School Nurses: Crucial to School IPM Program Success

The Pest Defense for Healthy Schools

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www.maine.gov/ipm

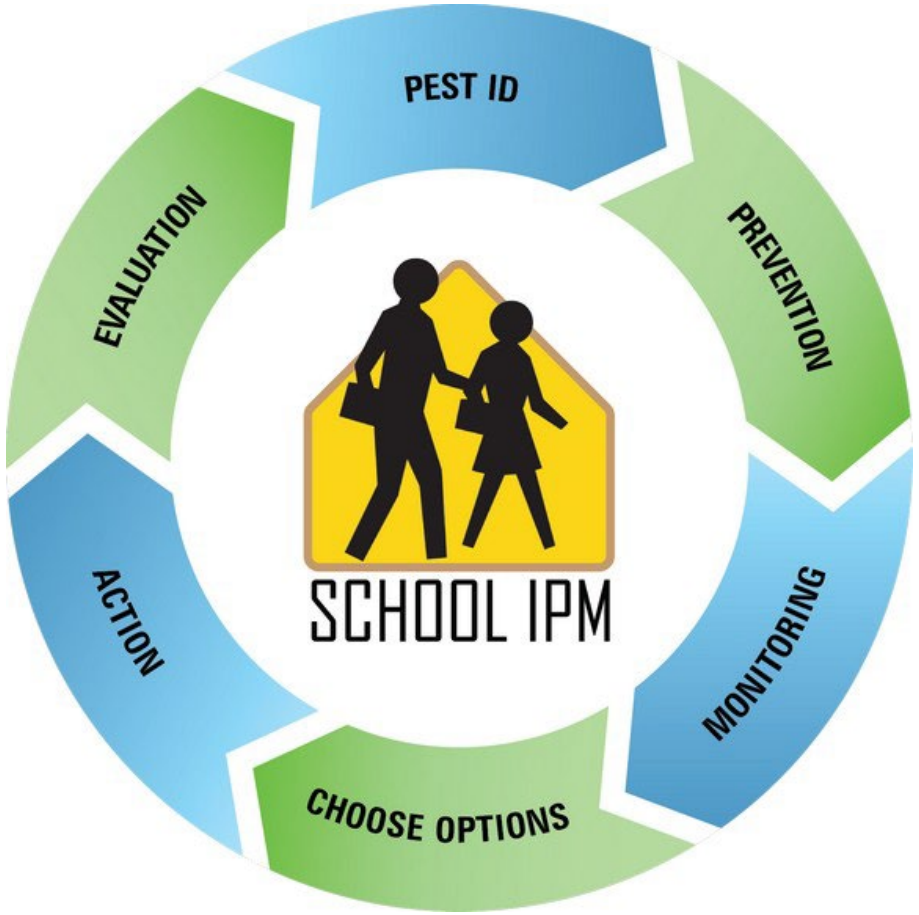
Maine School IPM Program

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Integrated Pest Management

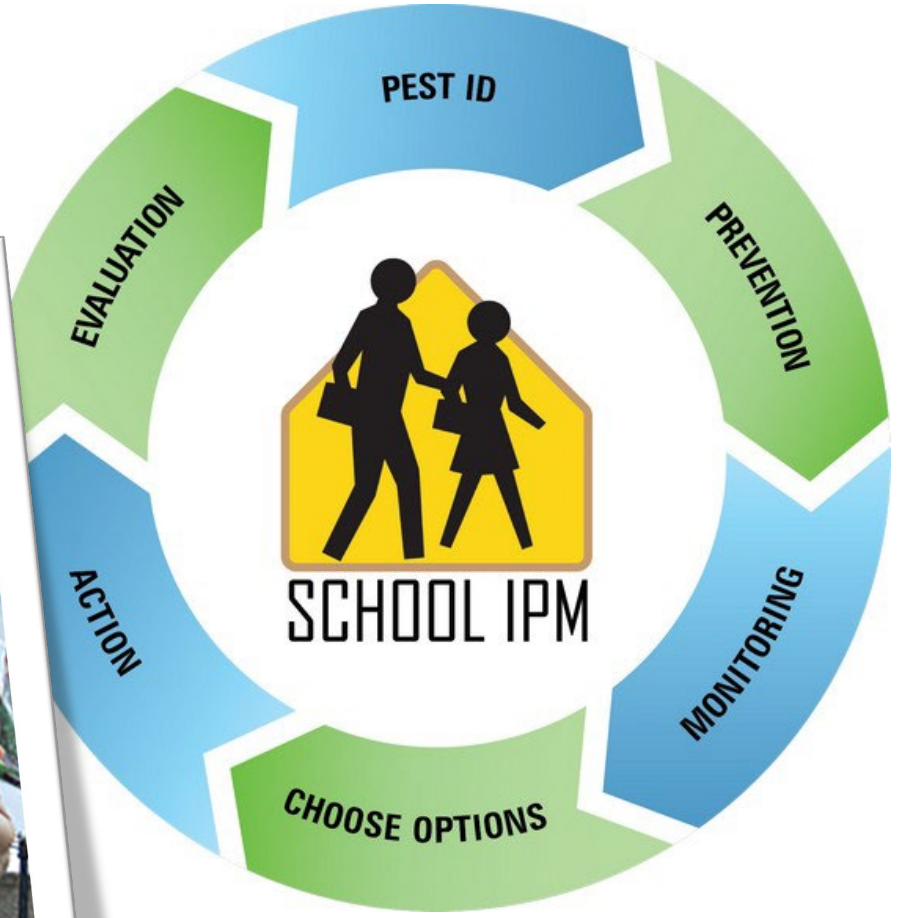
Integrated Pest Management, or IPM, is an **environmentally sound approach** to managing pests such as insects, weeds, plant pathogens, and wildlife on farms and forests, in our communities, and in our homes.

IPM **relies** on proper pest **identification**, **monitoring**, and combinations of pest **avoidance** and **management** strategies to protect people, crops, and the environment while minimizing reliance on pesticides.

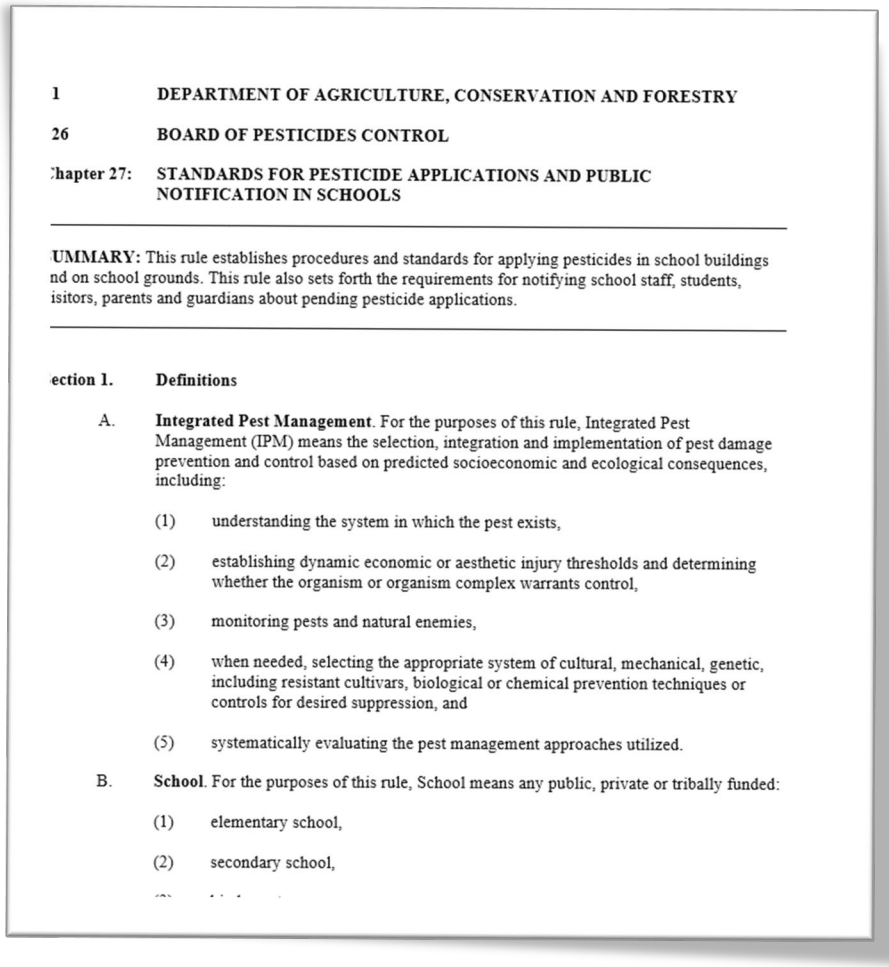


The Maine School IPM Program

- 25 Years Ago – constituent approached Kathy Murray about pesticide use in schools
- Surveyed and determined rulemaking was needed (pesticide applications, storage, etc.)
- Developed rules with Maine Board of Pesticides Control using consensus-based rulemaking
- Balanced the risks of pests with the risk of pesticide misuse in schools



Maine's School Pesticide Regulations



1 DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY

26 BOARD OF PESTICIDES CONTROL

Chapter 27: STANDARDS FOR PESTICIDE APPLICATIONS AND PUBLIC NOTIFICATION IN SCHOOLS

UMMARY: This rule establishes procedures and standards for applying pesticides in school buildings nd on school grounds. This rule also sets forth the requirements for notifying school staff, students, isitors, parents and guardians about pending pesticide applications.

ection 1. Definitions

A. **Integrated Pest Management**. For the purposes of this rule, Integrated Pest Management (IPM) means the selection, integration and implementation of pest damage prevention and control based on predicted socioeconomic and ecological consequences, including:

(1) understanding the system in which the pest exists,

(2) establishing dynamic economic or aesthetic injury thresholds and determining whether the organism or organism complex warrants control,

(3) monitoring pests and natural enemies,

(4) when needed, selecting the appropriate system of cultural, mechanical, genetic, including resistant cultivars, biological or chemical prevention techniques or controls for desired suppression, and

(5) systematically evaluating the pest management approaches utilized.

B. **School**. For the purposes of this rule, School means any public, private or tribally funded:

(1) elementary school,

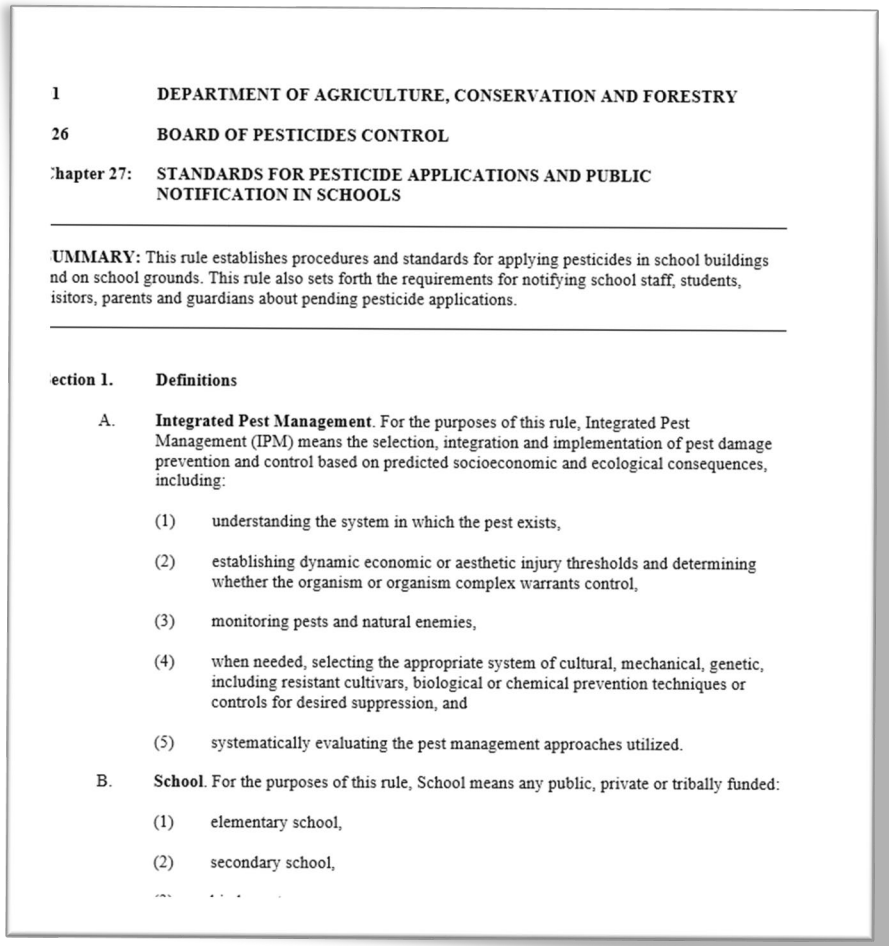
(2) secondary school,

Rule Became Effective in 2003:

Chapter 27: STANDARDS FOR PESTICIDE APPLICATIONS AND PUBLIC NOTIFICATION IN SCHOOLS (link)

SUMMARY: This rule establishes procedures and standards for applying pesticides in school buildings and on school grounds. This rule also sets forth the requirements for notifying school staff, students, visitors, parents and guardians about pending pesticide applications.

Maine's School Pesticide Regulations



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All K-12 Schools are required to:

- Adopt an IPM Policy
- Appoint an IPM Coordinator
- Notify parents and staff and post signs before most pesticide applications
- Use IPM to prevent and manage pests

Schools are Required to Use IPM

- **Use pesticides only as a part of a comprehensive IPM approach to pest prevention and management**

- **Monitor and identify pests**
  - Monitor in a systematic way – custodial staff, teachers, students, nurses. How will they know to contact you?
  - Ensure pests are identified properly

- **Keep pest management activity log:**
  - Pest monitoring records
  - Pest management action records
  - Pesticide application records (including powered disinfectant applications)

Photos: domyown.com

Integrated Pest Management

IPM: Pest prevention and management is essential for:

- Food safety
- Indoor air quality
- Sports safety
- Property management

Photos: wgme.com

Why do we need Integrated Pest Management (IPM)

- **Protects:**
  - Health
  - Buildings and grounds
  - Environment
- **Saves time and money**

IPM:
Effective, least risk pest prevention and management

Photos: Fabrice Florin (Flickr CC BY-SA 2.0)

Maine's School Pesticide Regulations

Apply to all schools serving any grade K-12

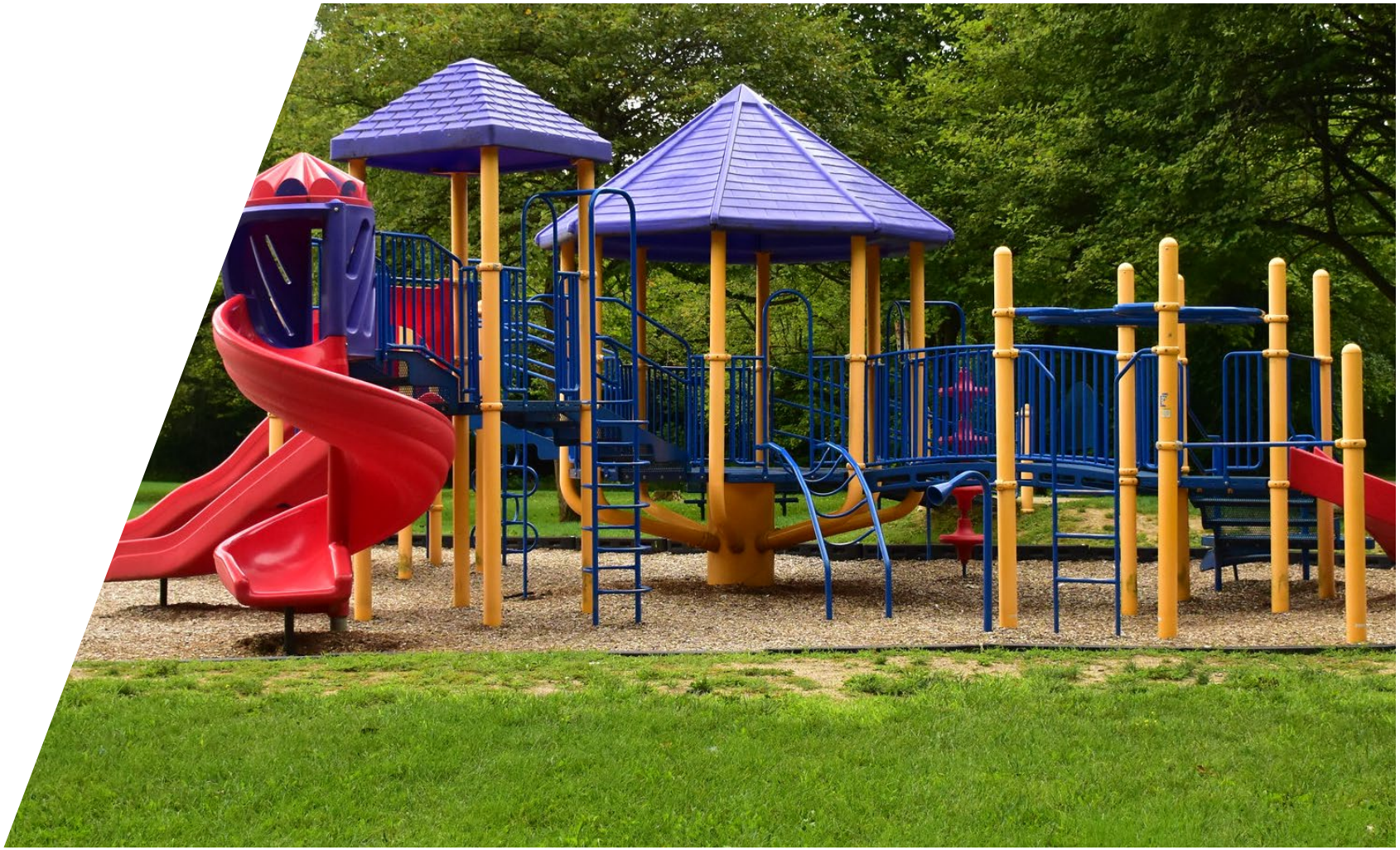
- All buildings and structures
- Attached childcare
- School buildings
- Portable units
- Maintenance sheds
- Snack shacks
- Concession stands

Photos: Gerry Dincher (Flickr CC BY-SA 2.0)

Maine's School Pesticide Regulations

Apply to all grounds

- Playgrounds
- Sports fields
- Gardens
- Agricultural fields
- Greenhouses



Photos: Ruben Hernandez (Flickr CC BY-SA 2.0)

Maine's School Pesticide Regulations

Apply to **private** and **public** properties used primarily for school-related activities

This includes ball fields owned or managed by towns and non-profit organizations

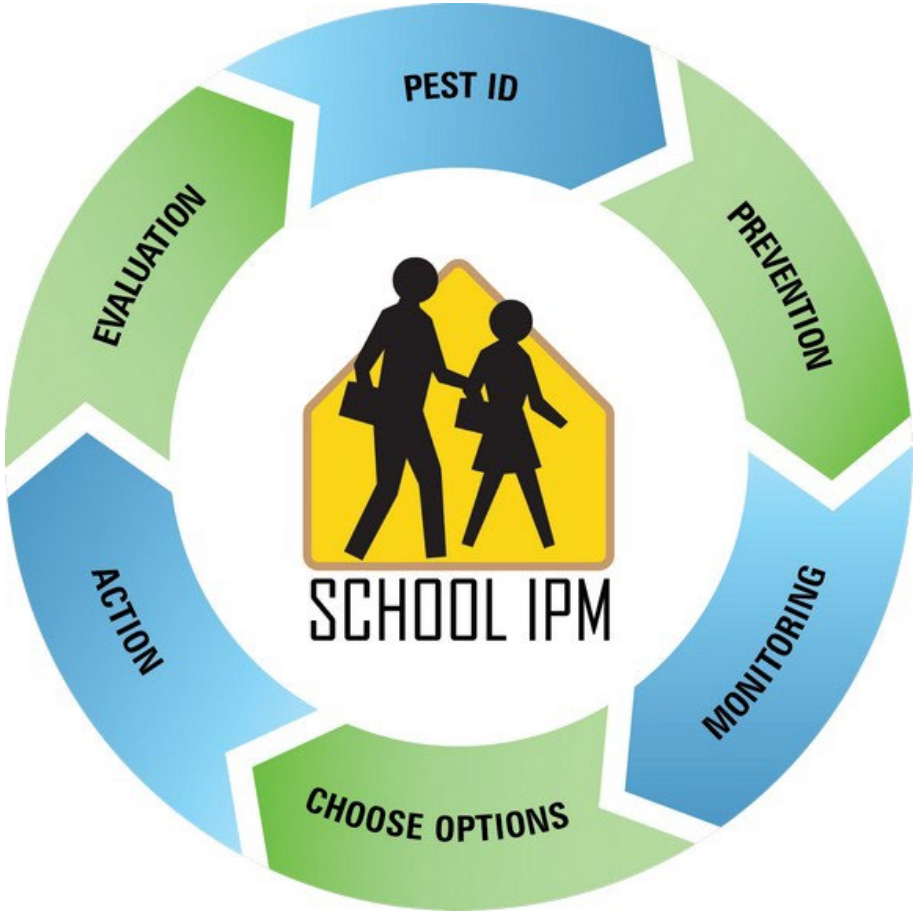
Photos: Barbara Moore (Flickr CC BY-SA 2.0)

Pests can pose risks to people

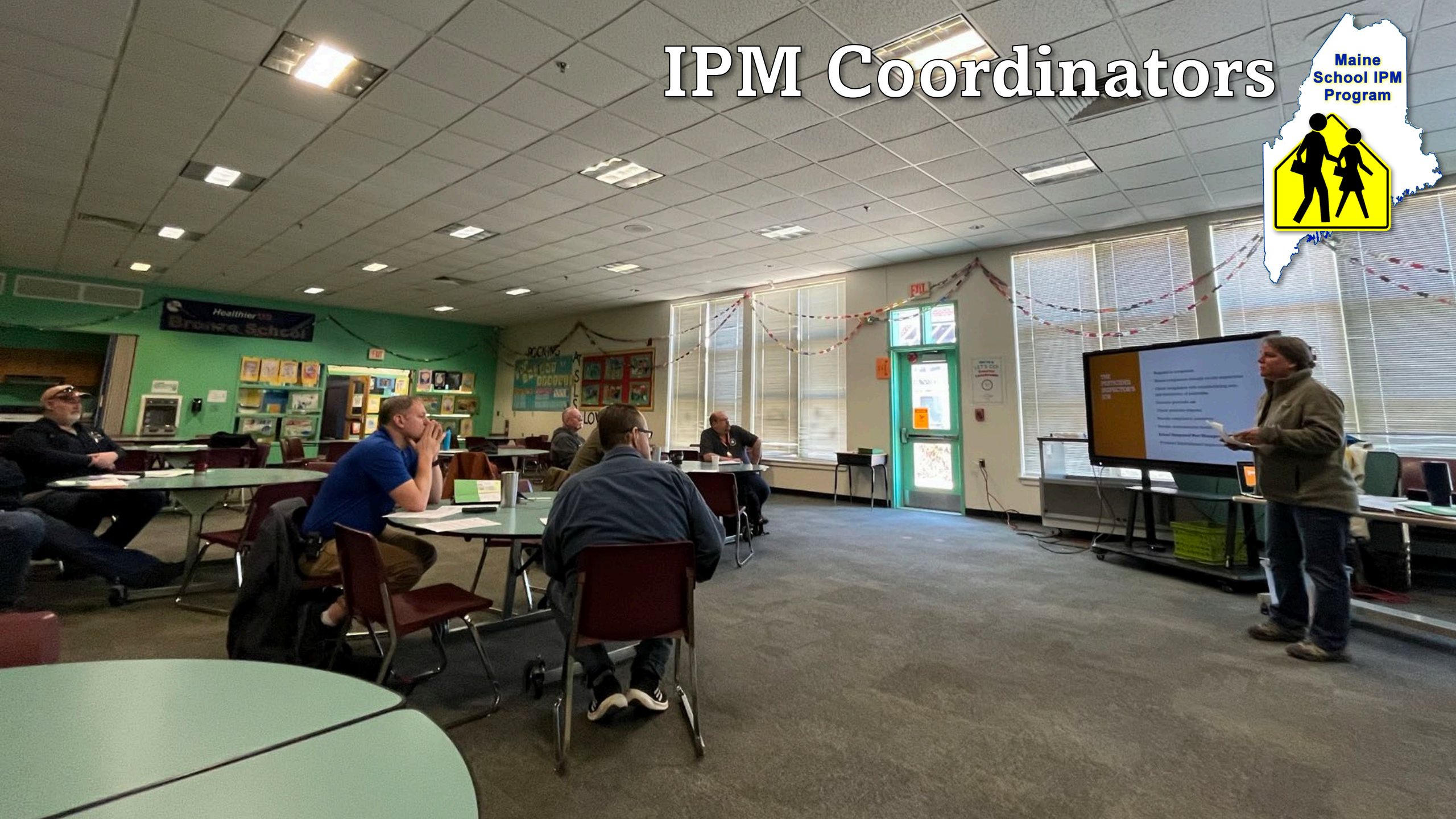
- **Asthma & Allergies**:
  - mice, cockroaches, mold
- **Bites & Stings**:
  - lice, bed bugs, mosquitoes, ticks, bees/wasps, stinging caterpillars
- **Infectious Disease**:
  - bats, ticks, mosquitoes
- **Irritants**:
  - poison ivy

House mice alone can cause asthma complications, food poisoning, and skin rashes

Integrate IPM into Normal Operations



IPM Coordinators



IPM Coordinators


IPM Coordinators
Maine
School IPM
Program
Thomas
COLLEGE
SCHOOL IPM INSPECTIONS
JMG
Top O'the Hill
DISC GOLF
EPMA

IPM is a Team Effort

Maintenance Staff:
Pest exclusion and monitoring

Contracted Pest Service:
Monitoring, control, communication

Custodians:
Sanitation, monitoring pests, reporting

Business Manager:
Contracts, budgeting

IPM COORDINATOR:
Captain!

Students, Nurse, and Teachers:
Education, sanitation, monitoring

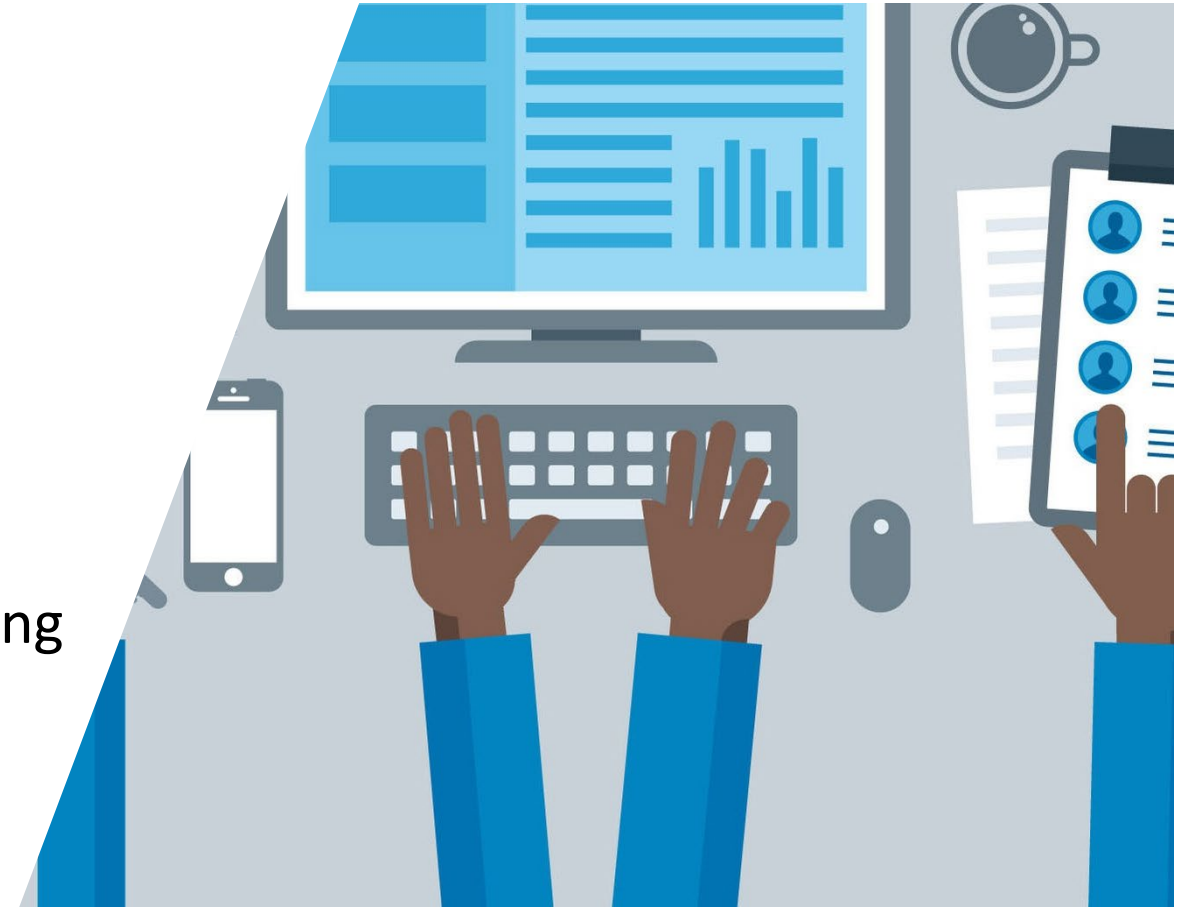
Food service director and staff:
Pest prevention and monitoring

Office Staff:
Communication, records, scheduling

IPM Coordinator is Responsible for…

Implementing your Schools' IPM Policy

- ❑ **Coordinate** pest monitoring, management, and record-keeping
- ❑ **Approve** pesticide applications (based on informed decisions)
- ❑ **Document** that all notification and record-keeping requirements are met
- ❑ **Communicate** with staff, parents, contractors



Photos: Cloverleaf

Communication Is KEY!!!

Maintenance Staff:
Pest exclusion and monitoring

Contracted Pest Service:
Monitoring, control, communication

Custodians:
Sanitation, monitoring pests, reporting

Business Manager:
Contracts, budgeting

IPM COORDINATOR:
Captain!

Nurse

Food service director and staff:
Pest prevention and monitoring

Office Staff:
Communication, records, scheduling

PARENTS!

Help school IPM coordinators & maintenance staff by emphasizing importance

Maintenance Staff:
Pest exclusion and monitoring

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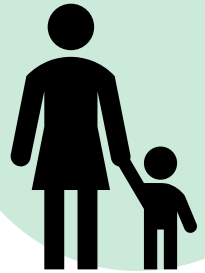
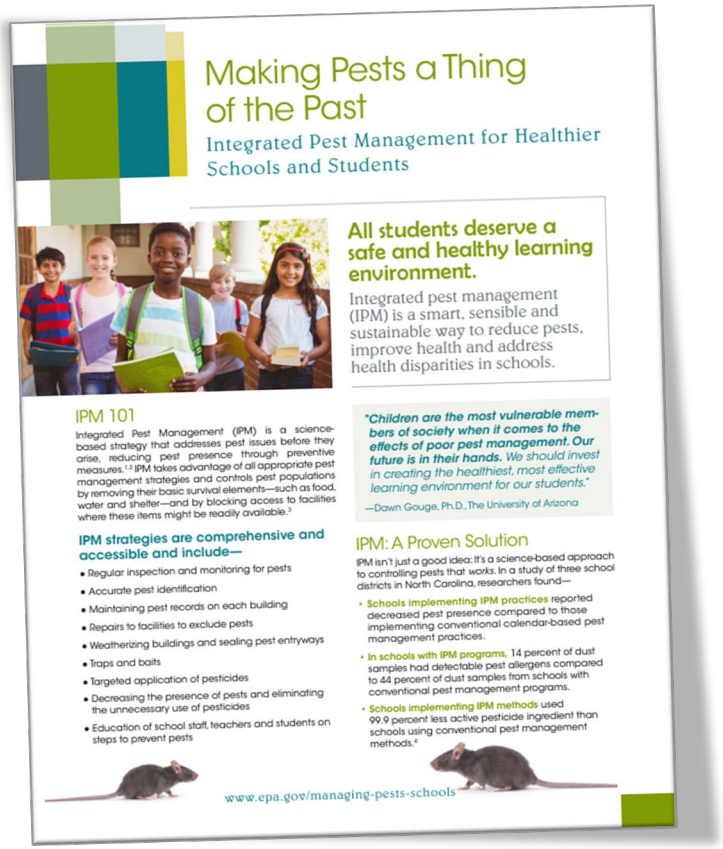


Help school IPM coordinators & maintenance staff by emphasizing importance

Business Manager:
Contracts, budgeting



Making Pests a Thing of the Past

Integrated Pest Management for Healthier Schools and Students

All students deserve a safe and healthy learning environment.

Integrated pest management (IPM) is a smart, sensible and sustainable way to reduce pests, improve health and address health disparities in schools.

IPM 101

Integrated Pest Management (IPM) is a science-based strategy that addresses pest issues before they arise, reducing pest presence through preventive measures.[1,2] IPM takes advantage of all appropriate pest management strategies and controls pest populations by removing their basic survival elements—such as food, water and shelter—and by blocking access to facilities where these items might be readily available.[3]

IPM strategies are comprehensive and accessible and include—

- Regular inspection and monitoring for pests
- Accurate pest identification
- Maintaining pest records on each building
- Repairs to facilities to exclude pests
- Weatherizing buildings and sealing pest entryways
- Traps and baits
- Targeted application of pesticides
- Decreasing the presence of pests and eliminating the unnecessary use of pesticides
- Education of school staff, teachers and students on steps to prevent pests

"Children are the most vulnerable members of society when it comes to the effects of poor pest management. Our future is in their hands. We should invest in creating the healthiest, most effective learning environment for our students."

—Dawn Gouge, Ph.D., The University of Arizona

IPM: A Proven Solution

IPM isn't just a good idea: It's a science-based approach to controlling pests that *works*. In a study of three school districts in North Carolina, researchers found—

- **Schools implementing IPM practices** reported decreased pest presence compared to those implementing conventional calendar-based pest management practices.
- **In schools with IPM programs,** 14 percent of dust samples had detectable pest allergens compared to 44 percent of dust samples from schools with conventional pest management programs.
- **Schools implementing IPM methods** used 99.9 percent less active pesticide ingredient than schools using conventional pest management methods.[4]

www.epa.gov/managing-pests-schools

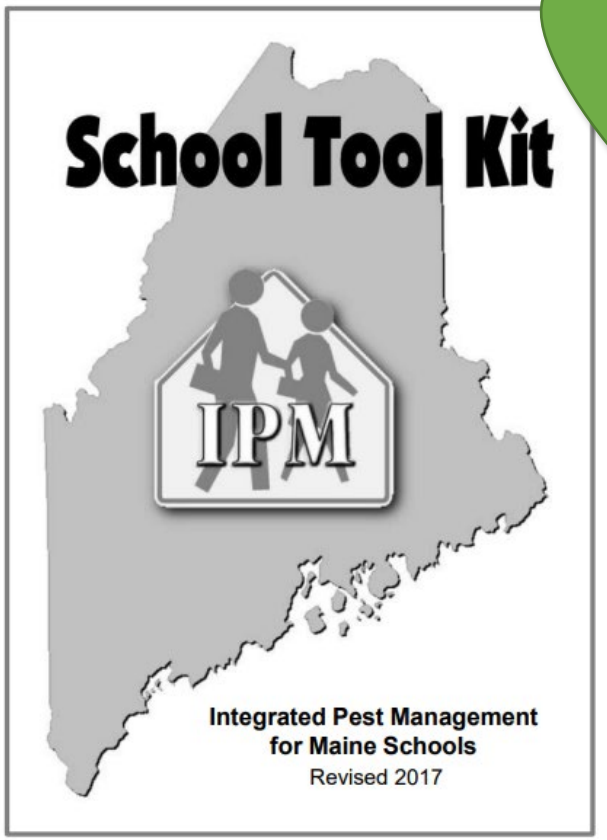
"In schools with IPM programs, 14 percent of dust samples had detectable pest allergens compared to 44 percent of dust samples from schools with conventional pest management programs."

"A study conducted by Boston Children's Hospital found that mouse allergens were detectable on desktop surfaces in 100 percent of sampled urban preschools and 95 percent of sampled urban elementary schools"

Resource: EPA IPM In Schools Document

School IPM Toolkit

- ❑ Getting started guidance
- ❑ Job specific guidance and checklists
- ❑ Pest-specific IPM guides
- ❑ Sample forms
- ❑ Sample Plans



Record-keeping guidance and sample record-keeping forms: www.maine.gov/schoolipm

RESOURCES

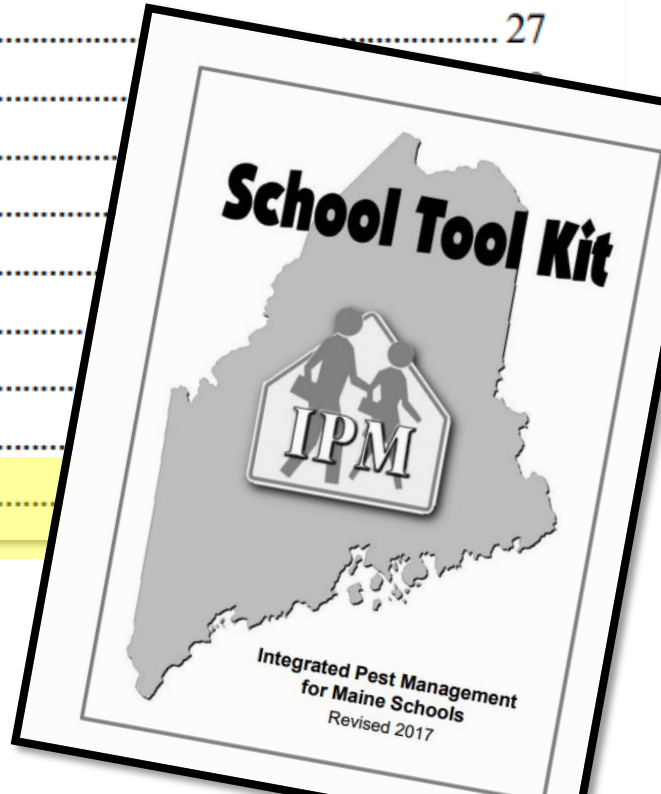
- Teacher Resources
- IPM Basics
- Tools, Templates, and Tips
- Pest Solutions
- Training and Events
- Newsletters
- Additional Resources
- Contact Us

Resources: Maine School IPM Website

Toolkit can help the entire IPM Team!

- ❑ Identify who is responsible for what
- ❑ Make sure the whole school and all responsibilities are included
- ❑ Download, customize, and distribute factsheets, checklists, and educational materials for relevant staff, parents and students

School IPM Checklists



Resources: Maine School Tool Kit

Toolkit demonstrates school nurses as KEY communicator of school health.

Maine School IPM Program

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

School IPM Checklist

School Nurse

❑ Need help with pest control

Instructions

1. Read the information on this sheet.
2. Check the appropriate "Yes" or "No" boxes.
3. Write any items needing attention (usually indicated by a 'No' response) in the places provided at the end of each section and check the 'Need help' box above.
4. Return completed checklist to the IPM Coordinator; keep a copy for your records.

Name: _____

Room/Area: _____

School: _____

Date Completed: _____

Signature: _____

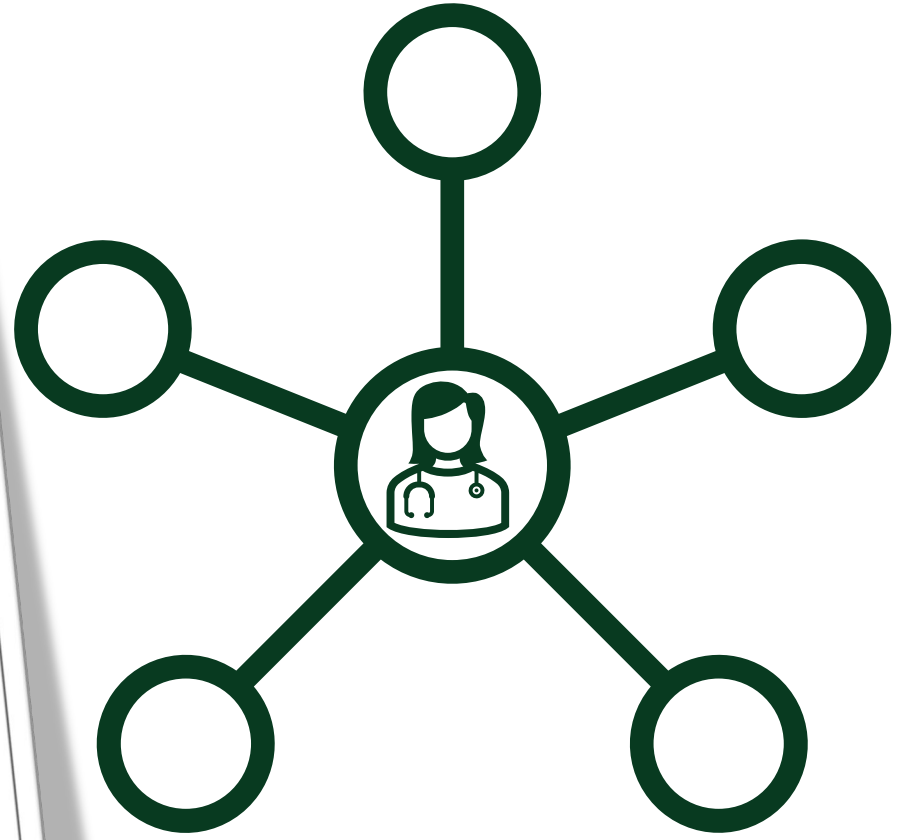
It has been well documented that pests and pesticides contribute to asthma and other health problems. It is the policy of this school district to manage pest problems in ways that pose the least hazard to human health and the environment. To this end, we have adopted an integrated pest management (IPM) program. IPM combines pest prevention, non-chemical pest control methods, and the appropriate use of pesticides that are the least harmful to human health and the environment. By addressing and correcting the root causes of pest problems, IPM can provide long-term, economical pest control and minimize the risk of pesticide exposure.

We are asking for your cooperation with our IPM program. The success of IPM depends on the involvement of many individuals. Students, teachers, school staff, administration, and parents are all participants in the IPM program. Together we can help reduce pest problems and pesticide applications. You can have a positive impact on our goal to reduce pest problems by completing the following checklist as indicated by your IPM coordinator.

Yes	No	
❑	❑	School nurse is a member of the school's environmental, safety, IPM, and indoor air quality teams.
❑	❑	School nurse has access to Safety Data Sheets for all pesticides, disinfectants and sanitizers used on school property.
❑	❑	School nurse can recognize signs and symptoms of pesticide exposure.
❑	❑	The school nurse is knowledgeable about potential impacts of pests and pesticides on human health and is involved in decisions regarding selection and use of pesticides and cleaning products.
❑	❑	School nurse educates school staff, students, and parents on the links between pests, pesticides, indoor air quality, and human health.
❑	❑	School nurse understands and educates staff, students and families appropriate personal hygiene and facility sanitation measures to help prevent or reduce the spread of pests such as bed bugs, head lice, scabies mites, and ringworm.
❑	❑	School nurse is knowledgeable about and communicates with students and staff, appropriate measures to prevent and/or reduce encounters with pests of health concern such as mosquitoes, ticks, and stinging insects (European red ant, stinging caterpillars, hornets, honeybees) on school

Yes	No	
❑	❑	School nurse is involved in decisions, policies and procedures regarding furred and feathered pets in classrooms.
❑	❑	School nurse is knowledgeable about bed bugs and assists school administration to develop protocols for responding to bed bugs introduced into the school on people and belongings.
❑	❑	School nurse is knowledgeable about and communicates with other staff best practices and protocols for preventing the school from being a transfer hub for pests such as fleas, cockroaches and bedbugs.
❑	❑	School nurse provides guidance to families to prevent introduction and spread of bedbugs, fleas, lice, and cockroaches.
❑	❑	School nurse understands and educates students, staff and families that insect and spider bites alone are insufficient to identify a pest; rather, a specimen of the suspected pest must be collected to obtain an accurate identification.
❑	❑	School nurse emphasizes to parents the importance of reading and following the instructions on lice-control products if a parent chooses to use these products.
❑	❑	School nurse can explain the limitations and actual effects of over-the-counter and prescription treatments on head lice at their different life stages.
❑	❑	School nurse maintains school policies and procedures addressing the use of insect repellents on school grounds.

Action needed: **Completed (Date/Initials)**



Resources: Maine School Tool Kit

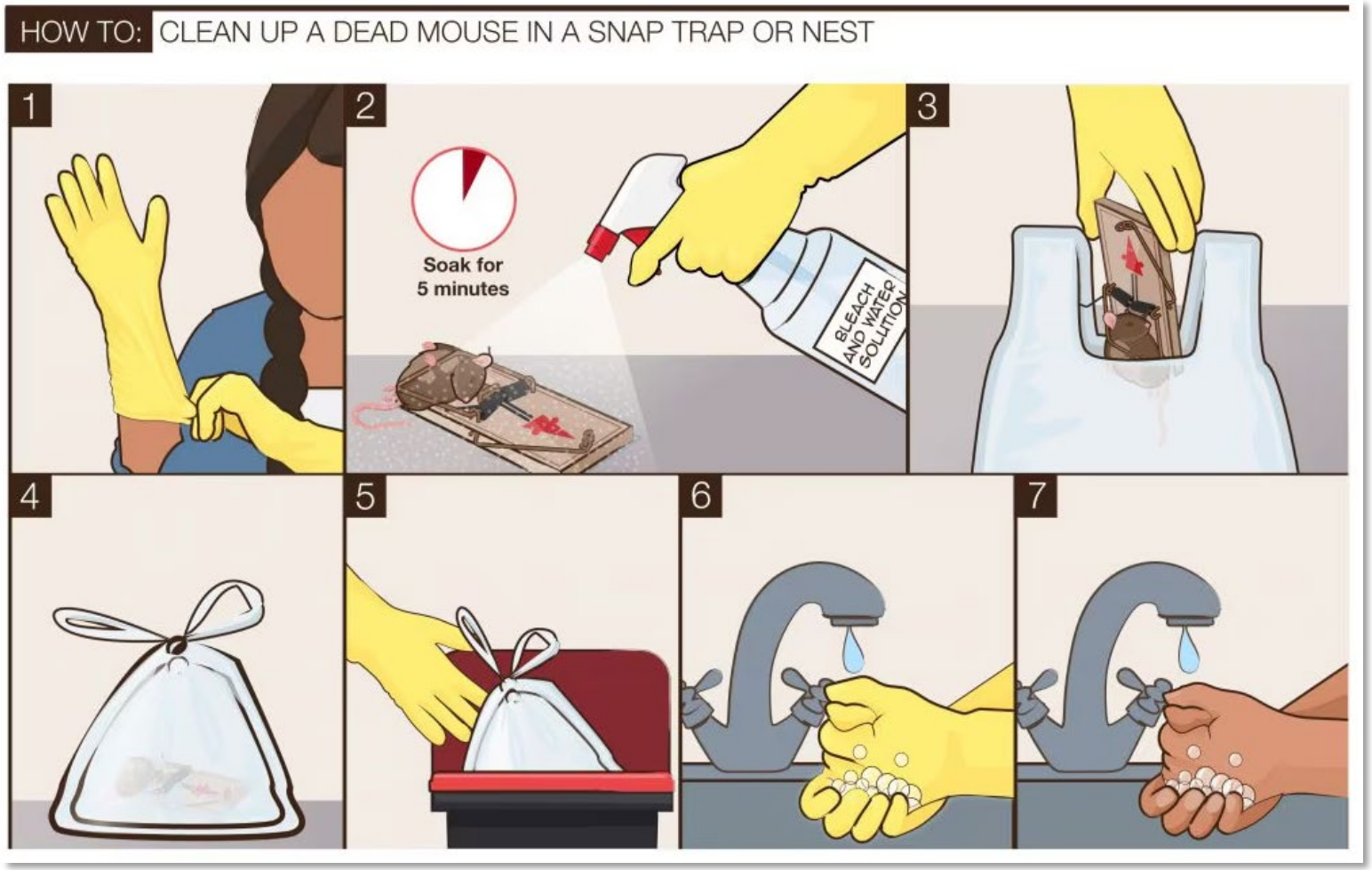
School nurse is a member of the school's environmental, safety, IPM, and indoor air quality teams (ideally!).

- **Recognize increases and report on:**
  - asthma related incidents and illnesses
  - food poisoning incidents
  - tick and mosquito bites
  - sports injuries

- **Advocate for IPM policies and practices that reduce rodent and cockroach presence in schools including:**
  - food stored in sealed pest-proof containers
  - garbage cleared and stored properly daily
  - safe cleaning practices when rodents are captured…

The school nurse is knowledgeable about potential impacts of pests and pesticides on human health and is involved in decisions regarding selection and use of pesticides and cleaning products.

School nurse is a member of the school's environmental, safety, IPM, and indoor air quality teams.



Ensure that custodians and pest service providers use safe practices to prevent airborne dispersal of allergens and pathogens.

Resources: Northeast IPM Center; CDC Rodent Clean Up Webpage

☑ School nurse educates school staff, students, and parents on the links between pests, pesticides, indoor air quality, and human health.

Maine School IPM Program

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Because of poorly controlled asthma, each year about

4 in 9 children miss school

1 in 3 adults miss work

7 in 13 adults limit their activities

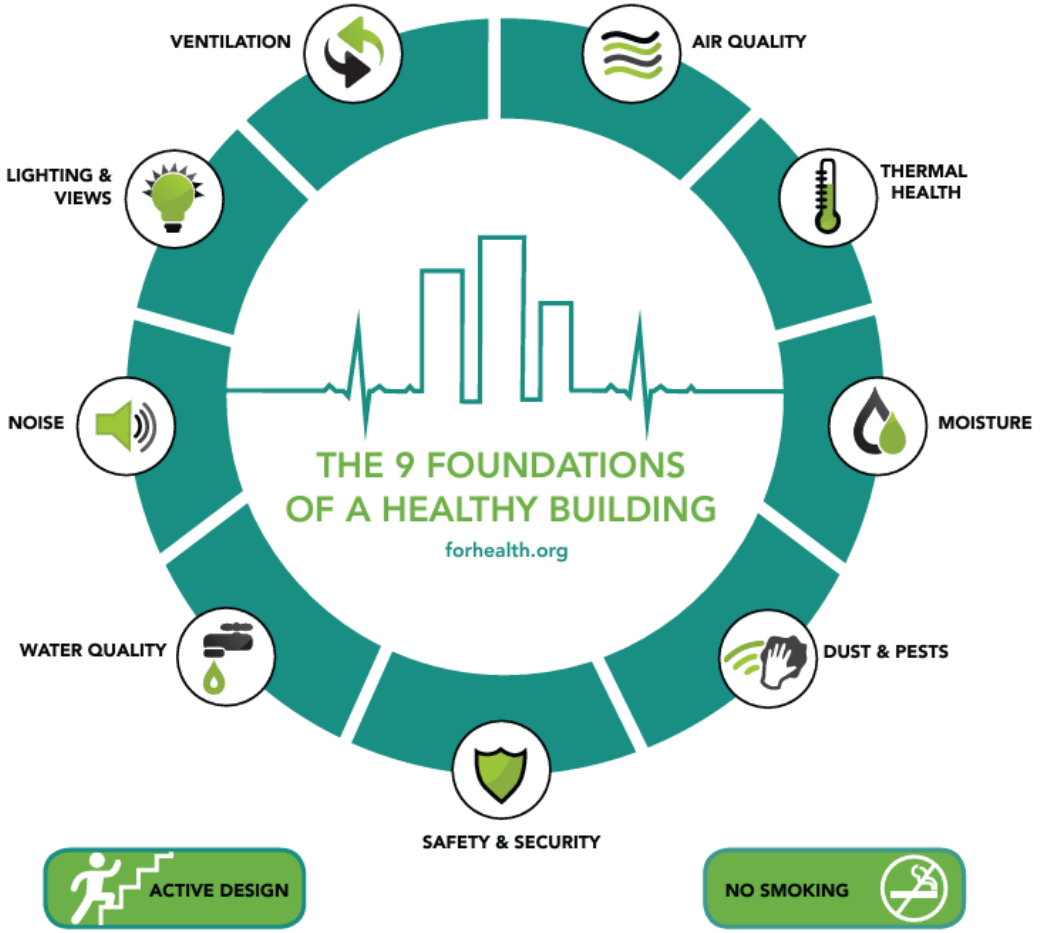
When you control your asthma, you can lead a full and active life.
You deserve nothing less!

Data Source: BRFSS Asthma Call-back Survey, United States, 2012-2014

nhlbi.nih.gov/breathebetter

NIH National Heart, Lung, and Blood Institute

LEARN MORE BREATHE BETTER℠



Resources: *Harvard School of Public Health Healthy Buildings Guide*

☑ School nurse is involved in decisions, policies and procedures regarding furred and feathered pets in classrooms.

Importance of policy

- Children with asthma and allergies need to be considered
- Animals can subject students to scratches, bites, and infections
- Policies typically include rules – updated vaccinations, keeping animal cages away from ventilation systems, away from furniture or stuffed objects
- Develop protocols if any injuries happen due to animals

Scenarios to consider…

- Classroom pets for education
- Pets being brought to sporting events
- Scientific experiments (e.g., dissections, eggs)
- Therapy animals
- Service animals

Resources: Example School Policy in Maine, Maine EUT Policy (randomly selected)

School nurse has access to Safety Data Sheets for all pesticides, disinfectants and sanitizers used on school property.

Maine School IPM Program

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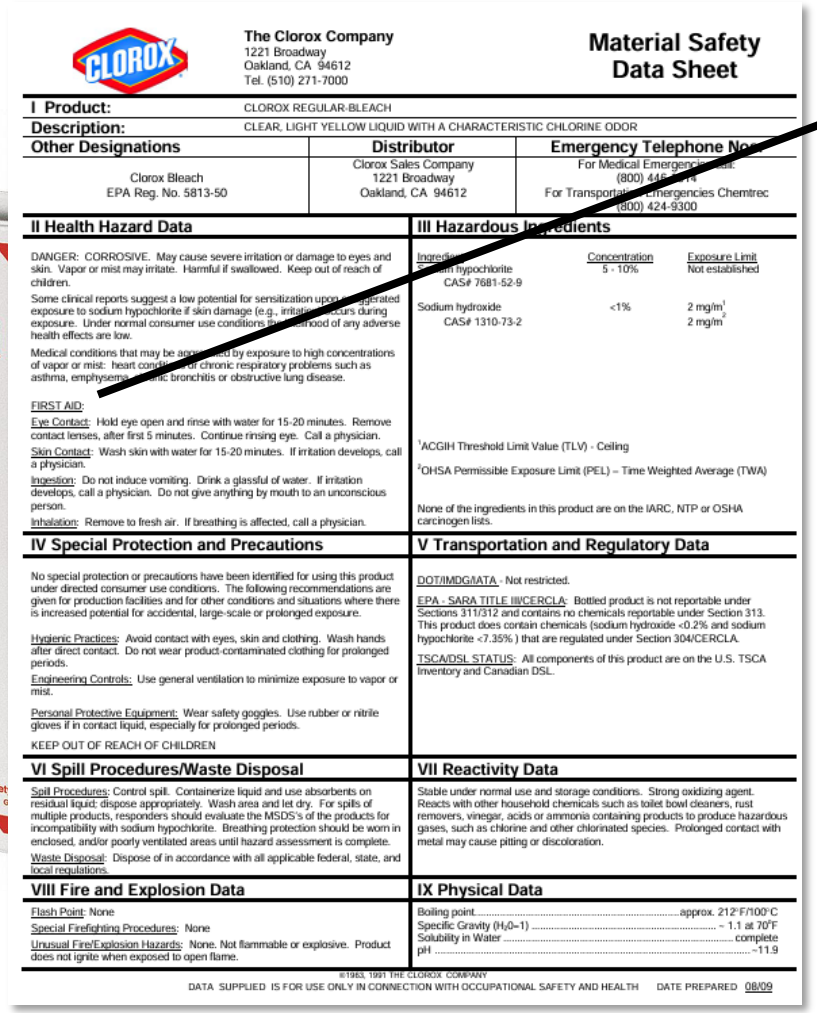

The Clorox Company
1221 Broadway
Oakland, CA 94612
Tel. (510) 271-7000

Material Safety Data Sheet

I Product: CLOROX REGULAR-BLEACH

Description: CLEAR, LIGHT YELLOW LIQUID WITH A CHARACTERISTIC CHLORINE ODOR

Other Designations	Distributor	Emergency Telephone No.
Clorox Bleach EPA Reg. No. 5813-50	Clorox Sales Company 1221 Broadway Oakland, CA 94612	For Medical Emergencies call (800) 446-[illegible] For Transportation Emergencies Chemtrec (800) 424-9300

II Health Hazard Data

DANGER: CORROSIVE. May cause severe irritation or damage to eyes and skin. Vapor or mist may irritate. Harmful if swallowed. Keep out of reach of children.

Some clinical reports suggest a low potential for sensitization upon prolonged or aggerated exposure to sodium hypochlorite if skin damage (e.g., irritation) occurs during exposure. Under normal consumer use conditions the likelihood of any adverse health effects are low.

Medical conditions that may be aggravated by exposure to high concentrations of vapor or mist: heart conditions or chronic respiratory problems such as asthma, emphysema, chronic bronchitis or obstructive lung disease.

FIRST AID:

Eye Contact: Hold eye open and rinse with water for 15-20 minutes. Remove contact lenses, after first 5 minutes. Continue rinsing eye. Call a physician.

Skin Contact: Wash skin with water for 15-20 minutes. If irritation develops, call a physician.

Ingestion: Do not induce vomiting. Drink a glassful of water. If irritation develops, call a physician. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If breathing is affected, call a physician.

III Hazardous Ingredients

Ingredient	Concentration	Exposure Limit
Sodium hypochlorite CAS# 7681-52-9	5 - 10%	Not established
Sodium hydroxide CAS# 1310-73-2	<1%	2 mg/m^3 [1] 2 mg/m [2]

[1]ACGIH Threshold Limit Value (TLV) - Ceiling

[2]OHSA Permissible Exposure Limit (PEL) – Time Weighted Average (TWA)

None of the ingredients in this product are on the IARC, NTP or OSHA carcinogen lists.

IV Special Protection and Precautions

No special protection or precautions have been identified for using this product under directed consumer use conditions. The following recommendations are given for production facilities and for other conditions and situations where there is increased potential for accidental, large-scale or prolonged exposure.

Hygienic Practices: Avoid contact with eyes, skin and clothing. Wash hands after direct contact. Do not wear product-contaminated clothing for prolonged periods.

Engineering Controls: Use general ventilation to minimize exposure to vapor or mist.

Personal Protective Equipment: Wear safety goggles. Use rubber or nitrile gloves if in contact liquid, especially for prolonged periods.

KEEP OUT OF REACH OF CHILDREN

V Transportation and Regulatory Data

DOT/IMDG/IATA - Not restricted.

EPA - SARA TITLE III/CERCLA: Bottled product is not reportable under Sections 311/312 and contains no chemicals reportable under Section 313. This product does contain chemicals (sodium hydroxide <0.2% and sodium hypochlorite <7.35%) that are regulated under Section 304/CERCLA.

TSCA/DSL STATUS: All components of this product are on the U.S. TSCA Inventory and Canadian DSL.

VI Spill Procedures/Waste Disposal

Spill Procedures: Control spill. Containerize liquid and use absorbents on residual liquid; dispose appropriately. Wash area and let dry. For spills of multiple products, responders should evaluate the MSDS's of the products for incompatibility with sodium hypochlorite. Breathing protection should be worn in enclosed, and/or poorly ventilated areas until hazard assessment is complete.

Waste Disposal: Dispose of in accordance with all applicable federal, state, and local regulations.

VII Reactivity Data

Stable under normal use and storage conditions. Strong oxidizing agent. Reacts with other household chemicals such as toilet bowl cleaners, rust removers, vinegar, acids or ammonia containing products to produce hazardous gases, such as chlorine and other chlorinated species. Prolonged contact with metal may cause pitting or discoloration.

VIII Fire and Explosion Data

Flash Point: None

Special Firefighting Procedures: None

Unusual Fire/Explosion Hazards: None. Not flammable or explosive. Product does not ignite when exposed to open flame.

IX Physical Data

Boiling point.....approx. 212°F/100°C
Specific Gravity (H_2O=1) ..... ~ 1.1 at 70°F
Solubility in Water .....complete
pH .....~11.9

DATA SUPPLIED IS FOR USE ONLY IN CONNECTION WITH OCCUPATIONAL SAFETY AND HEALTH DATE PREPARED 08/09

FIRST AID:

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Skin Contact: Wash skin with water for 15-20 minutes. If irritation develops, call a physician.

Ingestion: Do not induce vomiting. Drink a glassful of water. If irritation develops, call a physician. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If breathing is affected, call a physician.

School nurse has access to Product Labels for all pesticides, disinfectants and sanitizers used on school property.

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MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Use this product as a convenient way to clean and disinfect your household surfaces. Each pre-moistened, disposable wipe kills germs** wherever you use it. No bottles, no sponges, no mess. Effective disinfecting has never been easier. Kills 99.9% of Enterobacter aerogenes and Staphylococcus aureus in 10 seconds.

Great for use on **Sink & Counter[tttt], Refrigerator Exteriors[tttt,15], Bathtub & Faucets, Shower Areas, Light Switches, Door Knobs, Laptops & Tablets, Smartphones.**

Unplug small electrical appliances before use. Not recommended for bare wood surfaces. Do not use on dishes, glasses, or utensils.

[3]Kills Influenza A Virus (H1N1) and Human Coronavirus on hard, non-porous surfaces in 2 minutes. [14]Kills SARS-CoV-2 on hard, non-porous surfaces in 2 minutes. **Kills Salmonella enterica (Salmonella), Influenza A Virus (H1N1), Herpes Simplex Virus Type 1 and Respiratory Syncytial Virus on hard, non-porous surfaces in 4 minutes. [††]This product removes the following allergens: dust mite debris, pet dander and pollen particles from timothy grass. [15]At room temperature.

DIRECTIONS FOR USE: It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

To Open Package: Open pouch by peeling back the seal. Remove one wipe and reseal pouch to avoid moisture loss.

To Clean / Remove Allergens[††]: Use fresh wipe on surface. Repeat for stubborn stains. **To Sanitize / Disinfect:** Pre-clean surface. Use enough fresh wipes to thoroughly wet surface. Surface must remain wet for the entire contact time. **To Sanitize:** Allow to remain wet for 10 seconds. **To Disinfect:** Allow to remain wet for 4 minutes. Allow surface to air dry. Toss dirty wipe away. **[††††]For surfaces that come in contact with food:** Use only on hard, non-porous surfaces and rinse thoroughly with water.

NOT INTENDED FOR PERSONAL HYGIENE. DO NOT FLUSH IN TOILET.

PRECAUTIONARY STATEMENTS:
Hazards to Humans and Domestic Animals

CAUTION: May cause eye irritation. Avoid contact with eyes. Wash hands after use. **FIRST AID: If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a Poison Control Center or doctor for treatment advice.

CONTACT NUMBER: Questions? Comments or in case of an emergency, call toll free 1-800-228-4722. Have the product container or label with you when calling a Poison Control Center, or doctor, or going for treatment.

STORAGE AND DISPOSAL:
Store unopened pouch in a cool, dry place in areas inaccessible to small children. Dispose of wipe in trash after use. Non-refillable pouch. Do not reuse or refill this package. Discard empty pouch in trash.

Contains no phosphates.

Questions? ✆1-800-228-4722
For ingredient information, www.rbnainfo.com
Patents: www.rb.com/patents

Distributed by: Reckitt Benckiser
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Made in China

EPA Reg. No.: 777-114
EPA Est. No.: 87189-CHN-1 (JV), 87189-CHN-2 (JE), 89235-CHN-1 (WX), 89235-CHN-2 (NB), 89832-CHN-1 (PE)
Beginning of lot code indicates EPA Est. No.

1 99717 19200 0

3170056

CAUTION: May cause eye irritation. Avoid contact with eyes. Wash hands after use. **FIRST AID: If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a Poison Control Center or doctor for treatment advice.

STORAGE AND DISPOSAL:
Store unopened pouch in a cool, dry place in areas inaccessible to small children. Dispose of wipe in trash after use. Non-refillable pouch. Do not reuse or refill this package. Discard empty pouch in trash.

"Children should not apply disinfectants, including disinfectant cleaning wipes. All disinfectant labels include the statement "Keep Out of Reach of Children," as children are considered a sensitive population."

Resources: EPA Article on Children and Disinfectants

School nurse can recognize signs and symptoms of pesticide exposure.

Maine School IPM Program

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Overview – Some commonly used pesticides in schools include disinfectants, ant baits, rodent bait stations, herbicides for weeds, and mosquito and tick treatments

School IPM Programs aim to avoid tragedy, but diligence is required for when questionable decisions have been made.

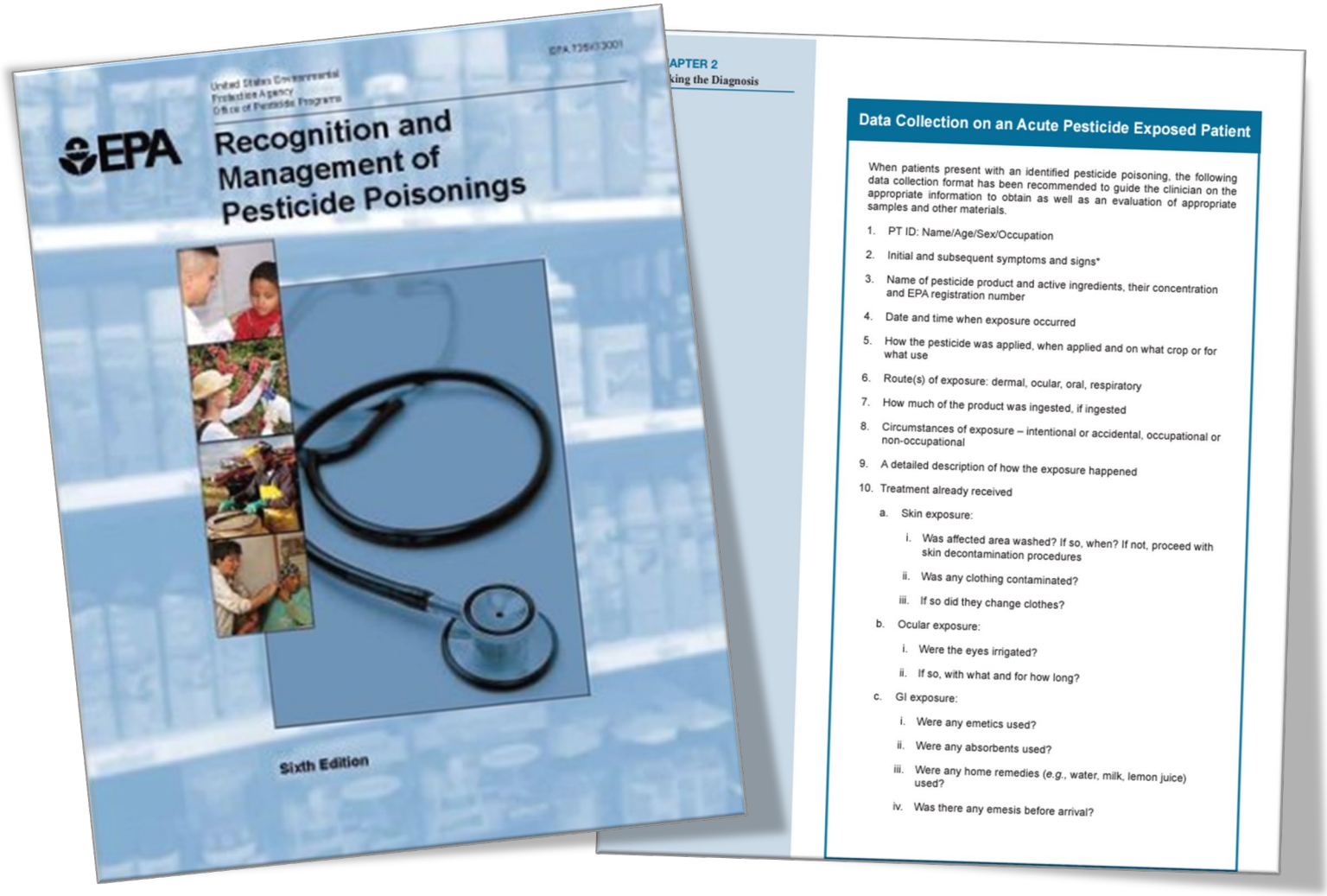
Exposure symptoms of pesticides can include:

- Bleeding: gums, nose, and other mucous membrane sites
- Central nervous system: respiratory depression, lethargy, coma, and seizures
- Hypersecretion: sweating, salivation, lacrimation, rhinorrhea, diarrhea, and bronchorrhea
- Disorientation, severe agitation, drowsiness, dizziness, weakness, and in some situations, loss of consciousness

Class	Acute Signs and Symptoms	Clinical Considerations
Organophosphate and N-methyl carbamate insecticides	• Headache, nausea, vomiting, abdominal pain, and dizziness	• Obtain red blood cell and plasma cholinesterase levels
	• Hypersecretion: sweating, salivation, lacrimation, rhinorrhea, diarrhea, and bronchorrhea	• Atropine is primary antidote
	• Muscle fasciculation and weakness, and respiratory symptoms (bronchospasm, cough, wheezing, and respiratory depression)	• Pralidoxime is also an antidote for organophosphate and acts as a cholinesterase reactivator
	• Bradycardia, although early on, tachycardia may be present	• Because carbamates generally produce a reversible cholinesterase inhibition, pralidoxime is not indicated in these poisonings
	• Miosis	
	• Central nervous system: respiratory depression, lethargy, coma, and seizures	
Pyrethroid insecticides	• Similar findings found in organophosphates including the hypersecretion, muscle fasciculation, respiratory symptoms, and seizures	• At times have been mistaken for acute organophosphate or carbamate poisoning
	• Headache, fatigue, vomiting, diarrhea, and irritability	• Symptomatic treatment
	• Dermal: skin irritation and paresthesia	• Treatment with high doses of atropine may yield significant adverse results
		• Vitamin E oil for dermal symptoms
Neonicotinoid insecticides	• Disorientation, severe agitation, drowsiness, dizziness, weakness, and in some situations, loss of consciousness	• Supportive care
	• Vomiting, sore throat, abdominal pain	• Consider sedation for severe agitation

Resources: American Academy of Pediatrics Pesticide Exposure in Children

School nurse can recognize signs and symptoms of pesticide exposure.



Consider downloading this key reference document:

[Link]

School nurse understands and educates students, staff and families that insect and spider bites alone are insufficient to identify a pest; rather, a specimen of the suspected pest must be collected to obtain an accurate identification.

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Maine School IPM Program

Overview

- Insect, tick, and spider bites can look similar
- Even within species (e.g. lyme disease), bites can differ person to person
- Consider creating protocols for collection of specimens for identification.

Communication steps for school nurses

- **Parents** – educate parents to reduce the spread of misinformation
- **Facilities staff** – ensure communication is happening when biting/stinging insects are found and dealt with so nurse is aware
- **Teacher** – educate to collect potential biting insects or spiders and give to nurse if bite is suspected

Resources: Maine CDC Lyme Resources

School nurse understands and educates staff, students and families appropriate personal hygiene and facility sanitation measures to help prevent or reduce the spread of pests such as… bed bugs

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

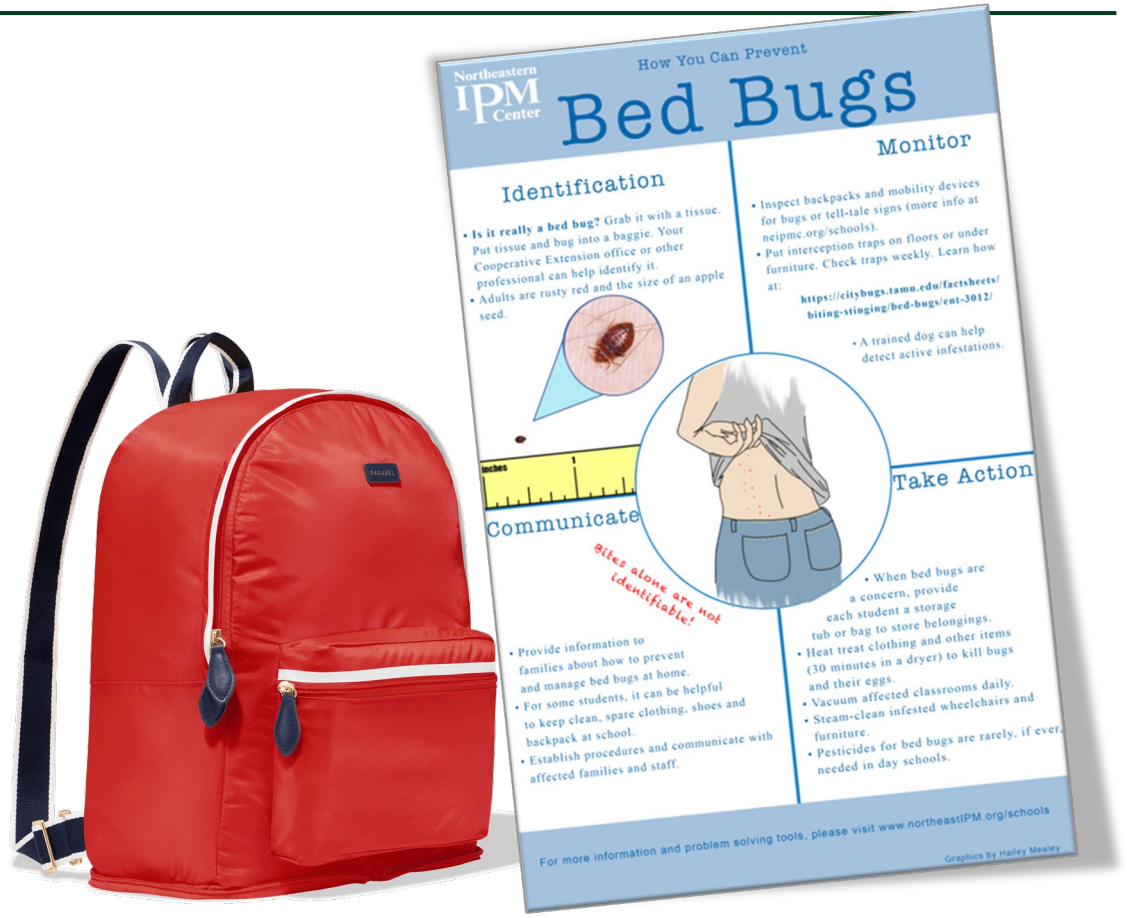
Maine School IPM Program

Overview

- Actual in-school infestations are uncommon
- Bed bugs have the potential to spread from one student's belongings to another
- Strongly recommend policies in place for response and communication

Communication steps for school nurses

- **Parents** – use caution when sharing information with parents, it is best to create a pre-made letter for these situations.
- **Facilities staff** – work with a hired pest professional to inspect and a thorough cleaning conducted
- **Teacher** – ensure teachers know protocols and to be discreet when handling situations



Resources: Maine CDC Factsheet and Template Policies; Poster; School IPM Bedbug Factsheet

School nurse understands and educates staff, students and families appropriate personal hygiene and facility sanitation measures to help prevent or reduce the spread of pests such as… head lice

Maine School IPM Program

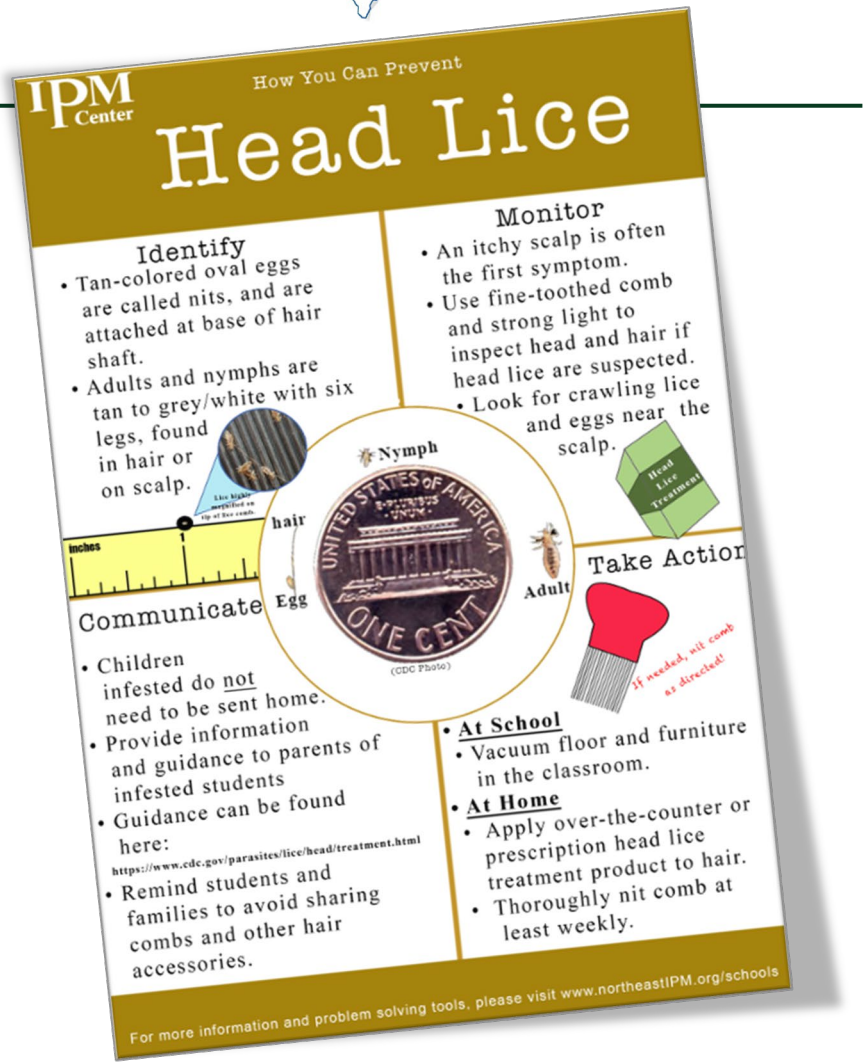
MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Overview

- Lice are most likely to spread head-to-head
- Less likely, but can also spread through clothes, hats, and combs
- Personal hygiene is NOT a factor for infestation
- Students can return to class for the remainder of the day

Communication steps for school nurses

- **Parents** – inform parents of school protocols and provide instructions for at home care
- **Facilities staff** – maintain records with each incident including student's classroom; stay calm and do not apply pesticides to classrooms or buses
- **Teacher** – ensure teachers know protocols if lice are suspected, including waiting for school nurse to diagnose lice (MAINTAIN CONFIDENTIALITY)



Resources: Poster & Factsheet; NPIC Lice Homepage (lots of links)

School nurse emphasizes to parents the importance of reading and following the instructions on lice control products if a parent chooses to use these products.

Maine School IPM Program

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

DIY Solutions

- Parents should avoid DIY solutions like mayonnaise or a homeopathic shampoo

Labels will indicate proper AGE and instructions for safety

Lice Products (Pediculicides) ARE pesticides – the label is the law

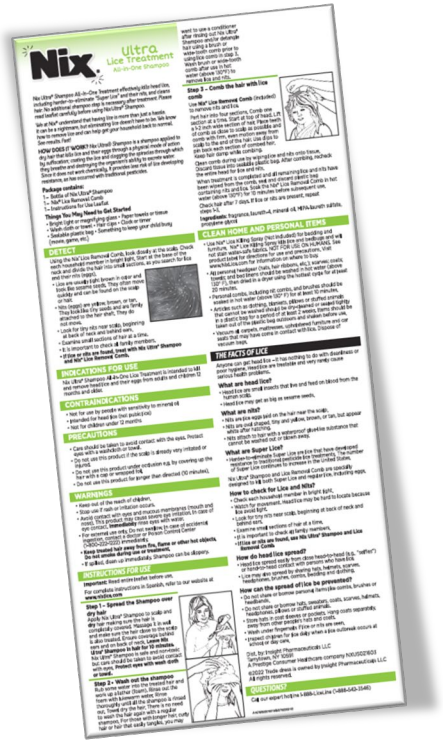
- Permethrin (1%)
- Pyrethrins plus piperonyl butoxide
- Malathion (0.5%)
- Benzyl alcohol lotion (5%)
- Ivermectin lotion (0.5%)
- Spinosad suspension (0.9%)

Treatment	Active Ingredient	Advantages	Disadvantages
Over-the-Counter			
Nix	Permethrin lotion 1%	Most studied and least toxic to humans. Generally effective and safe if used according to the manufacturer's directions. Does not cause allergic reactions in individuals with plant allergies. For use in children over 2 months of age.	Non-ovicidal; adverse effects include pruritis, erythema, and edema. Repeat treatments are often required or recommended by the manufacturer.
A-200, Pronto, R&C, Rid, Triple X	Piperonyl butoxide (4%) Pyrethrum extract (equivalent to 0.33% pyrethrins)	Generally effective and safe if used according to the manufacturer's directions. For use in children over 2 years of age.	Non-ovicidal; avoid in people who are allergic to ragweed or chrysanthemums. Repeat treatments are often required or recommended by the manufacturer.
Prescription			
Ovide	Malathion lotion (0.5%)	Single application is adequate for most patients; partially-ovicidal. Malathion is approved for use in children over 6 years of age.	Due to isopropyl alcohol content, Ovide is potentially flammable; use caution. May cause skin irritation or stinging sensation.
Ulesfia lotion	Benzyl alcohol lotion (5%)	Not neurotoxic and kills head lice by asphyxiation. For use in children over 6 months of age.	Non-ovicidal; contains benzyl alcohol which may cause eye and scalp redness and irritation.
Sklice	Ivermectin lotion (0.5%)	May be both pediculocidal and ovicidal. Approved for use in children over 6 months of age.	Side effects may include eye redness or irritation, dandruff, dry skin, or burning sensation of the skin.
Natroba	Spinosad lotion (0.9%)	For use in children over 4 years of age.	Non-ovicidal; contains benzyl alcohol which may cause eye and scalp redness and irritation.

This does not constitute an endorsement or a recommendation by the State of Maine or the Board of Pesticides Control to use this product. Any products without an EPA registration number have not been reviewed or registered by the EPA. The label must be strictly followed.

Resources: Excellent Overview of Pediculicides (Michigan)

School nurse emphasizes to parents the importance of reading and following the instructions on lice control products if a parent chooses to use these products.


Nix Ultra Lice Treatment
All-in-One Shampoo

INDICATIONS FOR USE

Nix Ultra® Shampoo All-In-One Lice Treatment is intended to kill and remove head lice and their eggs from adults and children 12 months and older.

CONTRAINDICATIONS

- Not for use by people with sensitivity to mineral oil
- Intended for head lice (not pubic lice)
- Not for children under 12 months

PRECAUTIONS

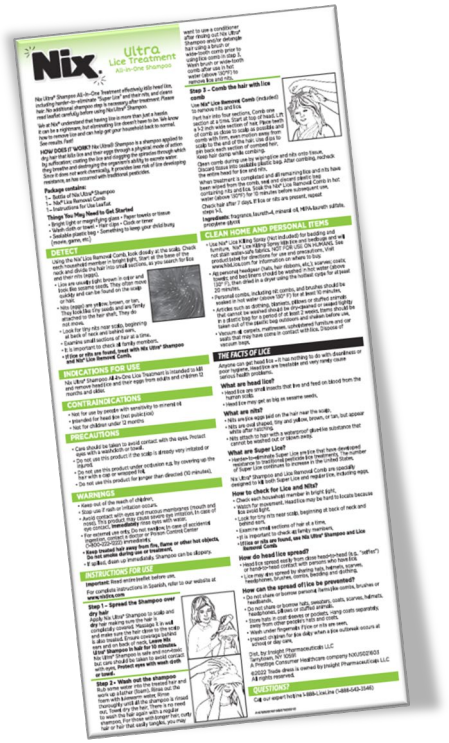
- Care should be taken to avoid contact with the eyes. Protect eyes with a washcloth or towel.
- Do not use this product if the scalp is already very irritated or injured.
- Do not use this product under occlusion e.g. by covering up the hair with a cap or wrapped foil.
- Do not use this product for longer than directed (10 minutes).

Large print and easier to read labels are available online through company websites

This does not constitute an endorsement or a recommendation by the State of Maine or the Board of Pesticides Control to use this product. Any products without an EPA registration number have not been reviewed or registered by the EPA. The label must be strictly followed.

Resources: Nix Product Label

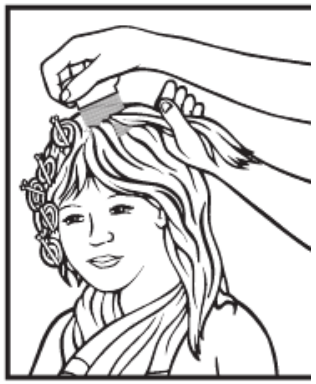
School nurse emphasizes to parents the importance of reading and following the instructions on lice control products if a parent chooses to use these products.


Nix Ultra Lice Treatment
All-in-One Shampoo

Step 3 – Comb the hair with lice comb

Use **Nix® Lice Removal Comb** (included) to remove nits and lice.

Part hair into four sections. Comb one section at a time. Start at top of head. Lift a 1-2 inch wide section of hair. Place teeth of comb as close to scalp as possible and comb with firm, even motion away from scalp to the end of the hair. Use clips to pin back each section of combed hair. Keep hair damp while combing.



Clean comb during use by wiping lice and nits onto tissue. Discard tissue into sealable plastic bag. After combing, recheck the entire head for lice and nits.

When treatment is completed and all remaining lice and nits have been wiped from the comb, seal and discard plastic bag containing nits and lice. Soak the Nix® Lice Removal Comb in hot water (above 130°F) for 10 minutes before subsequent use.

Check hair after 7 days. If lice or nits are present, repeat steps 1-3.

Large print and easier to read labels are available online through company websites

This does not constitute an endorsement or a recommendation by the State of Maine or the Board of Pesticides Control to use this product. Any products without an EPA registration number have not been reviewed or registered by the EPA. The label must be strictly followed.

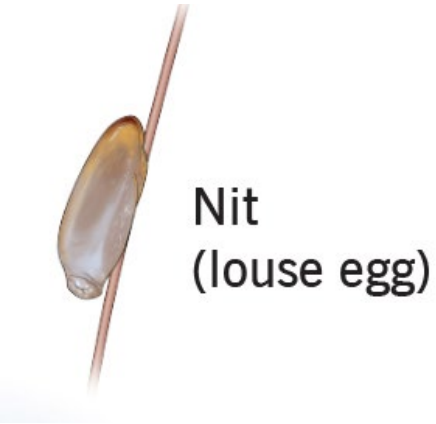
Resources: Nix Product Label

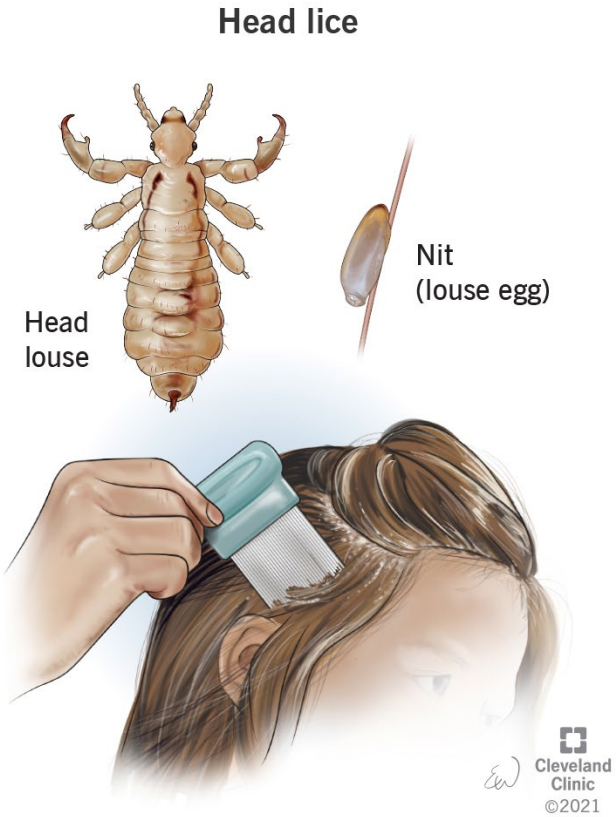
School nurse can explain the limitations and actual effects of over-the-counter and prescription treatments on head lice at their different life stages.

Lice Products (Pediculicides) best use and limitations…

- Do NOT use unless definite evidence of head lice
- Do NOT use as a preventative measure
- Combine with manual removal for best results (eggs may not be killed by pesticides)
- A second treatment may be needed

Think of eggs like a “shield”





Resources: Excellent Overview of Pediculicides (Michigan)

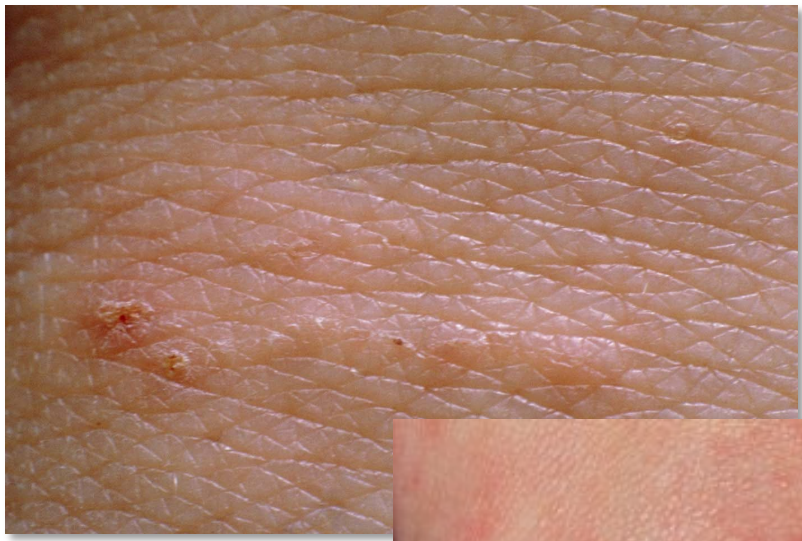
School nurse understands and educates staff, students and families appropriate personal hygiene and facility sanitation measures to help prevent or reduce the spread of pests such as… scabies mites

Maine School IPM Program

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Overview

- Transmitted person to person through direct contact (when mice and birds are unavailable)
- Children may complain of being bitten or there could be evidence of bites on their body
- Diagnosed by microscopic examination of skin scrapings



Communication steps for school nurses

- **Parents** - Student needs to leave school and can come back the day after treatment (be gentle)
- **Facilities staff** – carpeted areas and tiled floors need to be cleaned where student was present.
- **Teacher** – ensure clothing, towels, and bedding are not shared between students

Photos: NHS; Resources: IPM Arms Forces, ME CDC, Colorado Pest Press, California Childcare Prgm

School nurse understands and educates staff, students and families appropriate personal hygiene and facility sanitation measures to help prevent or reduce the spread of pests such as… ringworm.

Maine School IPM Program

maine MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Overview

- Fungal infection of the skin (not a worm!)
- Children should begin treatment before returning to school

Communication steps for school nurses

- **Parents** – provide guidance to prevent spread, such as wearing shoes in school showers
- **Facilities staff** – ensure locker rooms are cleaned daily
- **Teachers/Coaches** – Teach children not to share bike helmets, hats, etc., not to walk barefoot in areas like locker rooms or public showers, athletes involved in close contact sports should shower immediately after a session or match, and keep all sports gear clean

Resources: Communicable Diseases Quick Guide for Schools and Child-Care Centers in Maine

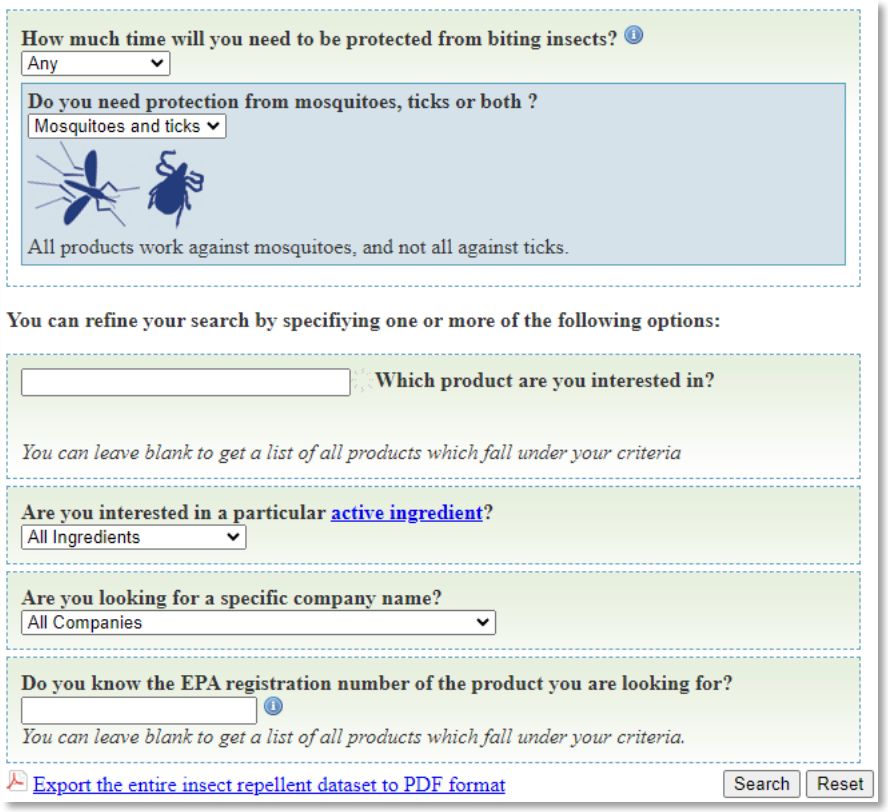
School nurse maintains school policies and procedures addressing the use of insect repellents on school grounds.

Overview

- Schools should adopt a repellent-use policy
- Review policy annually and in cases when notified of mosquito-borne disease threats

Communication steps for school nurses

- **Parents** –
  - if schools opt for a written parental consent policy, ensure parents fill this out and records are kept.
  - Encourage repellants to be applied before school if early morning outside time.
- **Teacher** – ensure teachers are trained in proper application of repellants



Resources: EPA Repellant Search Tool; Northeast IPM Factsheet

School nurse is knowledgeable about and communicates with students and staff, appropriate measures to prevent and/or reduce encounters with pests of health concern such as… <u>mosquitoes</u>

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

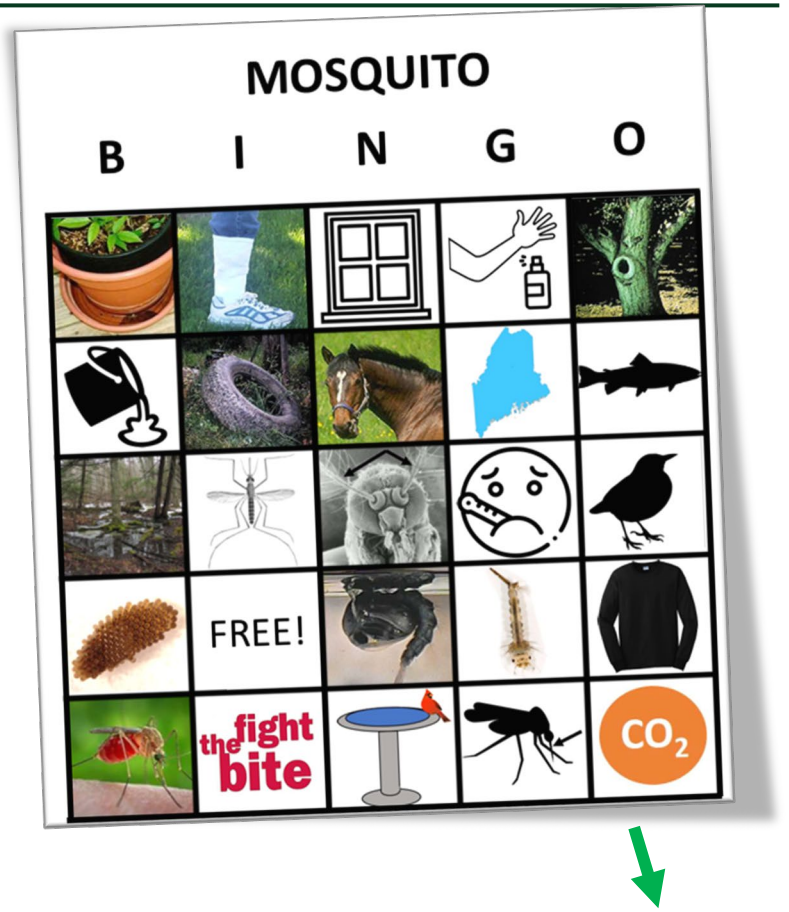
Maine School IPM Program

Overview

- Mosquitos can vector diseases – Eastern equine encephalitis (EEE), West Nile virus (WNV), Zika virus
- Can breed in shallow water (bottle caps, pots, garbage cans tarps, etc.)
- Nurses can use pre-made curriculum to educate students in classrooms

Communication steps for school nurses

- **Parents** – educate about importance of students wearing protective clothing (light colored, long sleeves, long pants, socks)
- **Facilities staff** – ensure staff are notified if children are presenting with frequent mosquito bites, there may be habitat modification needed
- **Teacher** – educate about turning over playground equipment and being on the lookout for large numbers of mosquitos



Resources: Northeast IPM Factsheet; Maine Notification to Schools (2024), ME CDC Mosquito Curriculum

School nurse is knowledgeable about and communicates with students and staff, appropriate measures to prevent and/or reduce encounters with pests of health concern such as…ticks

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

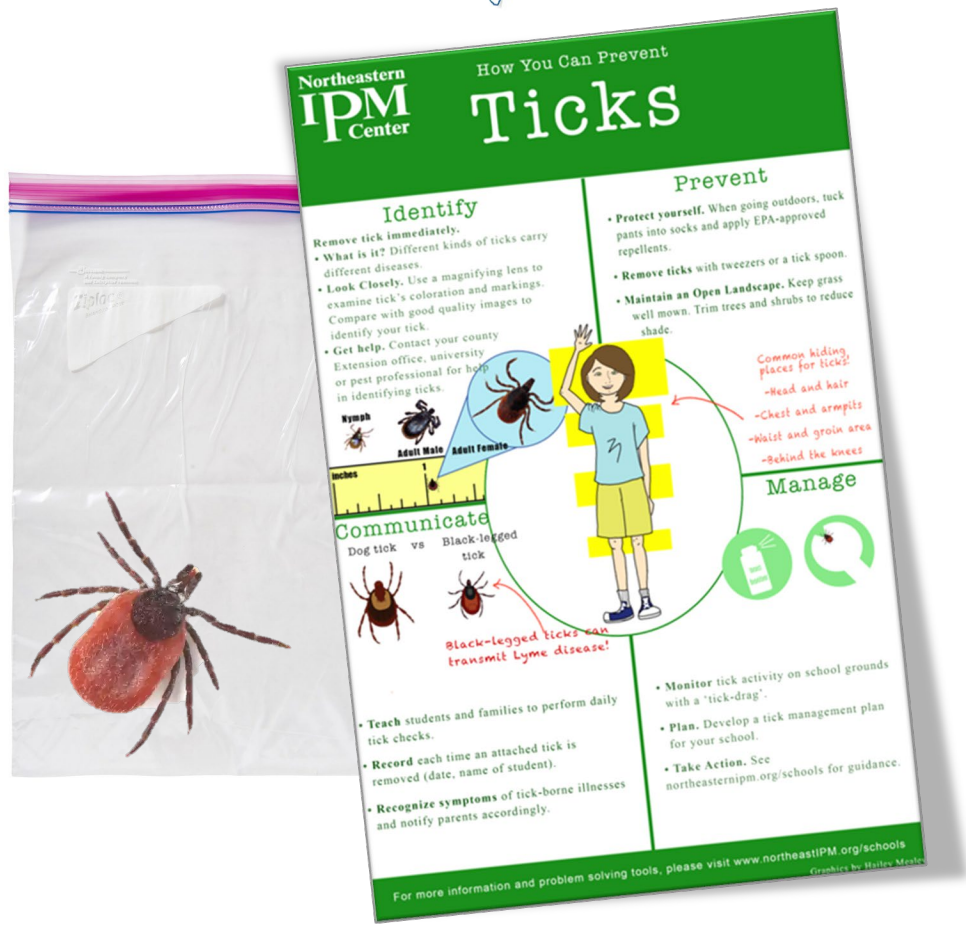
Maine School IPM Program

Overview

- Ticks can vector diseases – Rocky Mountain spotted fever, Lyme disease, babesiosis, ehrlichiosis, and Powassan encephalitis
- Habitat modification can help reduce the number of ticks
- Nurses can use pre-made curriculum to educate students
- Consider a policy on what to do with removed ticks - either keeping or giving to parents

Communication steps for school nurses

- **Parents** – educate about importance of students wearing protective clothing (light colored, long sleeves, long pants, socks)
- **Facilities staff** – notify if an increase in tick encounters, habitat modification or other treatments may be needed.
- **Teacher** – educate about helping students avoid tick habitat and perform self-checks on clothing before returning to the classroom



Resources: Poster; Maine CDC Tick Curricula ; Maine School IPM Tick Factsheet

☑ School nurse is knowledgeable about and communicates with students and staff, appropriate measures to prevent and/or reduce encounters with pests of health concern such as… <u>stinging insects</u>

MAINE DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

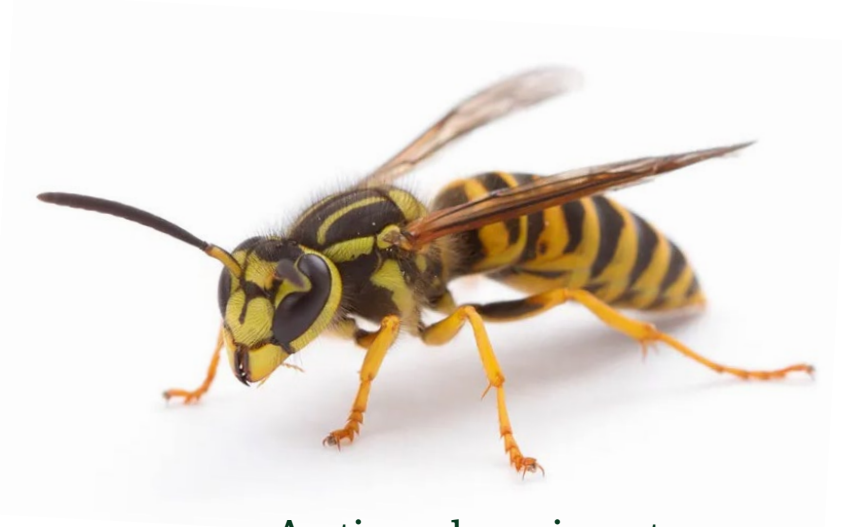
Maine School IPM Program

Overview

- Yellowjackets pose the greatest risk
- Nests can be hidden – underground, playground equipment, trees
- There is likely a problem if multiple children report stings within a couple of days
- Important to monitor children for allergic reactions

Communication steps for school nurses

- **Parents** – ask parents to provide information about any past reactions to stings
- **Facilities staff** – ensure facilities know if there is a suspected nest, and follow up to determine if removed
- **Teacher** – ensure teachers are aware of protocols for potential anaphylactic reactions



A sting alone is not enough to identify the species..

(Photo credit: Flickr/Insects Unlocked/Alejandro Santillana); Resources: Northeast IPM Factsheet


Maine School IPM Program
Helpful Websites
Let Me Help You!
POP QUIZ!!!
Ticks
Head Lice
Mice and Rats
Mosquitoes
RODENTS
HEAD LICE
HTWF
RESEARCH
SERVICE
EDUCATION
Advancing Healing Touch Worldwide
Take Back Your Yard!
West Nile Virus (WNV)
Repellent
Eastern Equine Encephalitis (EEE)
Lyme Disease
Anaplasmosis
Babesiosis
Borrelia mayonii
Jamestown Canyon Virus (JCV)
School Nurse Conferences

School Nurse Conferences

Contacts

- Board of Pesticides Control
  - www.thinkfirstspraylast.org
  - 207-287-2731
  - pesticides@maine.gov
- Maine School IPM Program
  - www.maine.gov/schoolipm
  - 207-215-4793
  - Hillary.peterson@maine.gov