

HABITAT HOT SPOTS



Overview:

Is your school or home "bugged?" Are your classrooms and kitchens "hot spots" where pests love to hang out? Put your spaces under surveillance! Collect clues about what makes a place a "hot spot" for pests by investigating the survival needs of various potential pests. Use the clues to solve the mysteries of pest problems. Transform "hot spots" into places that are "cool-for-kids" (and grown-ups). Discover ways to "green sweep" your spaces with environmentally friendly actions to convince unwelcome pests to pack up and move back to their natural habitats.

Key Concepts

- All organisms have basic survival needs: food, water and shelter.
- Pests are attracted to our spaces because they find food, water and shelter.
- Organisms gain access to our spaces in a variety of ways.
- Habitat modification and environmentally friendly sanitation practices are important ways to prevent pest problems.

Objective

- Describe reasons organisms are attracted to indoor and outdoor spaces at home and at school.
- Explain how we can use the facts about an organism's survival needs to prevent them from becoming unwelcome pests in and around our homes and schools.
- Modify and clean spaces at home and at school with environmentally friendly strategies and tools to prevent pest problems.

Materials and Preparation

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- Photocopy and assemble a *Hot Spots for Pests* booklet for each student. Booklet printing instructions: Print on one sheet of paper using both sides. Cut along line indicated. Stack halves so cover is on top. Fold and staple.
- Photocopy *Hunting for Hot Spots in Our Classroom* for each pair of students.
- Hunting for Hot Spots in Our Classroom: Teacher Tip Sheet for reference.
- Photocopy *Lesson 2 Home In-PEST-igation* for each student.
- Photocopy *Hunting for Hot Spots at Home: Family Tip Sheet* (print back-to-back with Home In-PEST-igation) for each student.
- Place red paper circles or self-adhesive red stickers around the classroom to indicate "hot spots" in places where pests might gain access and find food, water or shelter. (the *Teacher Tip Sheet* is a guide).
- **"Green Sweep" Coupons** for each student (optional).
- **"Green Sweep" Idea List** for each student (optional).
- "Green Sweep" Actions Teacher Tip Sheet.
- Bring in ingredient and warning labels from various cleaning sprays made with chemical solutions.



Glossary

Access: Point of entry such as cracks, holes and windows.

Ecosystem: A biological system of interacting organisms and their physical environment.

Habitat: The natural home of a plant, animal or other organism; the place where an organism finds what it needs to survive.

Shelter: A safe haven for nesting and from predators, temperature extremes and weather events.

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OPENING HABITAT, SWEET HABITAT



Estimated Time of Activity: 10 minutes

- **1.** What do all living things need to survive? To introduce the topic of why pests show up in human spaces, read aloud the poem, We All Need a Place below.
- 2. Invite students to identify the line that reveals reasons unwelcome organisms enter our space and call it their place: "Water, shelter, food put 'invaders' in the mood." Ask students: Who are our "space invaders?" (Encourage students to name the kinds of pests they learned about in Lesson 1: spiders, insects, weeds, mold, bacteria, fungi) What are the unwelcome intruders looking for when they come into our spaces? (food, water, shelter the things they need to survive)

We All Need a Place

All living things, the tall and the small,

All need a space; all need a place.

Water, shelter and food put "invaders" in the mood

They enter our space and call it their place.

Bugs in the cellars and kitchen dwellers,
Live in our space and call it their place.
Garden eaters and trash can feeders
Dine in our space and call it their place.

All living things, the tall and the small, All need a space; all need a place.









DEVELOPMENT HANGING OUT IN "HOT SPOTS"



Estimated Time of Activity: 15 minutes

- 1. Tap into students' prior knowledge, ask: Where do kids like to hang out? What makes a place a "hot spot" for kids? Connect to lesson concepts: Where do you think spiders like to hang out? What would make a place a "hot spot" for a spider? Why do spiders choose certain places to spin their webs? Fun fact to share: Some spiders build webs near windows because it's a great place to catch insects that may come in through tiny holes and cracks. If your window has cracks or holes where air is coming in...you may have discovered a "hot spot" for a spider to spin its insect-capturing web! Where else can insects gain access? Look for spider webs. They might just be the clue you need to solve the mystery: How are insects getting inside my home or school?
- 2. Distribute the booklet, *Hot Spots for Pests*. Read aloud the title and invite students to make predictions: *If you were a spider, ant or cockroach, where would you live? Where would you hang out or hide here in our classroom? If you were a mouse, moth or bug, where would you find a "hot spot" to hang out in a house?* List their predictions on the chalkboard and encourage them to share reasons why a place could be a hot spot for a pest: *under the refrigerator because it's dark and safe from the vacuum cleaner; in the basement because there are dark corners that make great hiding places; inside a cupboard with food in cardboard boxes, under the sink because it's dark and there could be water from a leaky pipe.* Read the booklet aloud together. Ask students to reread the booklet with a partner and circle words that describe places that can become hot spots for organisms looking for food, water and shelter: *dripping faucets, leaky pipes, pet food bowls, cardboard boxes, piles of paper, cluttered corners, counters with crumbs, sinks with unwashed dishes, uncovered trash cans.*
- **3.** Summarize key concepts by asking students to identify conditions that would make a particular place attractive to various organisms. Be sure that students describe reasons why the space would be a "hot spot" (source of food, water, shelter).
 - Could your lunchbag be a hot spot for a pest? Yes, if the food is in unsealed containers. No, if all food items are packed in tightly-sealed, plastic containers.
 - *Could a toaster be a hot spot for a pest?* Yes, if the toaster sits uncovered on the counter with leftover bread crumbs waiting inside. No, if the toaster is regularly cleaned and stored in a pest-proof place in the kitchen.
 - *Could towels be hot spots for pests?* Yes, if towels are left in a wet heap on the floor, they can become a hot spot for mold. It's best to hang up towels so they can dry.
- **4.** Questions to facilitate classroom discussion:
 - Where could pests find food in our classroom? Leftover lunches/snacks in desks and backpacks, crumbs on the floor, unsealed food containers.
 - Where could pests find food in our homes? On unwashed kitchen counters, on floors with food crumbs, under refrigerators with crumbs or unwashed spills, inside unwashed stove burners, inside toasters with leftover breadcrumbs, in unsealed trash cans, on food-filled dishes left overnight in the sink, in pets' food bowls left out all day and all night.
 - Where could pests find water? In sink and bathtub drains, on leaky plumbing pipes, on damp towels and rags left on the floor, in water dishes left out for pets, in flower pots or other containers for houseplants.
 - Where could pests find shelter? Inside holes in walls, gaps around plumbing pipes, unscreened vents, clutter piles, cardboard boxes, inside furniture, underneath appliances. Be sure to add ideas from the answers provided above to the places students were able to identify.

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DEVELOPMENT

HUNTING FOR HOT SPOTS IN THE CLASSROOM

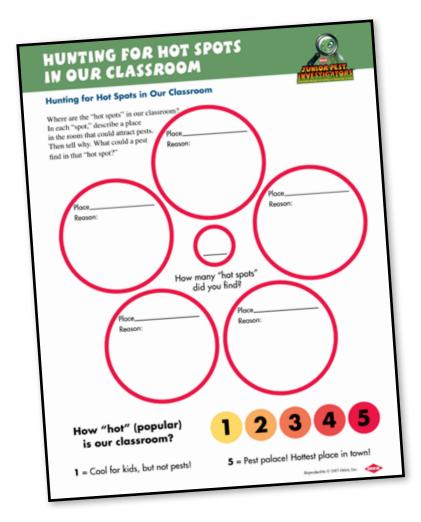


Estimated Time of Activity: 20 minutes

- **1.** Ask: Do you think our classroom has "hot spots" where pests could find food, water, and/or shelter?
- 2. Break students into pairs and handout *Hunting for Hot Spots in our Classroom*. Softly chant: We're going to find the hot spots; we're going to find the hot spots using the rhythm of "going on a Bear Hunt." Whisper the chant down to silence so you can explain how the hunt will work: You will have ten minutes to find some hot spots around our room. You'll know them by the red spots I put there. When you find each hot spot, ask yourselves why it's a hot spot. What can the pest find at this hot spot? Write down whether each hot spot is a place for food, water, hiding or access (a place to get in).
- **3.** After 10 minutes, call students together by softly chanting, "Did you find the hot spots? Did you find the hot spots?" Beckon for them to come together in a group as you again bring the chant down to a whisper. Ask students what they discovered. Where could pests find food, water, and shelter in our classroom? How hot is our classroom? How popular would our classroom be for pests right now?









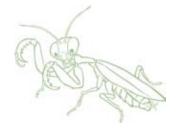


DEVELOPMENT OPERATION: "GREEN SWEEP"

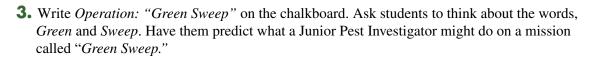


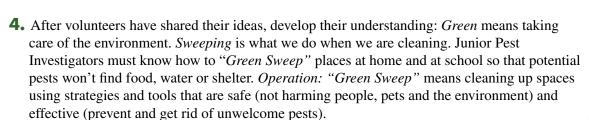
Estimated Time of Activity: 20 minutes

1. Introduce Operation: "Green Sweep." Today we are going to transform "hot spots" into spaces that are "cool-for-kids" instead of pests. What do you think we will need to do? After calling on volunteers to share their ideas: How can we be sure pests won't find food in our class? How can we be sure they won't find water or hiding places? What could we do to prevent them from coming inside our classroom/school?



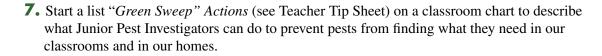
2. List their suggestions on the chalkboard. Examples: Make our classroom a food-free zone. Be sure any food that comes into the classroom is in tightly-sealed, plastic (pest-proof) containers. Keep food out of our desks. If we eat snacks or treats in the classroom, make sure we clean up crumbs and wipe up spills. Be sure to throw trash in the wastebasket that is emptied every day. Replace cardboard organizers with pest proof containers.

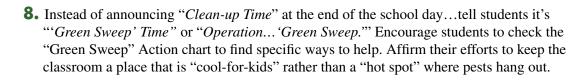






- **5.** Challenge students to describe ways to "Green Sweep" the classroom: What kinds of tools do you think a Junior Pest Investigator uses to "Green Sweep" a room? Do you think we will need cleaning sprays?
- **6.** Read ingredient and warning labels from various cleaning products made with chemical solutions. Ask students: Do you think that it's safe for Junior Pest Investigators to use chemical sprays? Do you think using chemical sprays is a safe way to "Green Sweep" a room? Why or why not? Are these sprays the only way we can clean up our spaces and prevent pest problems? What are some safe ways kids can help keep spaces clean to discourage pests from becoming a problem?







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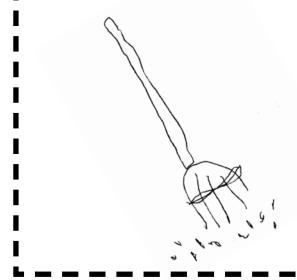
WRAP UP "GREEN SWEEP" COUPONS



Estimated Time of Activity: 15 minutes

- 1. Invite students to brainstorm ideas for a "Green Sweep" Action chart that would describe ways kids can "Green Sweep" spaces at home. Challenge them to think about different rooms and possible hot spots. Be sure the actions they list on the chart are simple sanitation tasks they can do at home to prevent pests.
- 2. Have them select a task from the "Green Sweep" Action chart and design a coupon they can give to a parent as a promise to help. For example: A coupon that is good for one week of sweeping the kitchen floor.





Good for 1 week of sweeping the kitchen floor

Love Jacob

HOME IN-PEST-IGATION





At-Home Activities:

 ot Spots for Pests booklet to share.		
 Hunting for Hot Spots at Home to record places that attract potential pests.		
Hunting for Hot Spots Family Tip Sheet to help families know where to look for possible hot spots and what makes them attractive to pests.		
 "Green Sweep" Coupons (optional) to encourage families to start Operation: "Green Sweep" at home.		
 "Green Sweep" Coupon Idea List to support families in their quest to go green		

CURRICULUM CONNECTIONS

at home!

Language Arts: PEST-WISE GUYS Action Heroes

Create environmental action heroes who use green strategies to solve pest problems. Create a comic strip or book depicting the PEST-WISE heroes in action for pest prevention and management.

Science: Seeing the Light

What evidence can students think of that indicates insects are attracted to light? Ask them how they could use this knowledge to find out about "hot spots." (They can turn on lights inside and outside at night. When they go outside and look around, the light inside the house will illuminate gaps and cracks where insects can get inside. The light outside will help them see where the insects are. Can they see any insects coming in through doors? Around windows? A parent can help them examine where the gas and the cable wire come into the house. They also can look at window wells and edges of the eaves where the gutters are attached. Ask them to report back on their discoveries after this outdoor "hot spot hunt."

Science: Under Surveillance

Encourage students to think about everything that comes into their house. Things come to us from far and wide, and each item is a potential hot spot for a hiding pest, pest colonies or pest eggs. How many such items can students list? Brainstorm and then ask them to get into the habit of examining everything that comes into their home. Make sure they don't overlook items bought at yard sales and garage sales, wood for the fireplace, birdseed, pets, cardboard boxes, things from school lockers and backpacks that have been set down in the grass, and other places of pest potential.

Art: Can-do Cans

Decorate an empty coffee can with decorative paper. Label it "Green Sweep' Can-Do Can." Give students several blank "green sweep" coupons. Invite them to write actions they "can do" to make their classroom clean and green. Each day students pick a coupon from the can during "Green Sweep" time (aka "clean-up time").

Orkin Connections: Learning Center

Check out these interdisciplinary activities that extend students' learning at www.orkin.com/learningcenter

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WE ALL NEED A PLACE

All living things, the tall and the small,
All need a space; all need a place.
Water, shelter and food put "invaders"
in the mood
They enter our space and call it their place.

Bugs in cellars and kitchen dwellers,
Live in our space and call it their place.
Garden eaters and trash can feeders
Dine in our space and call it their place.

All living things, the tall and the small, All need a space; all need a place.

HOT SPOTS FOR PESTS



Hot Spots For Pests Booklet - Lesson 2 Primary - Reproducible - $\ @$ 2007 Orkin, Inc.

PLACES WHERE PESTS FIND WATER CAN BE HOT SPOTS.



Dripping faucets, leaky pipes, juicy spills, pets' water bowls — pests find water in many places.

SOMETIMES OUR SPACES ARE "HOT SPOTS" FOR PESTS.



Like you, pests want to hang out in "hot spots" — spaces with sweet treats, water and hiding places.

WHY DO PESTS COME INSIDE?



Pests are looking for food, water, and shelter. Where can they find a hot spot to eat, drink and hide?

PLACES WHERE PESTS HIDE CAN BE HOT SPOTS.

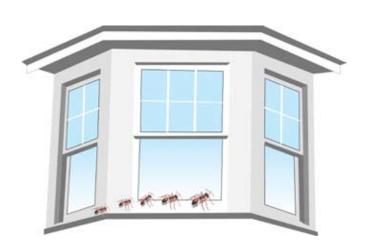


Cardboard boxes, cluttered corners and piles of papers are cozy places where pests can hide. Hiding places make great nests for new pests!

Hot Spots For Pests Booklet - Lesson 2 Primary - Reproducible - © 2007 Orkin, Inc.

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PLACES PESTS GET IN CAN BE HOT SPOTS.



Pests fit through small cracks and holes in walls and windows, doors and floors.

PLACES WHERE PESTS FIND FOOD CAN BE HOT SPOTS.



Crumbs on the counter, unwashed dishes in the sink, tasty treats in the trash — pests find food in many places.

2

HUNTING FOR HOT SPOTS IN OUR CLASSROOM



Hunting for Hot Spots in Our Classroom

Where are the "hot spots" in our classr In each "spot," describe a place in the room that could attract pests.		
Then tell why. What could a pest find in that "hot spot?"	Place Reason:	
Place Reason:		Place Reason:
	How many "hot spots"	
Place Reason:	did you find? Place Reason:	
ilouseii.	illouse	
How "hot" (popular)		
is our classroom?	1 2	3 4 5

1 = Cool for kids, but not pests!

5 = Pest palace! Hottest place in town!

TEACHER TIP SHEET HUNTING FOR HOT SPOTS IN OUR CLASSROOM



THESE CAN BE HOT SPOTS

IF THEY ARE A SOURCE OF

. Food/Shelter
. Food/Shelter
. Food
. Food
. Food/Shelter
. Food/Shelter
. Food
. Food
. Food/Shelter
. Water
. Entry/Water
. Food/Shelter
. Entry
. Entry/Shelter
. Entry
. Shelter
. Shelter
. Food/Shelter
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HUNTING FOR HOT SPOTS AT HOME



Dear Family,

Where do you find pests in and around your home? What "hot spots" are pests attracted to because they can find tasty treats, fresh water and great hiding places?



Today our class explored the basic survival needs of all living things: food, water and shelter. Your child discovered that when animals

are in their natural environment, they are just doing their jobs. When they invade our spaces, they can become pests. Help your child identify places in and around your home where pests can find food, water and shelter.

Hunting for Hot Spots at It Where are the "hot spots" in your ho In each "spot," describe a place in the room that could attract pests. Then tell why. What could a pest find in that "hot spot?"	ome?		
Place Reason:		Place Reason	
Place Reason:	How man spots" did y	PlaceReason:	

FAMILY TIP SHEET HUNTING FOR HOT SPOTS AT HOME



THESE CAN BE IF THEY ARE A HOT SPOTS SOURCE OF Kitchen surfaces..... Food/Shelter Dishes...... Food Cupboards and closets..... Food/Shelter Garbage cans Food Under and behind furniture and appliances Food/Shelter Floors Food Sinks and drains Water Under sinks Entry/Water Windows and screens..... Entry Walls..... Entry/Shelter Exterior doors..... Entry Storage areas Shelter Storage boxes Shelter Household pets' food and water Food/Shelter Indoor plants Food/Shelter

Outdoor vegetation..... Entry/Food/Shelter

Garages Entry/Shelter

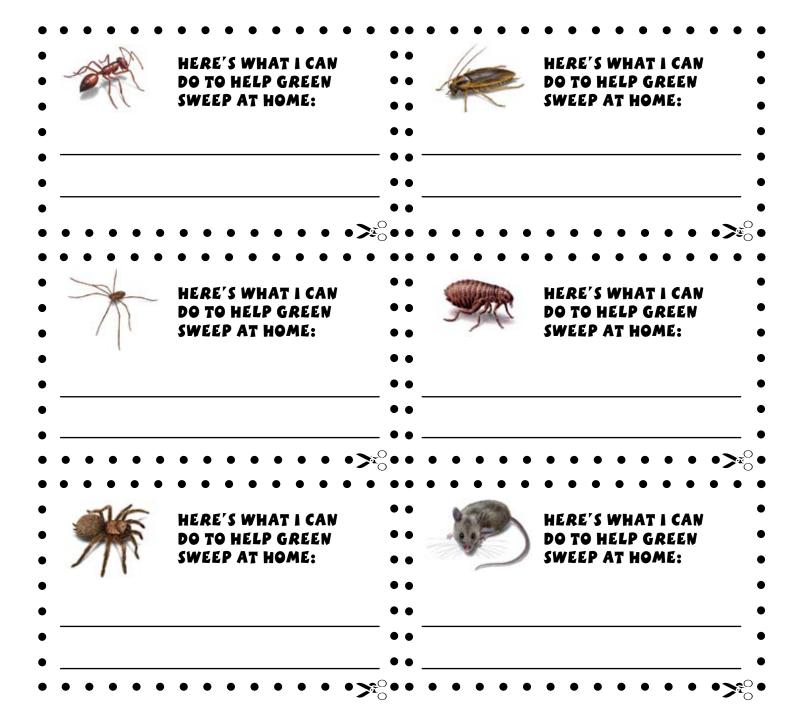
"GREEN SWEEP" COUPONS



Dear Family,

"Green Sweep" Coupons are a fun way to prevent pests from coming inside to find food, water and shelter. Cut apart and keep coupons in a "job jar." Pull out a coupon and cash it in by presenting it to your Junior Pest Investigator (or any family member) to fulfill. Work as a team to empty the jar. You'll be "green sweeping" your home so pests won't want to move in and stay.





"GREEN SWEEP" COUPONS IDEA LIST





☐ Pull up dandelions in the yard.		
☐ Pull weeds in the garden.		
☐ Plant a garden for beneficial bugs like dragonflies,		
lacewings and ladybugs.		
☐ Use a flyswatter instead of bug spray.		
☐ Share "green" facts with friends and family.		
Collect facts about a pest. Share fun facts with friends and family		
Clean out the microwave.		
☐ "Green Sweep" a room in your home.		
☐ Create organized zones in your home to de-clutter spaces.		
□ Inspect all cardboard boxes for bugs/signs of bugs before bringing them indoors.		
☐ Clean bed sheets/bedding regularly.		
☐ Check indoors and out for any containers with standing water		
☐ Check houseplants for pests/signs of pests.		
Rinse food off plates. Do not leave dirty dishes in the sink.		
Rinse out and dry plastic and glass containers before placing them in recycling bins.		
☐ Clean recycling bins with soap and water. Dry them		
thoroughly.		
☐ Use chemical-free cleaning supplies.		
☐ Keep shrubs and mulch at least a foot away from the		
house foundation.		
Make sure that firewood and building materials are not stored		
next to your home. Pests like to build nests in stacks of wood.		
☐ Plant marigolds in your garden because bugs don't like the peppery odor.		
☐ Interview a pest professional to get your pest questions		
answered.		
□ Contact a pest professional for pest problems that do not have do-it-yourself solutions.		

TEACHER TIP SHEET "GREEN SWEEP" ACTIONS



POTENTIAL "HOT SPOTS"	WHY?	"GREEN SWEEP" SOLUTION
1. Desks	Food/Shelter source	Empty and thoroughly clean monthly
2. Lockers/coat areas	Food/Shelter source	Empty and thoroughly clean monthly
3. Garbage cans	Food source	Empty and thoroughly clean daily
4. Recycling bins	Food source	Empty and clean food container receptacle daily; empty paper bins weekly
5. Drawers	Food/Shelter source	Empty and thoroughly clean regularly; ensure that food items are properly sealed
6. Under and behind furniture	Food/Shelter source	Sweep and dust monthly
7. Carpets	Food source	Vacuum daily
8. Floors	Food source	Sweep up crumbs daily; wash floors regularly
9. Inside cupboards	Food/Shelter source	Empty and thoroughly clean regularly; ensure that food items are properly sealed
10. Sinks and drains	Water source	Keep sinks clean; repair any faucet leaks
11. Under sinks	Entry/Water source	Inspect for gaps between pipes and walls; repair any leaks
12. Corners	Food/Shelter source	Sweep weekly
13. Windows and screens	Source of Entry	Caulk around windows; repair screens
14. Walls	Source of Entry	Seal any openings
15. Exterior doors	Source of Entry	Apply weather-stripping; keep doors closed when not in use
16. Storage boxes	Shelter source	Use sealable plastic bins instead of cardboard boxes
17. Craft supplies	Shelter source	Use sealable plastic bins instead of cardboard boxes
18. Indoor plants	Food/Shelter source	Keep pet cages clean; seal pet food in plastic containers
19. Classroom pets	Food/Shelter source	Inspect weekly; remove insects from plants manually
20. Outdoor vegetation	Entry/Food/Shelter source	Keep shrubs, other vegetation and mulch at least one foot away from exterior walls of the building

^{*} Make sure adults supervise "Green Sweep" Actions.