- ▶ Mold
- ▶ Class pets
- ▶ Dust and dust mites
- ▶ Pollen and other outdoor allergies

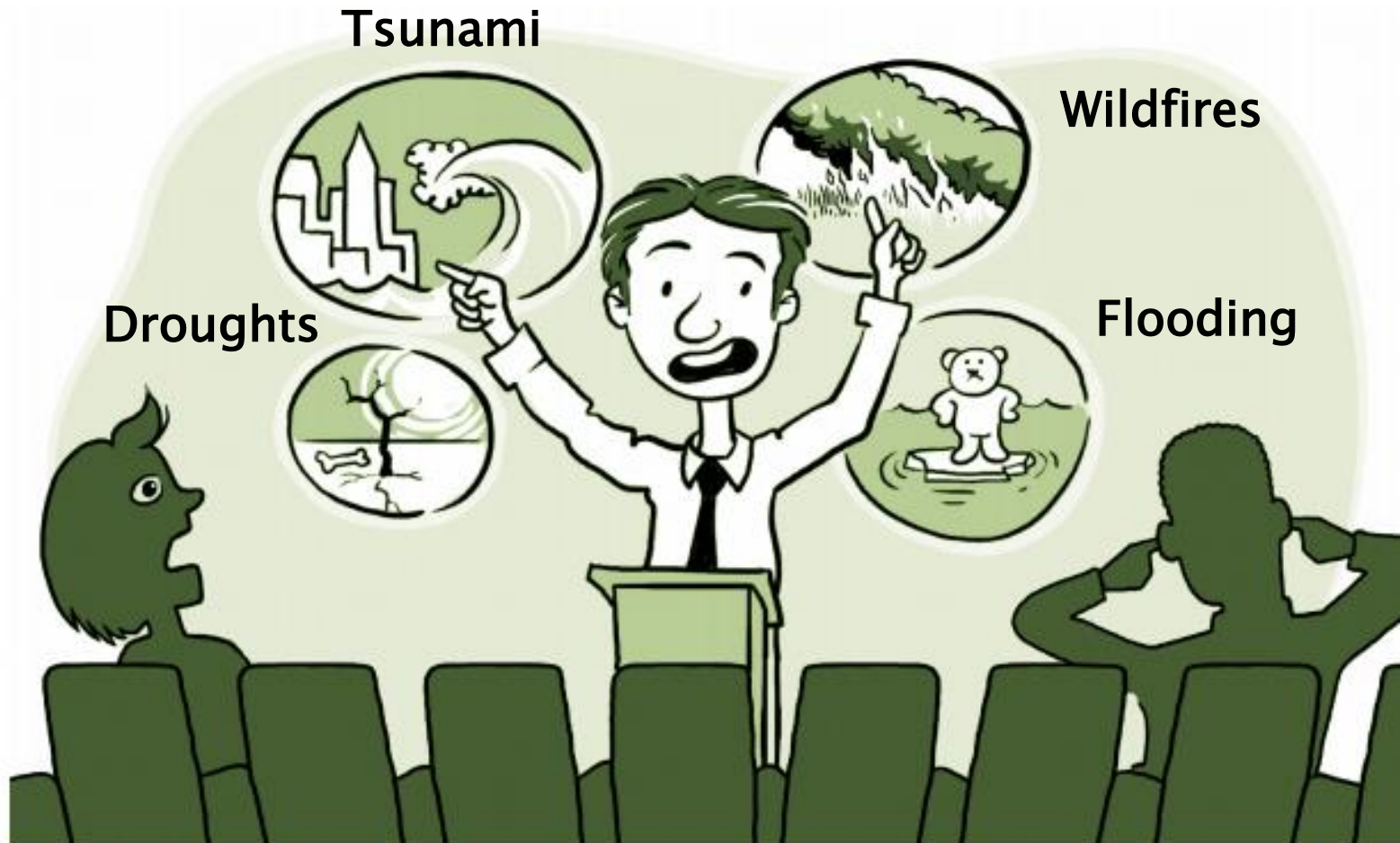
Irritants

- ▶ Idling vehicles
- ▶ Pollution
- ▶ Smoke exposure
- ▶ Humidity
- ▶ Strong odors
 - E.g. markers, etc.

Communicating Climate Change



Using Real Life Examples



Climate Change Resources

- ▶ ecoAmerica– [Free downloadable guides and “Let’s Talk Climate Change” webinars](#)

Buildings and homes

- using more efficient lighting, such as CFLs and LEDs
- using daylight instead of artificial light
- using more efficient electrical appliances and heating and cooling devices
- improving insulation
- using solar heating and cooling
- using appliance standards and labeling that show energy usage
- encouraging consumers to use less energy during peak hours
- implementing building codes and certification
- using smart meters that provide feedback and control

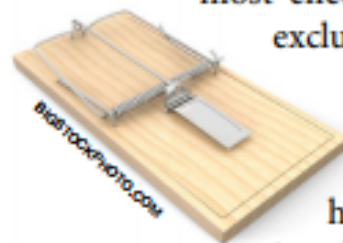
PA Integrated Pest Management (PA IPM): Pests and Asthma

Pesticides, Asthma, and Human Health

Pesticides are substances designed to kill, control, or repel pests, including insects, rodents, weeds, and molds. The U.S. Environmental Protection Agency (EPA) lists pesticides as one of four environmental pollutants that may influence the induction and exacerbation of asthma symptoms. Pesticides do this by irritating the lungs as they are breathed in. Additionally, in laboratory tests with animals, commonly used pesticides have been linked to cancer, birth defects, reproductive disorders, and neurological, kidney, and liver damage. To be safe, it is important to limit children's exposures to toxins of all kinds, including pesticides.

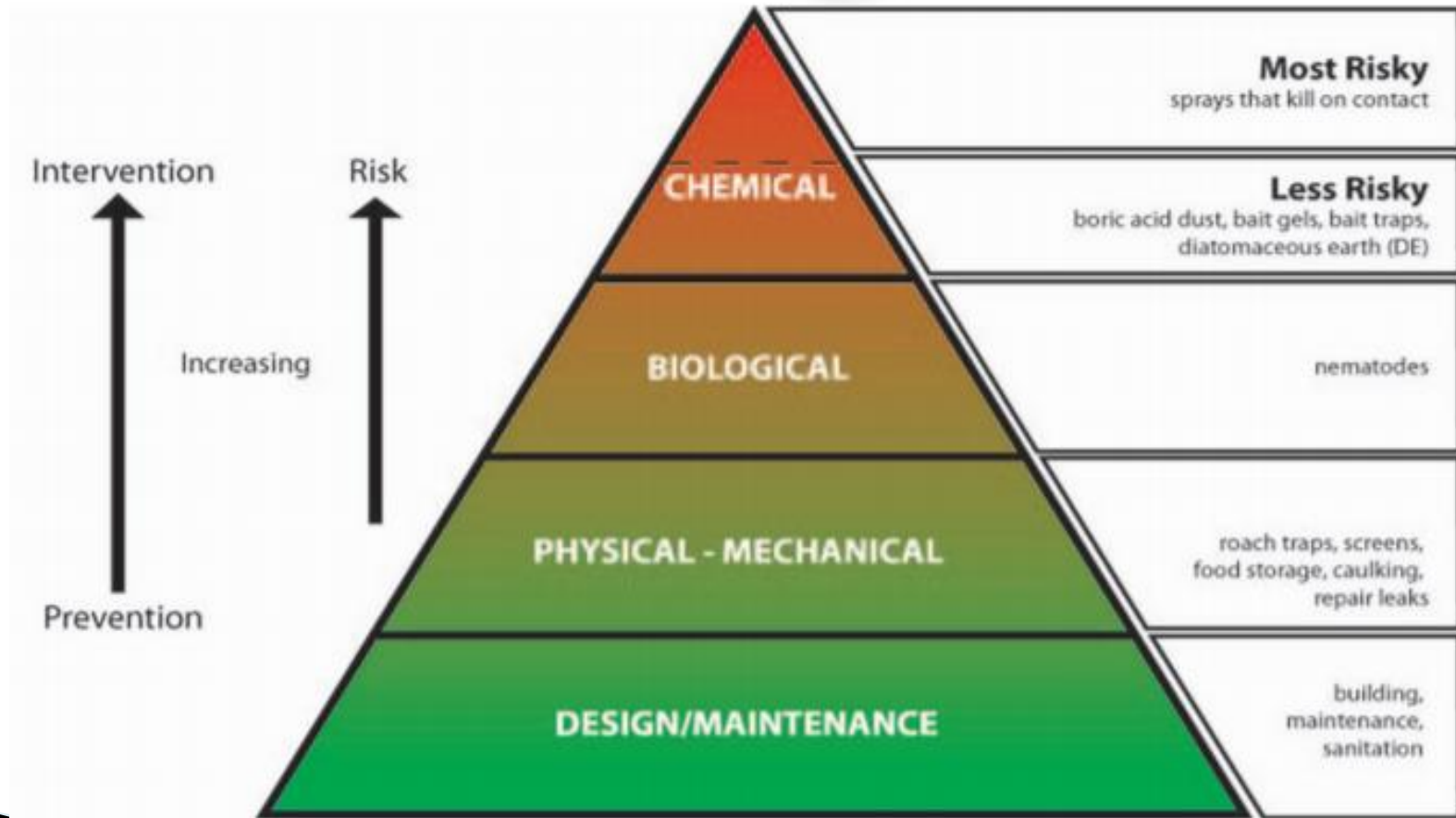
What Can You Do to Safely Control Pests?

Integrated pest management (IPM) uses information about the pest in order to choose methods of control that are safest and most effective. IPM methods include pest prevention, exclusion, and nonchemical tools first. If chemical pesticides are needed, products are chosen that pose the least risk to human health. With IPM, you start by asking, "Why is this pest here?" and try to remove the conditions allowing the pest to enter and live. This approach solves pest problems rather than just treating the symptoms. It also reduces the need to use pesticides repeatedly.



Additional Climate Change Resources

- ▶ PA IPM – [Integrated Pest Management](#)



Pyramid of IPM Tactics

North American Association for Environmental Education (NAAEE)

Guidelines for Environmental Education

KEY CHARACTERISTIC #3 EMPHASIS ON SKILLS BUILDING




Environmental education materials should build lifelong skills that enable learners to address environmental issues.

KEY CHARACTERISTIC #4 ACTION ORIENTATION



Environmental education materials should promote civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental problems and issues as a basis for environmental problem solving and action.

Assessing Behavior Change with Education Plus Health

- ▶ Nurse has consent to follow up with children who have asthma
 - ▶ Also trying to find children with undiagnosed asthma, if possible
 - ▶ Nurse will follow up immediately after the workshop with NNCC to assess the student's Asthma Action Plan
 - ▶ 2 months later, nurse will give student survey
- 

Survey

- ▶ Do you have an asthma action plan?

Yes or No

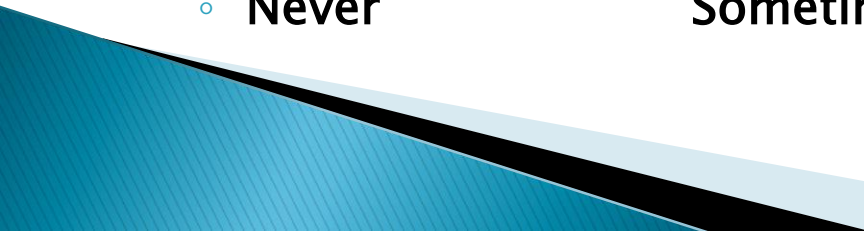
- If you answered yes... Does your asthma action plan say what asthma triggers you should stay away from?
 - Yes or No

- ▶ Since you learned about climate change, have you made changes to avoid triggers at home?

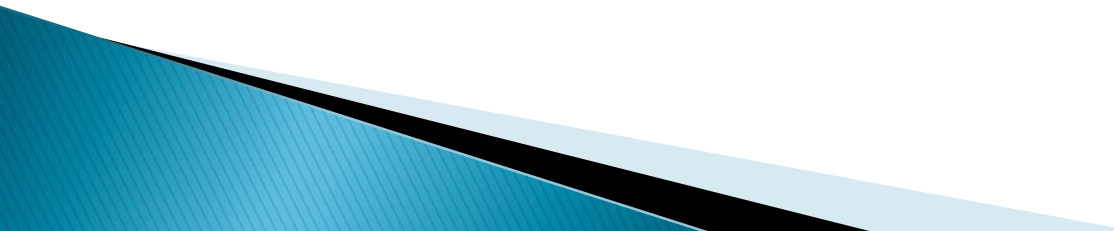
Yes or No

- If you answered yes... Give at least one example of a change you made_____

Survey Continued

- ▶ Since you learned about climate change, how often do you recycle?
 - Never Sometimes Always
 - ▶ Since you learned about climate change, have you used **Integrated Pest Management** in your home to prevent pests?
 - Yes or No
 - ▶ Since you learned about climate change, how often do you use your safe cleaning products kit?
 - Never Sometimes Always
 - ▶ Since you learned about climate change, how often do you talk about what you learned with your family and friends?
 - Never Sometimes Always
- 

Evaluating Behavior Change

- ▶ NNCC is hoping to see that 80% of students report behavior change after the workshop
 - ▶ We are also hoping to see that 80% of students report that they shared this knowledge with others
 - ▶ We would also like to see that students have started taking responsible actions towards the environment after the workshop
- 

Questions?

Thank you!

»» Christine Simon
(csimon@nncc.us)

Deepa Mankikar
(dmankikar@nncc.us)

Please complete the survey from CDN.