Wild World of Pest Management: IPM For Youth

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University of Nebraska – Lincoln Extension

2006 National IPM Symposium, St. Louis, MO

Wild World of Pest Management

- An IPM program for youth
  - Audience: 4th through 7th grades
  - Primary audience
    - 5th and 6th graders
- Very receptive age and learning level
- "Wild World" content closely coincides with school programming
  - In natural science and resources
  - In history of U.S.

Wild World of Pest Management

- The why and how it came to be
- Two simultaneous events
  - 1. Daughter's school experience
  - 2. Extension request for programming

Wild World of Pest Management

- The why and how it came to be
  - 1. My daughter's experience at junior high
    - Discussed parents' careers
    - Dad – "worked with pesticides, taught pesticide safety"
    - Teacher reacted with visible horror
      - "Pesticides killed everything, caused un-needed health risks"
  - Conclusion: objectivity in pest management needed

Wild World of Pest Management

- The why and how it came to be
- 2. Outdoor day camp: Water Works
  - Completed first year of programming
    - An instructor discussed pests and controls
    - Discussed “bio-accumulation”
    - Used DDT example - - “DDT applied liberally, killed insects, active ingredient accumulated in food chain”
    - “Killed eagles”
    - No reference to IPM
  - Extension colleague (program planner of Water Works) requested an objective program about pests and controls

"Wild World" Program Goals

- Content is science-based
- A silent, but strong Integrated Pest Management approach is delivered
  - "Integrated Pest Management" not said aloud to students, but the concept is strongly portrayed
- Objective in nature
  - Not anti-pesticides, not pro-pesticides

Wild World of Pest Management

- 20 to 25 minutes in length
  - If longer, attention span taxed
  - If shorter, message not delivered
- Delivery Settings
  - Outdoor day camps, earth festivals sponsored by UNL Extension
  - Elementary classrooms

Delivery Setting:
Outdoor Day Camp / Shade Tree

Delivery Setting:
Outdoor Day Camp: Parking Lot

Delivery Setting: 4-H Cabin

Delivery Setting: Classroom

Presentation Approach / Delivery

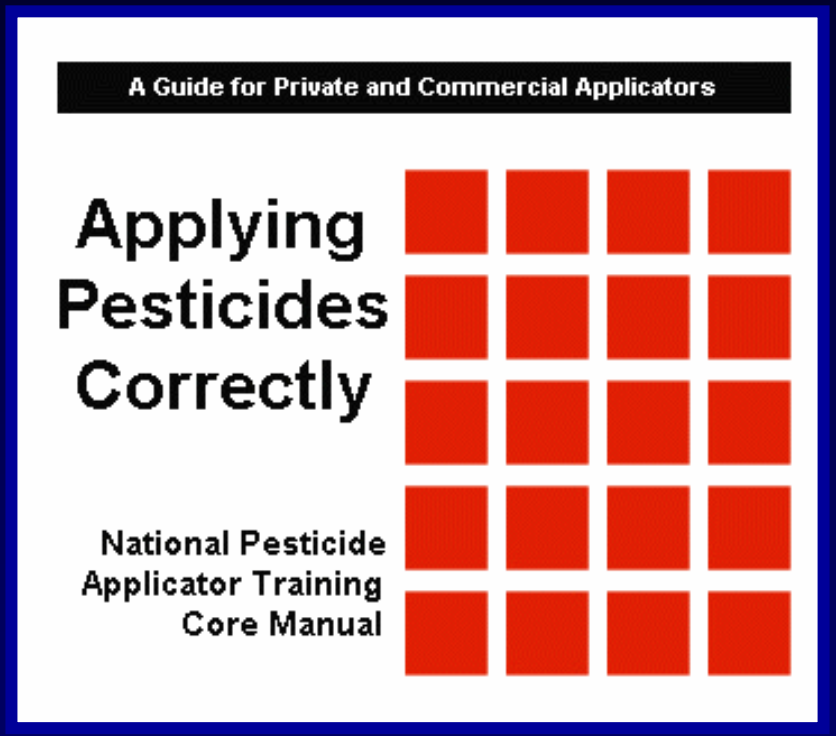
- Interactive with audience
  - Student participation in delivery
    - Adds to the excitement of learning
- Incorporation of lots of visual aids
  - Including live Corn snake
  - Live Hissing Madagascar Cockroaches
- Includes “Lesson Plan”
  - To allow re-enforcement of lessons learned later in the classroom
  - A/Vs identified in the lesson plan for teacher
- Adaptable to adults and youth

The IPM Approach

- Straightforward and basic
- Begins with underlying IPM principle
  - Identify the pest involved
  - Recognize that nature controls pests
  - Optional methods of control (IPM) are available, they are our selections to help nature control pests
    - Use least toxic approach first
    - Pesticides is one of these tools
    - Pesticides is deliberately considered last if other IPM methods do not work

The IPM Approach

- Entire "Wild World of Pest Management" program is based upon Pesticide Education Program core manual for licensed private and commercial applicators



“Wild World” Content

- Includes points about…
  - We live in a chemical world
    - Soil, plants, water, air are made of chemicals
      - So are clothes, shoes, eye glasses, etc.
  - Pesticides do occur naturally in nature
  - Strikes at myth that “natural is good, synthetic is bad”
- Cavalier attitude about pesticides is not part of this presentation
  - Responsible use of pesticides is important

Topics Covered: Wild World of Pest Management

- What are pests?
- Types or groups of pests (4)
- Nature's pest controls (4)
- Optional methods (IPM – 6 methods) of pest management (includes pesticides)
- Pesticide types – be responsible user
  - Naturally occurring
  - Synthetics

Preparing For the Class

- Audio/visuals

Preparing For the Class

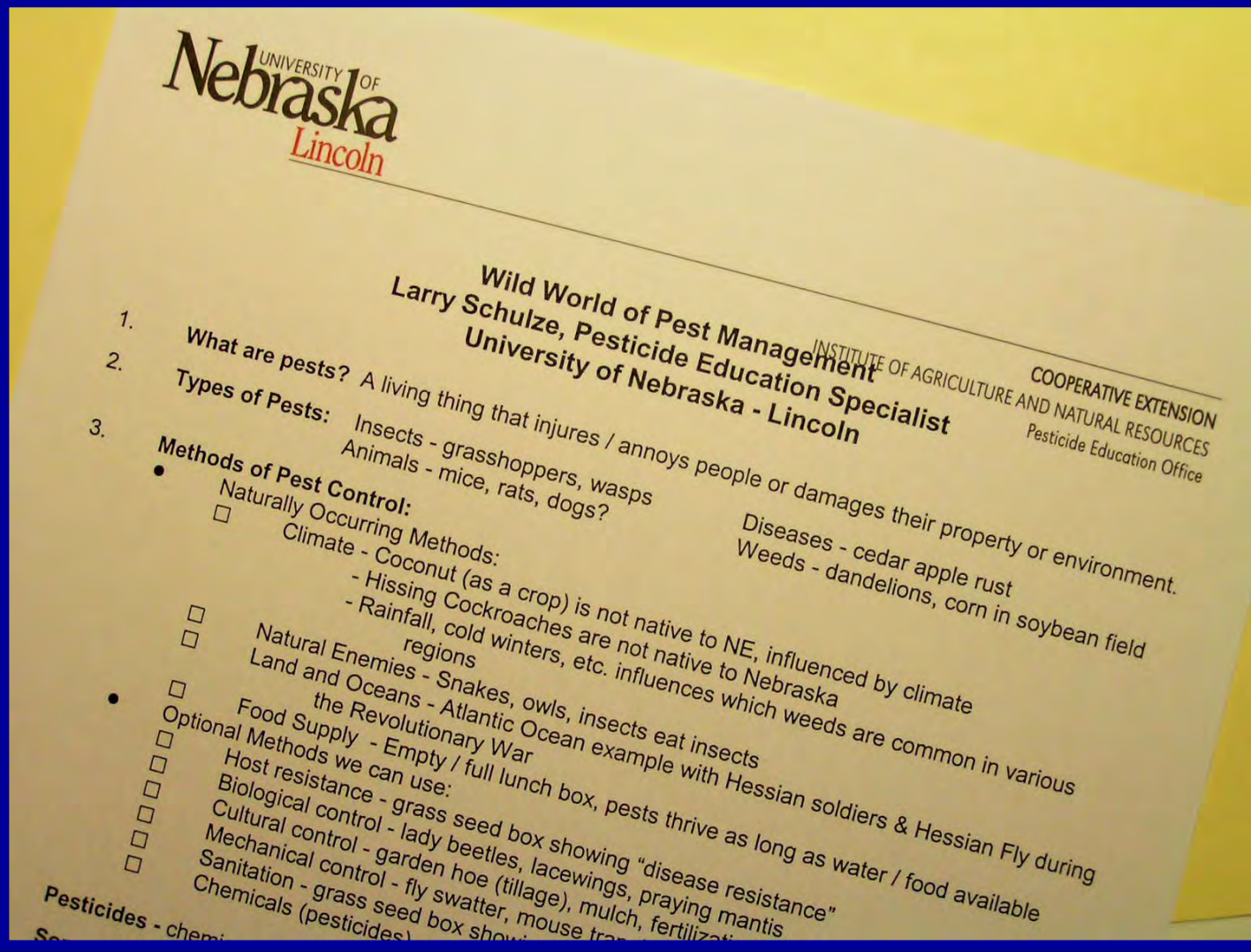
- Audio/visuals

Preparing For the Class

- A/Vs: hidden from student view

Preparing For the Class

- Lesson Plans provided to teachers



University of Nebraska Lincoln

INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
COOPERATIVE EXTENSION
Pesticide Education Office

Wild World of Pest Management
Larry Schulze, Pesticide Education Specialist
University of Nebraska - Lincoln

1.
2. **What are pests?** A living thing that injures / annoys people or damages their property or environment.
   Types of Pests: Insects - grasshoppers, wasps
   Animals - mice, rats, dogs?
   Diseases - cedar apple rust
   Weeds - dandelions, corn in soybean field
3. **Methods of Pest Control:**
   - ☐ Naturally Occurring Methods:
     - ☐ Climate - Coconut (as a crop) is not native to NE, influenced by climate
     - ☐ - Hissing Cockroaches are not native to Nebraska
     - ☐ - Rainfall, cold winters, etc. influences which weeds are common in various regions
     - ☐ Natural Enemies - Snakes, owls, insects eat insects
     - ☐ Land and Oceans - Atlantic Ocean example with Hessian soldiers & Hessian Fly during the Revolutionary War
     - ☐ Food Supply - Empty / full lunch box, pests thrive as long as water / food available
   - Optional Methods we can use:
     - ☐ Host resistance - grass seed box showing "disease resistance"
     - ☐ Biological control - lady beetles, lacewings, praying mantis
     - ☐ Cultural control - garden hoe (tillage), mulch, fertilizati
     - ☐ Mechanical control - fly swatter, mouse tra
     - ☐ Sanitation - grass seed box show
     - Chemicals (pesticides)

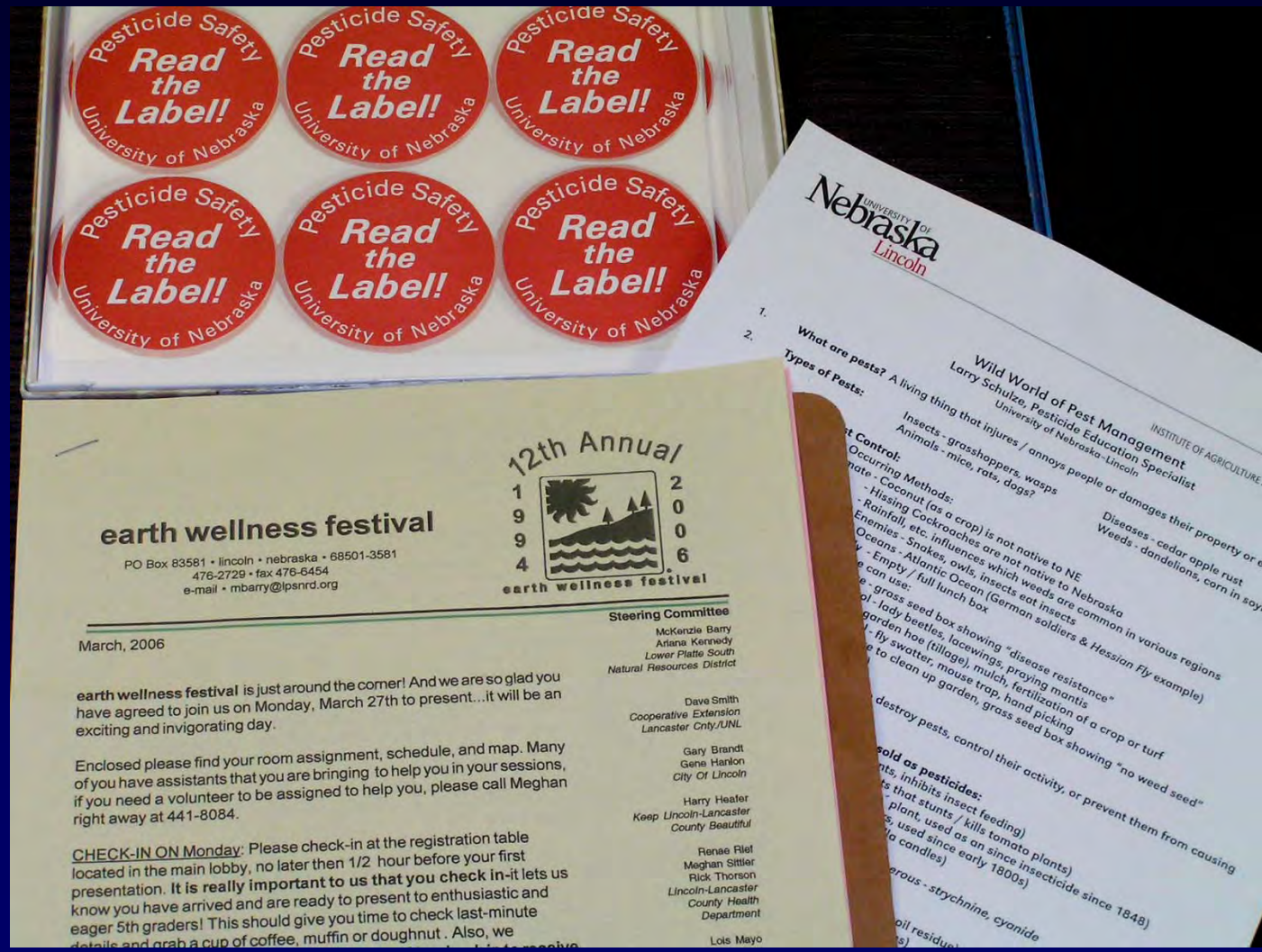
Pesticides - chem

Wild World Lesson Plans

- Encourages re-enforcement of major points in the classroom
- Encourages classroom discussion by teacher
- Encourages student interaction & feedback with teacher
- Enhances learning of student

Preparing For the Class

- All set for the "Earth Wellness Festival"



This Presentation

- About this presentation: a bit of a risk?
  - I'm speaking to adults about how I visit with youth
  - Approaches are very different
- Today's Discussion
  - About my techniques in delivery
  - About content / subject matter About audio / visuals to teach and deliver
  - All to aid <u>your</u> potential Wild World of Pest Management presentation with <u>your</u> audiences
- My goal – encourage you to develop a similar program
  - My multiplier effect

Poster Boards: 24” x 30”

- To increase students’ understanding and learning
  - They see, hear, do, read
- To guide my presentation
  - Keeps me on track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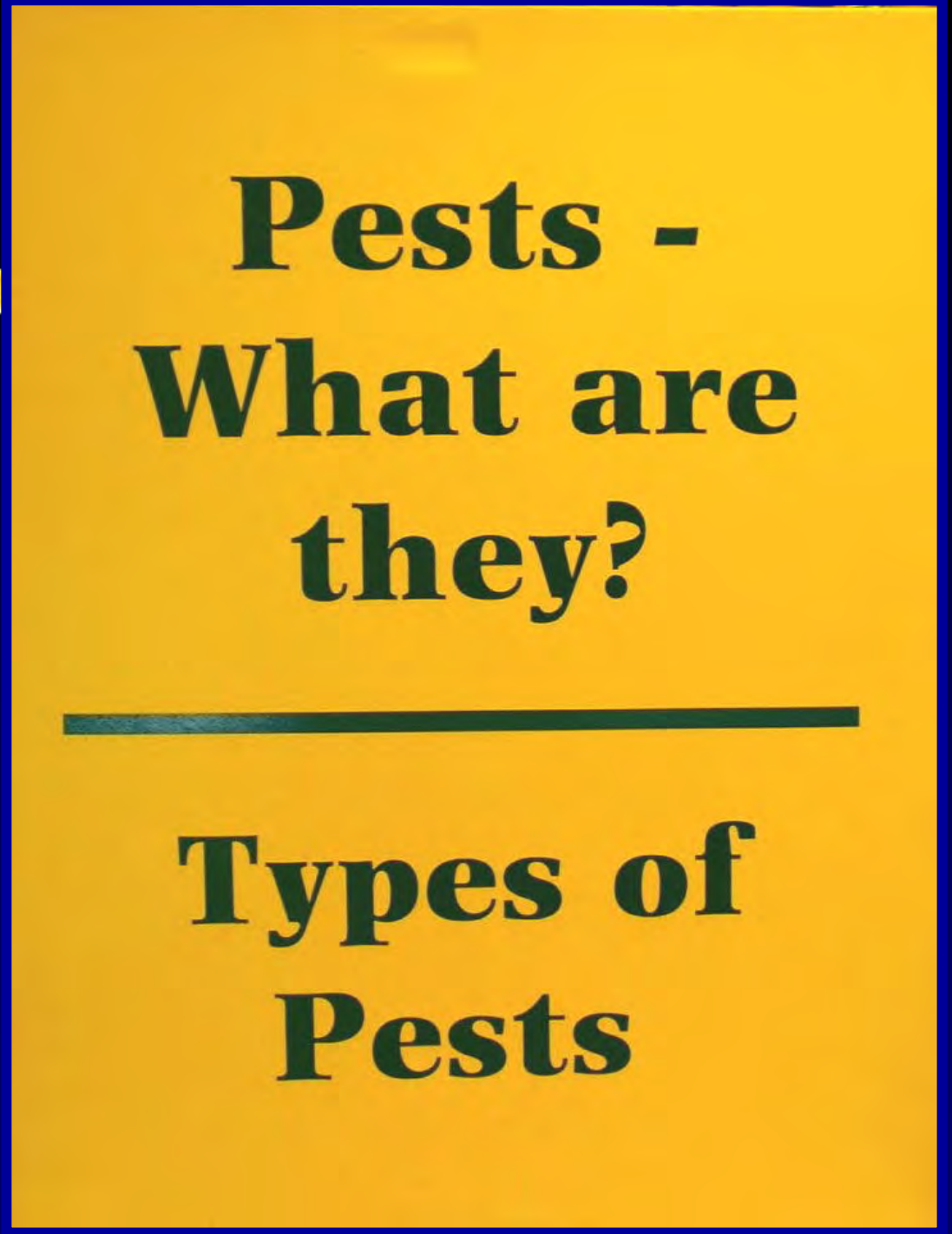
Pest
nagement

Setting the Stage: The Program Begins

- Today: Our visit is about pests…
  - About the management of pests
  - If we are to control pests, then we must know about them
- Acknowledge that people can be pests
  - You may say, “Larry, I know all about pests”
  - “Because, my teacher, a classmate, brother or sister is a pest.”
  - “That may be true, but, today, we won’t consider people as pests.”
  - “We’ll just consider pests other than people in this discussion”
- Why do this?
  - Otherwise, students will continually identify their classmates as examples of “pests” and class disruption may occur



The Pest Discussion

- First, a question
  - Are pests dead or alive? Yes, alive.
- A pest is a pest because it does something that we do not like
  - Please give me some actions that a pest does that we do not like. Don’t name a pest.
  - Can you describe a pest?

Typical Pest Descriptions

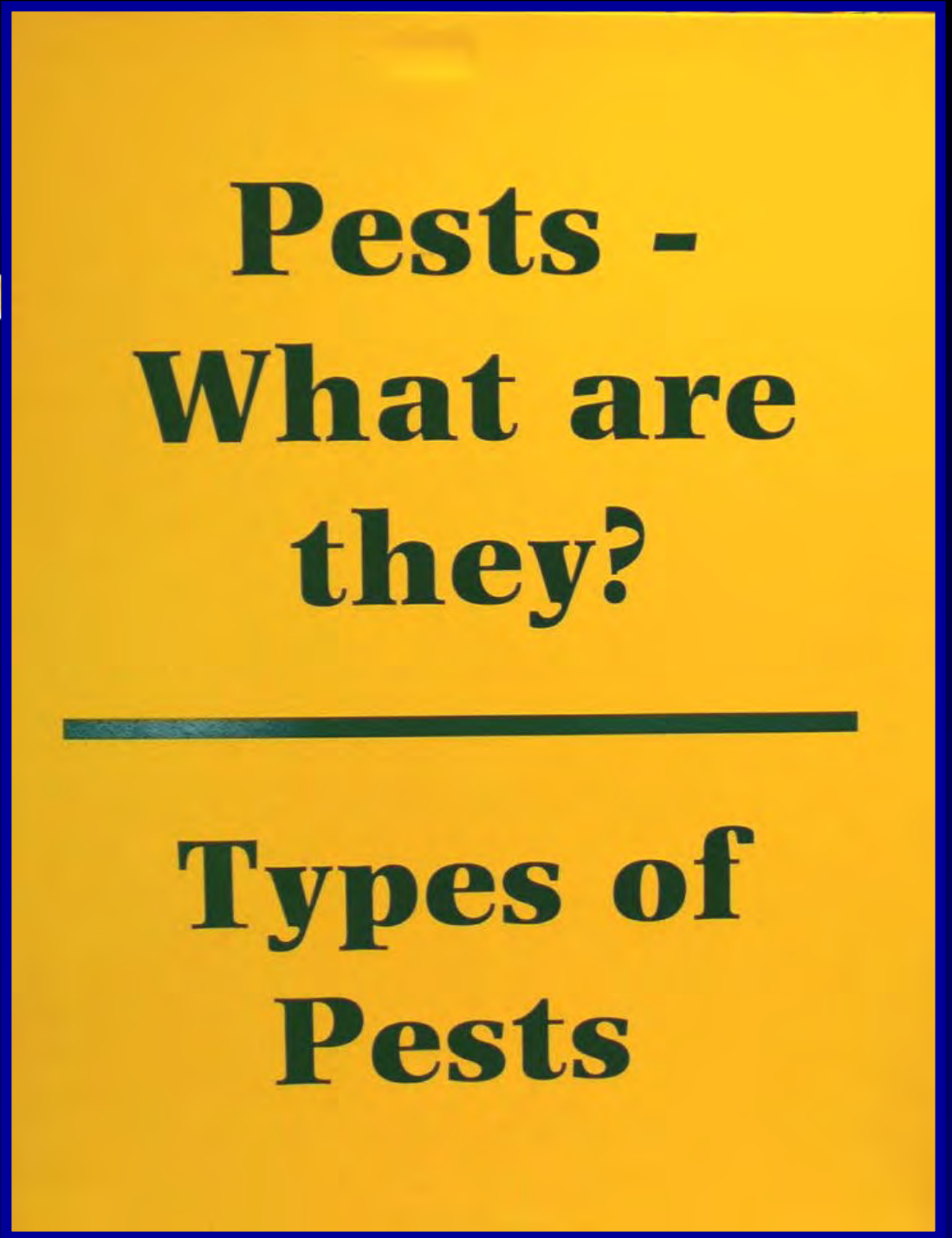
- Something that bites or stings
- They bother me
- Eat things
  - Like what?
    - Crops, garden
- Can pests eat holes in your house?

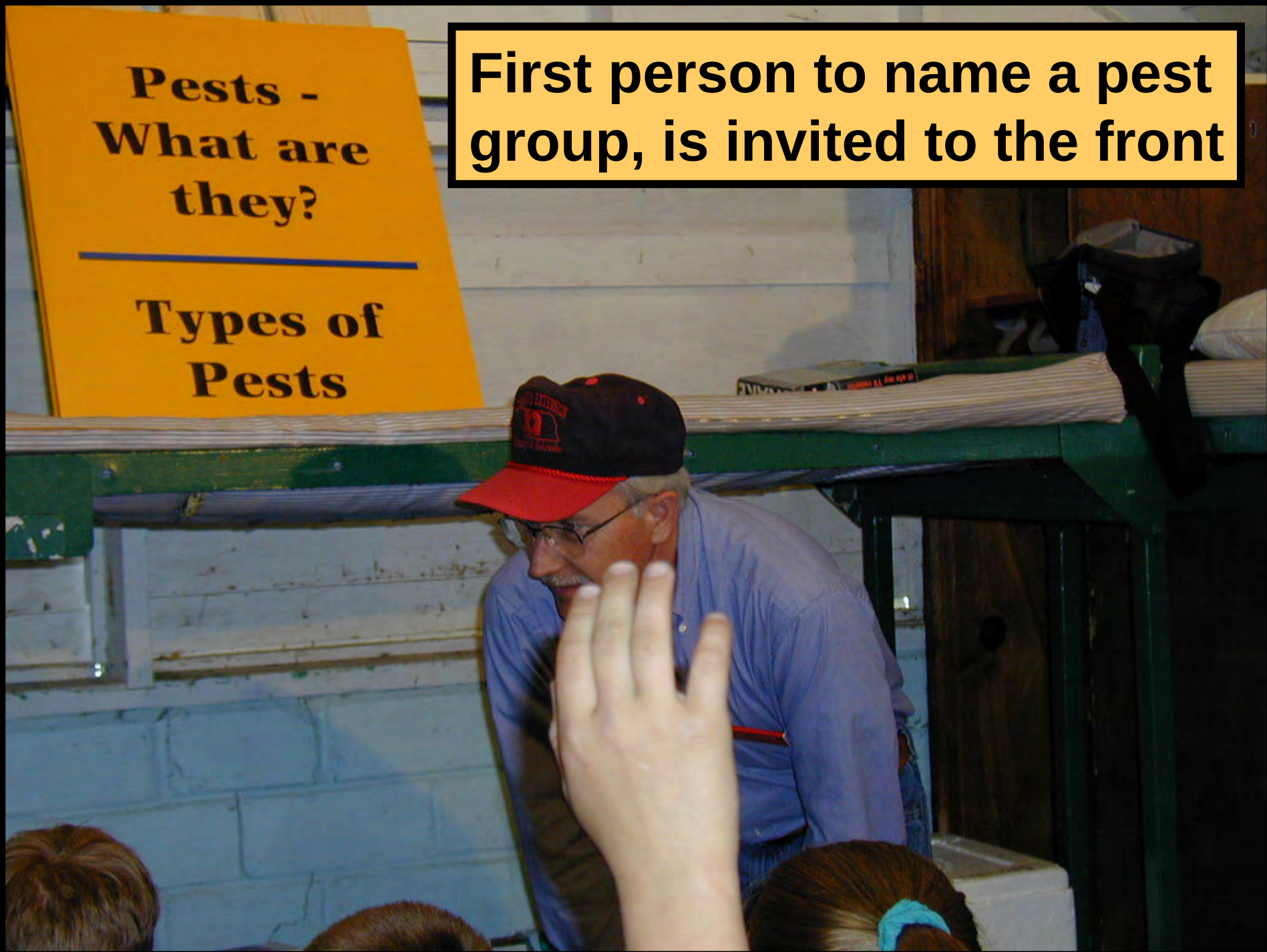
Through This "Q & A"

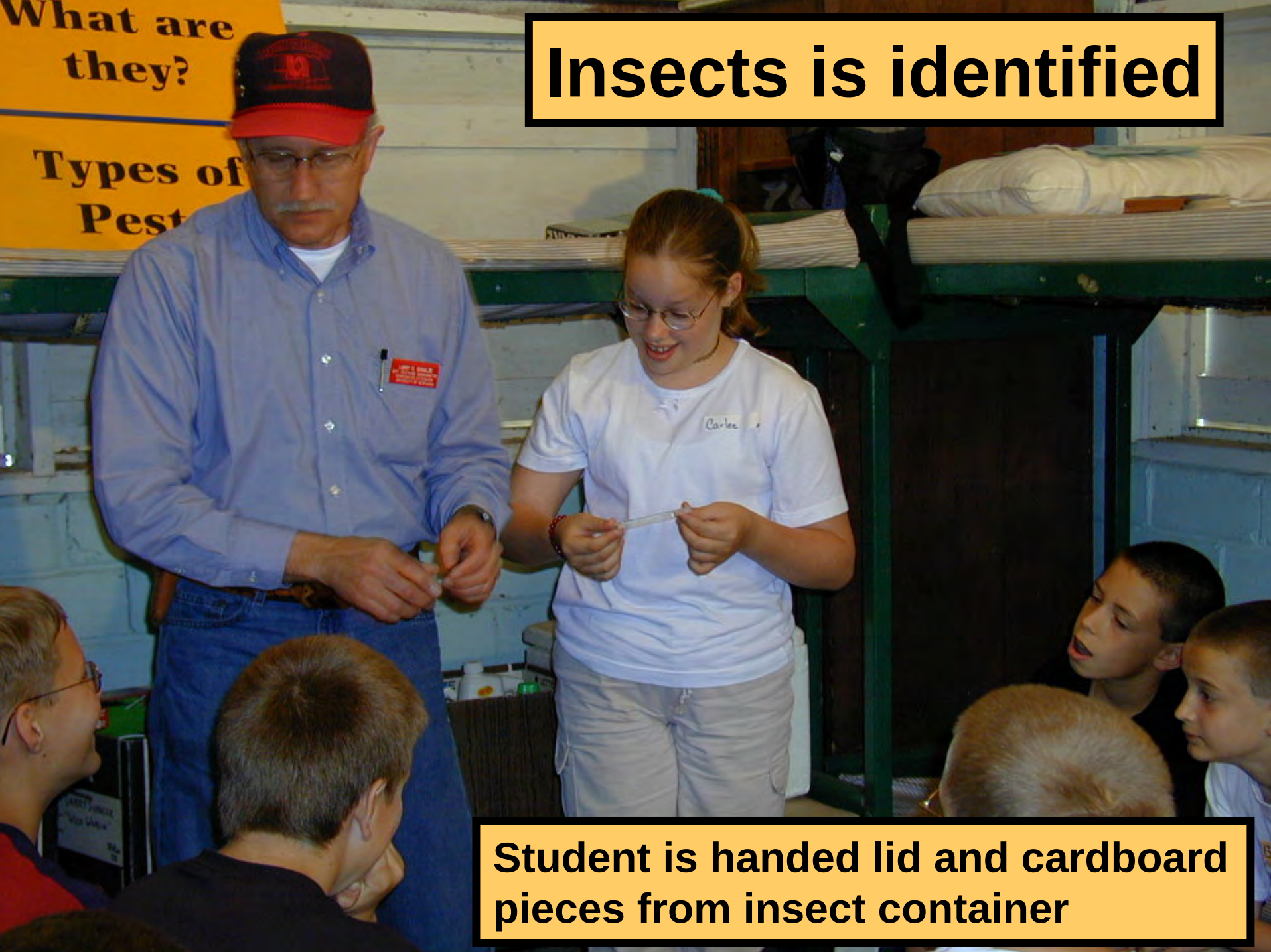
- You have given me a scientific definition of a pest
- "A pest is a living thing that injures or annoys people, damages their property, or damages the environment"
  - See Lesson Plan

Types of Pests

- Today, we'll talk about four large groups or types of pests
- What would be the name of one of these groups?




Pests -
What are
they?
Types of
Pests
First person to name a pest group, is invited to the front


What are they?
Types of Pest
Insects is identified
Student is handed lid and cardboard pieces from insect container


ESS


Instructor’s hand hides roach on shirt


Insects: sometimes tiny, sometimes quite large
hat are
they?
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Pests


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Pests -
What are
they?
Types of
Pests
Discussion points about insects.
Body parts: Head, Thorax, Abdomen
Let's give a hand to our insect lady

Re-Enforce The Answers

- After each pest group is named and discussed
  - The class is asked to name the pest group in unison
    - In order of their discussion
    - “What is pest group number 1?”
    - “Number 2?” Etc., etc.
    - Re-enforces the learning point
  - Helps me keep track of what pest types that have been discussed


What's the second large pest group?
Animals


Mouse is kept in shirt pocket
“It’s been a cool day”


With a bit of flair, the mouse jumps out of my pocket among the students
We all laugh and all feel a bit silly about getting surprised of a little, leather, fake mouse.

How is a mouse a pest?

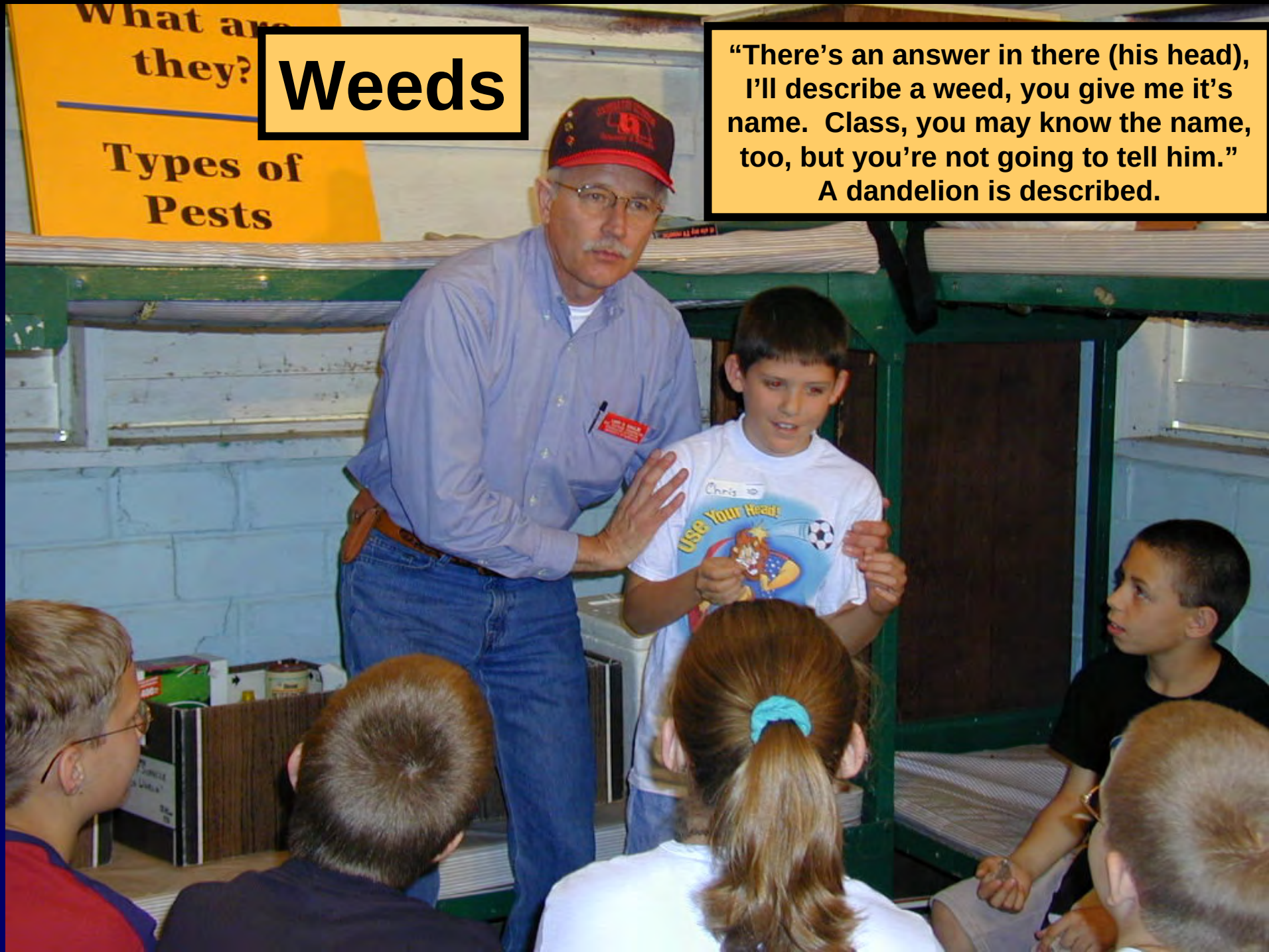
- Messy droppings
- Chews holes in house

Re-enforcement of Points

- First pest group?
  - Students reply “Insects”
- Second pest group?
  - Students reply “Animals”

Another Pest Group

- Weeds: Often easily overlooked
  - Clues….
    - This pest has chlorophyll in it
    - Gets energy from the sun
    - Has roots, leaves
  - "Plants" is a quick response
    - "So, if you're a pest in the large plant kingdom, what are you called?"


What are
they?
Types of
Pests
Weeds
"There's an answer in there (his head), I'll describe a weed, you give me it's name. Class, you may know the name, too, but you're not going to tell him." A dandelion is described.
Chris
USE Your Head!

Student Solicits Classmates To Name Other Weeds

Re-enforcement of Points

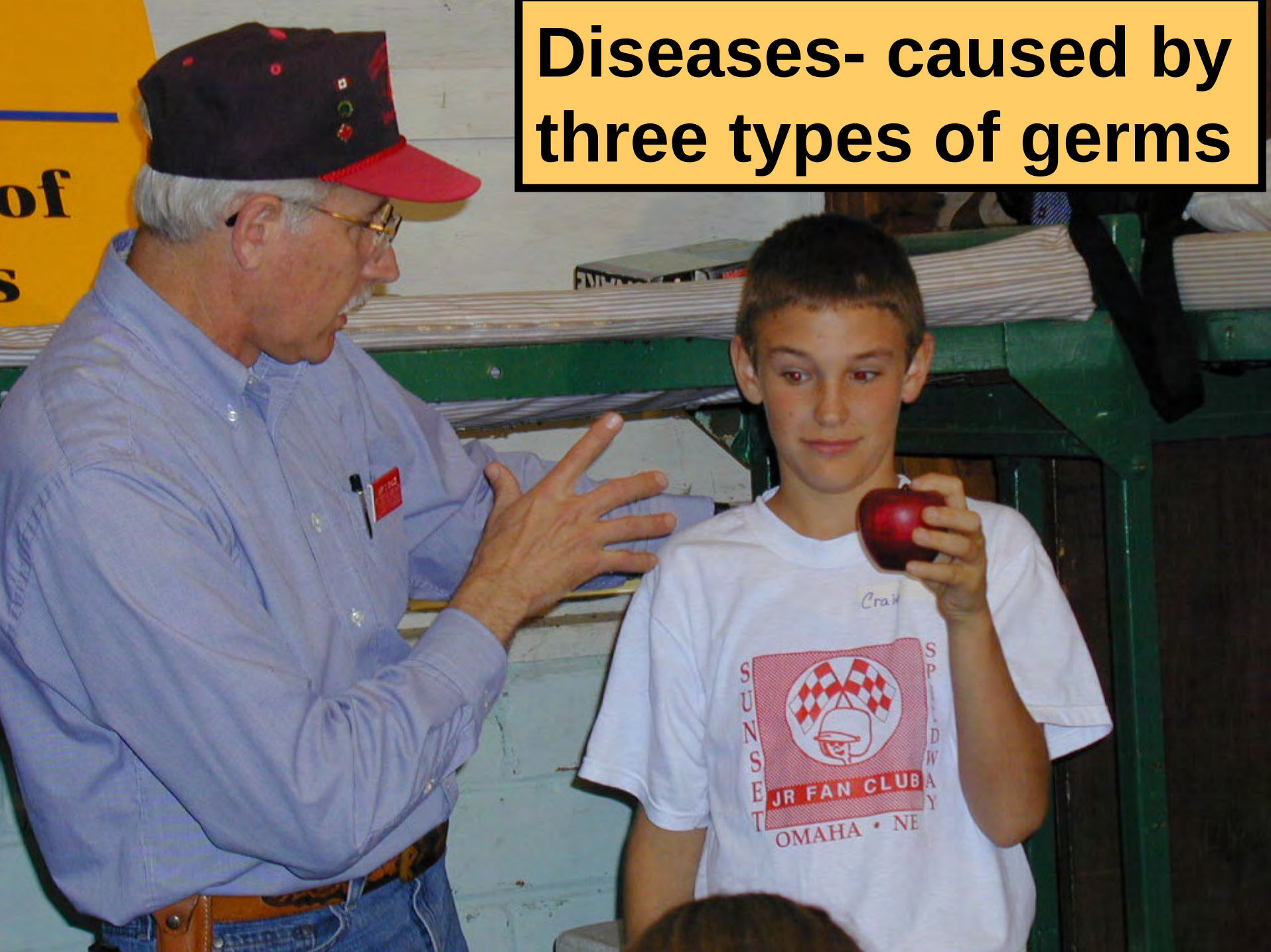
- First pest group?
  - Students reply “Insects”
- Second pest group?
  - Students reply “Animals”
- Third pest group?
  - Students reply “Weeds”

Fourth Pest Group

- Something attacks plants, people
  - Plants – leaves become yellow, brown, die
  - People – we can get sick, too
  - What am I referring to?
- Worms commonly mentioned

Germs / Disease Clue

- Worms?
- Yes, but we've already covered that when we talked about insects
  - Worms are the young stage of insects


Diseases- caused by three types of germs
JR FAN CLUB
OMAHA • NE

Student Solicits Classmates To Name Types of Germs

- Students know these
  - Bacteria
  - Viruses
  - Fungi

Nature Helps to Control Pests

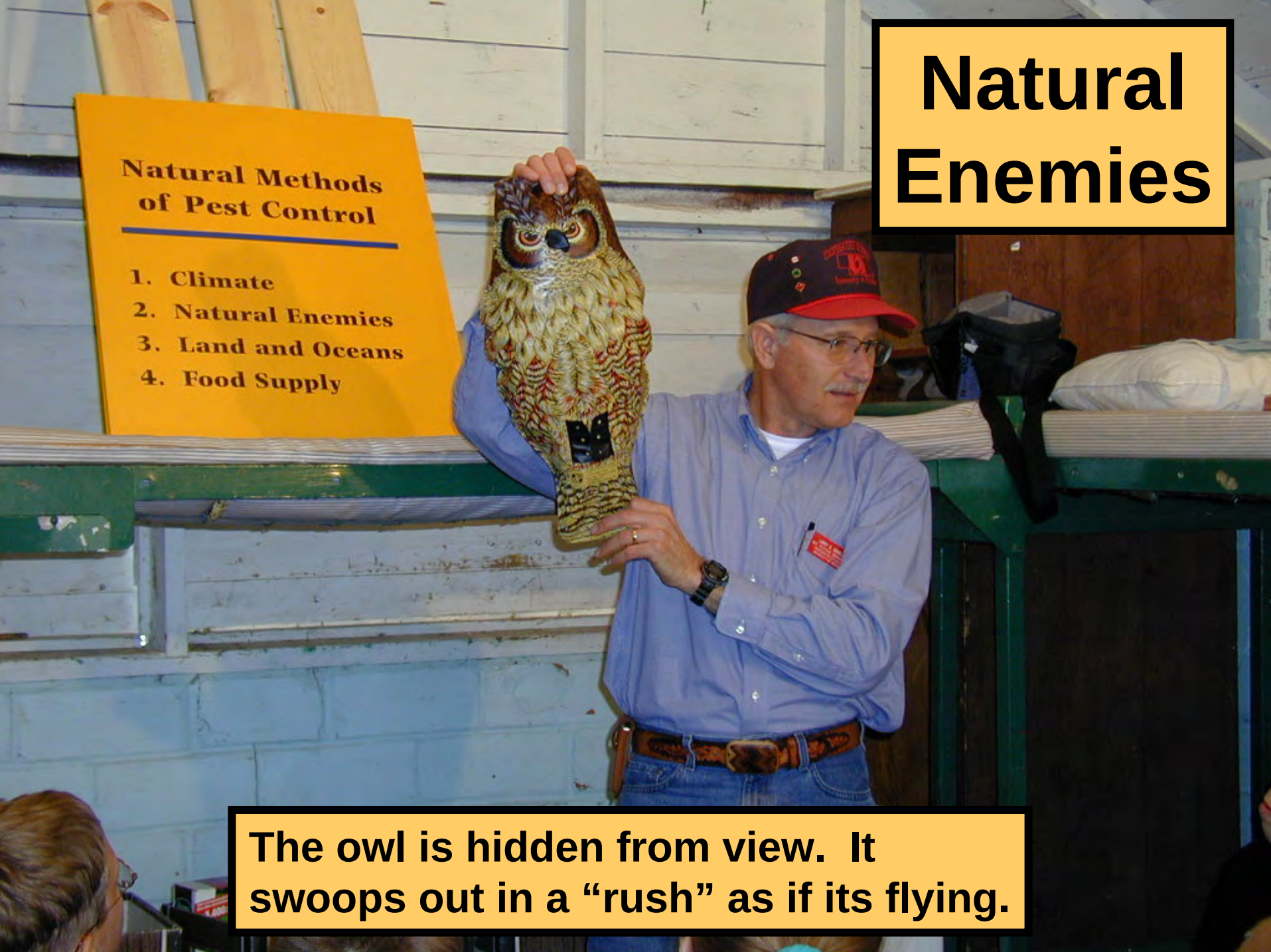
Natural Methods of Pest Control

1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply


What's this? Yes, a coconut.
Where do coconuts grow?
In Nebraska? No!
Too cold in the winter? Yes!
Climate influences where crops can grow.
Likewise, climate influences where pests can grow, too.

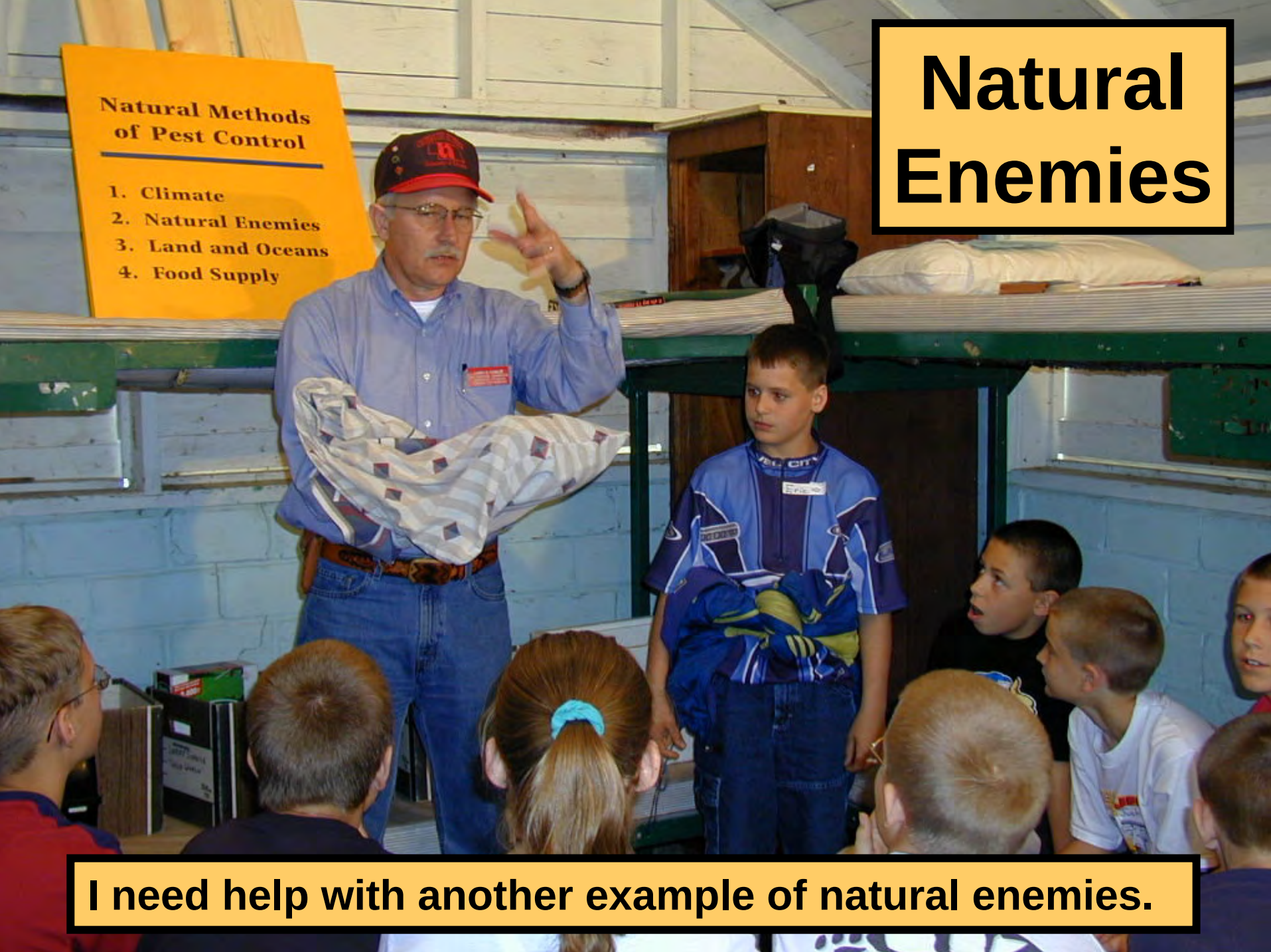
Natural Enemies

- Do you know “Prey / predators”
- Something living is attacking the pest
- Let’s look at examples



Natural Enemies

The owl is hidden from view. It swoops out in a “rush” as if its flying.



Natural Enemies

I need help with another example of natural enemies.


Natural Methods
of Pest Control
1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply
Student holds the cloth sack. Not the snake


What does this snake eat?
- - mice
Let’s give a hand for our snake man

Nature Helps to Control Pests

Natural Methods of Pest Control

1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply

Let's go back to the 1700s, the Revolutionary War:

We were a group of colonists fighting for our independence against what country?

- **Hessian soldiers from Germany helped British fight against the colonists**
- **Soldiers carried insect to North America in straw bedding (horses) on their ships, insect named after them - Hessian Fly**
- **Pest in winter wheat in NE, KS, CO, OK, TX, etc.**
- **Atlantic Ocean: a barrier until insect was carried over it**

Nature Helps to Control Pests

Natural Methods of Pest Control

1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply

- **Lunch Box**
  - **Represents “food supply” ….something inside influences pests**
  - **Student: to peak inside and inform classmates of contents**
  - **It contains… it contains…**
  - **NOTHING!!**
  - **If there is no food or water for pests, pests will die**
  - **Nature changes the quantity of food for pests**
  - **Sometimes lots of food, then many pests**
  - **Sometimes very little food, then fewer pests**

Let’s give a hand for our lunch box lady

Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides

Host Resistance

- **Includes Scotts exclusive grass varieties for greater resistance to drought, insects and fungus**

AREA OF USE	COLOR	TEXTURE
High traffic lawn	Medium	Fine bladed
LIGHT REQUIRE	**DISEASE RESISTANCE**	**SEEDLINGS EMERGE***
Full sun to partial shad	Good resistance to many diseases	7 days

*If seed is watered soil is warm.

The host (grass) resists the pests (fungi, etc.) Students read this portion of the seed label

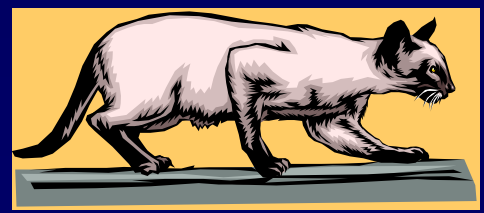
Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides

Biological Control

- This control is similar to “natural enemies”
  - But, we don’t manage natural enemies like owls or snakes
- What do you have at home that may control mice?
  - Hold up the leather mouse
  - Here, if we “manage” the prey / predator relationship, that’s biological control
  - Cat / mouse example



Biological Control

- Purchase, release ladybugs to eat insect pests in your garden

Catches & eats lots of insects.. because it has very fast yellow wheels

Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides

Cultural Control

- Identify the pest
- Then, change the culture or environment around the pest
  - Ex. Tillage – hand hoe or tillage implement, it stirs the soil, exposes roots to sunlight, changes the environment around the weed

- **Cultural Control:**
  - **Mulch – to control weeds**
  - **This mulch – a special type**
  - **Listen very carefully**
  - **WOOF!!**
  - **It’s “bark mulch”**

Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides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Mechanical Control

Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides

Sanitation

PLAY ® BRAND
Grass Seed Mixture

Pure Seed	Variety	Origin	Germination
48.82%	MAJESTY PERENNIAL RYEGRASS	OR	92%
24.53%	ABBEY KENTUCKY BLUEGRASS	OR	87%
24.41%	PS8990 PERENNIAL RYEGRASS	OR	92%

Other Ingredients

0.35% Other Crop Seed
1.88% Inert Matter
0.01% Weed Seed
NOXIOUS WEED SEEDS: NONE
Net Weight 3 lbs. (1.36 kg)

It's "clean" seed. Few weed seeds.
Plant good quality grass seed.
Don't plant the weeds.

Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides

Pesticides

- Used only after the first five methods are considered
- If they don't work, then pesticides may be considered
  - (The IPM approach is then presented)
- If a pesticide is used. Always use it according to the label

Naturally Occurring Pesticides

Mention those that are available on the market

Wild World of Pest Management

- Important program goal
  - Some pesticides are very common and are accepted for their pest control properties
    - Examples
      - Clorox disinfectant bleach
      - Pine-Sol cleaner
      - Comet cleanser
      - Chlorine disinfectant in pools & spas

Pesticides Made in Factories

-- All of these pesticides have been approved by the Environmental Protection Agency (said for the benefit of the teachers / adult sponsors)

-- Ask students to name each one as shown

Pesticides Made in Factories

- When I go swimming…
- I don’t want to swim with your germs in the water
- And, you don’t want to swim with my germs in the water
- So, this pesticide (chlorine) is placed in the swimming pool (according to the label) so that you and I will have safe water to swim in
- Then, we won’t get sick from each other’s germs

If you use a pesticide, read and follow the label

The label may tell you to use certain types of gloves or protective equipment when using a pesticide

Wild World Summary

- Four types of pests
  - Name them
- Nature controls pests
- We sometimes control pests
  - (Reference made to IPM controls)
- If we use a pesticide…
  - Always follow the label

Wild World Stickers

Sticker distributed to each student at end of session. Helps promote the program and lessons to others.

Wild World of Pest Management Audience

Now, four Extension Educators also assist in conduct of some of the sessions

Year	Youth	Adults
1992	305	12
1993	694	34
1994	1368	60
1995	1319	84
1996	2005	109
1997	1074	82
1998	1490	114
1999	1231	92
2000	2276	153
2001	929	67
2002	1765	150
2003	914	74
2004	1490	85
2005	1153	111
	18013	1240

Wild World of Pest Management

- What about impact?
- Do the students learn?
  - Yes! It's shown…
    - In pre and post tests

Pre-Tests

Wild World of Pest Management
Pre-test
Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.

(Living) Dead

2. Name four general groups or types of pests that are in our world.

Bugs — Rodents
~~People~~ Mosquitos — Coachroches

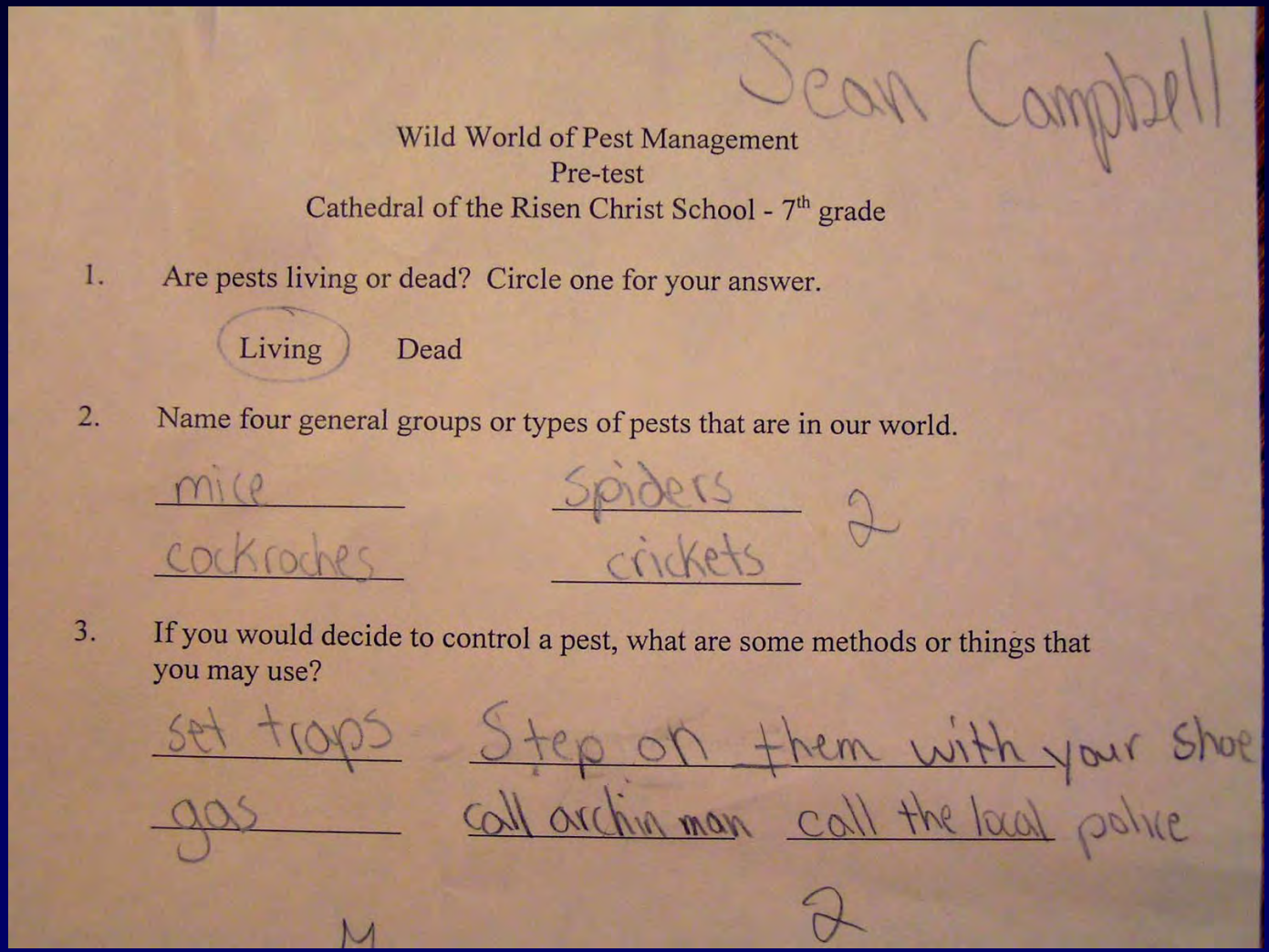
2

3. If you would decide to control a pest, what are some methods or things that you may use?

Poison — Stepping on them — Kill them
Traps — Catch them

C
M
2

Pre-Tests



Sean Campbell

Wild World of Pest Management
Pre-test
Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.

   (Living) Dead

2. Name four general groups or types of pests that are in our world.

   mice — Spiders
   cockroches — crickets

   2

3. If you would decide to control a pest, what are some methods or things that you may use?

   set traps — Step on them with your shoe
   gas — call archin man — call the local police

   M

   2

Post-Tests

Wild World of Pest Management
Post-test
Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.

   Living Dead

2. Name four general groups or types of pests that are in our world.

   animal insects
   weeds diseases

3. If you would decide to control a pest, what are some methods or things that you may use?

   cultural 1 mechanical 3 biological 4
   pesticide 2 weather

Post-Tests

Wild World of Pest Management
Post-test
Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.

(Living) Dead

2. Name four general groups or types of pests that are in our world.

Animals Viruses 4
Inscents Weed

3. If you would decide to control a pest, what are some methods or things that you may use?

Pesticides 1 Enemies 3 Biol Enviroment 5 Cult.
Stomping on them 2 Much sanitation 4 Sanit Lawncare

Learning via Wild World of Pest Management

	Class I – 65 Students		Class 2 – 45 Students	
	Pre	Post	Pre	Post
Pest Types (4)	1.8	3.4	1.6	3.6
Pest Control Methods (6)	1.9	3.2	2.0	3.0

Teachers' Evaluations

- "Lesson plans very helpful"
- "Hands-on activities, all tied in very well"
- "Kept students' attention"
- "Use of charts and models really helps with teaching the concepts of pest control"
- "Entertaining, with high energy"

Online Reference: PestEd.unl.edu

Online Reference: PestEd.unl.edu

Wild World of Pest Management - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://pested.unl.edu/wildwor.htm

My Netscape AAPSE CTAG Dict Email Google Google News Depts LNK GMaps Maps Radar Swtbrd Yonge

- Search
- Newsletter
- Core Manual
- Pesticide Training
- Training Manuals
- Pesticide Bookmarks
- Cockroach Manual
- Termite Handbook
- Guestbook
- Feedback

Pesticide Education Resources
University of Nebraska-Lincoln

Wild World of Pest Management

Community Attitudes: *An Approach to Dealing with Chemophobia*

Larry Schulze, Pesticide Education Specialist

It has been felt or seen by most Cooperative Extension workers. It initially appears quite innocently. Maybe it's a casual comment from a client, or it could be an expression of substantial concern or fear.

Whatever the original source, expressed apprehension concerning the broad spectrum of chemicals, their purpose, their use or misuse, their impact (real or imagined), is felt in our communities.

One may wince when a comment is heard that "all chemicals should be eliminated." If ever there is a "teachable moment", that's one. Our entire world is make up of chemicals, either elements or compounds. Water, the most

Wild World of Pest Management: IPM For Youth

Larry Schulze
Pesticide Education Specialist
University of Nebraska – Lincoln Extension

Thank You

2006 National IPM Symposium, St. Louis, MO