



PEST DETECTIVE: A NEW CASE (GRADES 4 – 8)

Lesson Overview

In this five-session lesson, students use the PestWorldforKids.org's "Pest Detective" game and "Pest Guide" section to write a new mystery about a pest. As they research pests to use as culprits and innocent suspect characters, students will learn about basic needs, pest damage, and how to prevent infestations. Students should include when it is necessary to call in a pest professional to control an infestation.

Correlation with National Standards

National Council of Teachers of English (NCTE)

Standard 1: Students read a wide range of print and non-print texts to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

Students will use the PestWorldforKids.org "Pest Guide" to acquire new information about a specific pest.

Standard 3. Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers...

Students are prompted to recall their prior knowledge as well as share their written work with other students to check for clarity.

Standard 5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

The procedure used in this lesson invokes several elements of the writing process including pre-writing (recalling prior knowledge), drafting, revising, and publishing.

National Science Teachers Association (NSTA) Standards

K – 4

Life Science Content Standard C: As a result of activities in grades K – 4, all students should develop understanding of:

- *The characteristics of organisms*

Students use the "Pest Guide" section of the PestWorldforKids.org web site to identify a pest's basic needs, its anatomy and impact on the home environment.

5 - 8

Life Science Content Standard C: As a result of activities in grades 5 – 8, all students should develop understanding of:

- *Structure and function in living systems*

Students use the "Pest Guide" section of the PestWorldforKids.org web site to identify a pest's basic needs, its anatomy and impact on the home environment.



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Getting Ready:

Estimated Time:

- Preparation: 30 minutes
- Lesson: 45 – 60 minutes for each session

Materials:

Session 1:

- A computer workstation and pair of headphones for each student (if each student will play the game)
- or -
a single computer workstation with video projector and classroom speakers (if you are playing the game as a whole class)
- Chart paper or clear a space on a white board you can use for several sessions.

Session 2:

- A computer workstation for each student
- A single computer workstation with video projector and classroom speakers
- Copies of the handout "Evidence Chart" for each student.

Session 3:

- Copies of the storyboard handout.
- "Evidence Chart" completed in session two.



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Preparation:

Session 1:

- 1) Plan for where students will store their writing materials:
 - Evidence Chart
 - Storyboard
 - Drafts
- 2) Test game on several computers at once to sure your school's network will handle the game's load. If the connection is slow, you can still play the game with the entire class.
- 3) Draw this "Story Analysis" chart on the chart paper or board:

Session 2:

- Depending on your class' experience with using a website to conduct research, you may want to model how to use the "Evidence Chart" in Session Two, Step 5.

Session 3:

- Depending on your class's pre-writing experience, pick a pest to model storyboarding model.



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Procedure

Session One: Play Pest Detective

This session introduces students to the mystery genre and *Pest Detective* scenarios. If your Internet connection can't accommodate an entire class playing the game at once, you may just follow the session's procedure but play the game on a single computer and as a class.

- 1) Direct students to the Pest Games section of PestWorld For Kids website:

www.pestworldforkids.org/games

- 2) Ask students to click on the "Pest Detective" link to load the game:

<http://www.pestworldforkids.org/pest-detective/index.html>

- 3) As the class waits for the game to load, review that pests are "animals and insects out of place", creatures that are just following their instincts to acquire food and a place to nest. Ask students to provide examples of pests that they've encountered.

How did the pests get there? What were they doing – what were their behaviors? What was the environment like where they encountered the pests: was it damp, dry, etc.?

- 4) Explain that during the course of the game, students will gather clues about pests to identify how a person or home got hurt and recommend how to avoid the scenario from happening to them.
- 5) Invite students to click the "go on" button and play both scenarios. As they play, students should pay attention to the different pests that are profiled.
- 6) Each scenario should take about 5 to 10 minutes to play. As students play the game, write the "Story Analysis" chart on the chart paper or board if you haven't done so already:

- 7) After all students have completed at least one scenario, discuss the game and fill out the chart.

- 8) Review the potential threat the **Hobo Spider** and the **Subterranean Termite** pose if not controlled:

*The **Subterranean Termite** will damage wood structures and can even cause houses to collapse. If damp wood is left near a home, termites may infest the structure and potentially cause destroy the frame holding the house up. Pest management professionals should be called because termites are cannot be removed without the proper use of chemicals.*

*The **Hobo Spider**'s bite can lead to open sores, which can then become further infected. Hobo Spiders do not use sticky webs so sticky traps are the best way to catch them. Pest management professionals can provide advice on the most appropriate methods for preventing and removing pests such as the Hobo Spider.*

- 9) Display or direct students to the PestWorldforKids.org "Pest Guide":

<http://www.pestworldforkids.org/guide.html>

Explain that in the next session, students will choose a pest and innocent suspects and write their own mystery to be solved.

- 10) If time allows, invite students to look up the pests mentioned in the game scenarios.



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Session Two: Research Pests

Students will first identify a pest on which they would like to base their scenario and then collect information on their subject as well as one or two likely but innocent suspects. As they collect their information, students will learn about animals' habit and diet, the impact these animals can have, and how to prevent pests from entering their home environment. To help students remember, it may be helpful to display the game for the entire class to see:

<http://www.pestworldforkids.org/pest-detective/index.html>

Quick Notes:

- Steps 1 – 5 may be done outside of the computer lab.
- If students have limited access to computers, point out that they may download a printable info sheet for each pest they will use in their story.

- 1) Review the “Story Analysis” chart on the board from session 1. Ask students to think about the characters and scenarios:

Think about each scenario. How did the game’s author start to create the scenario?

Lead students to understand that the author most likely started with the question “**What** happened?”. Explain that to answer this question, the author needed to know about the pests that were profiled, especially the impact or damage each one could cause to a structure or person.

- 2) Depending on the scenario you are discussing, display the *Pest Research* entry for the Subterranean Termite:

<http://www.pestworldforkids.org/termites.html>

Note: SCROLL DOWN to the specific species’ information

- 3) Point out the impact information for each pest and emphasize that this information formed the basis for the scenario.
- 4) Explain that students will write their own mystery story about a pest, along the same lines as the *Pest Detective* cases. Like the games’ author, students will choose a pest to profile.
- 5) Display the handout entitled “Evidence Chart”. Explain that the chart will help students gather information to use in their mystery.
- 6) Demonstrate the *Pest Research* section of PestWorld for Kids. Invite students to browse through the different entries to choose their culprit.
- 7) As students are browsing, complete an “Evidence Chart” for use as a model.
- 8) Once students have chosen their culprit, distribute their copies of the “Evidence Chart”. Display your model and point out where in the entry you found the information for each of the chart’s sections.
- 9) Direct students to complete the chart, using their selected culprit’s entry in the *Pest Research* section.
- 10) After an appropriate amount of time, call students’ attention to the “Story Analysis” chart from session one. Ask students to determine why the game’s author chose the other animals listed in the chart for the innocent suspects. Students should note that the innocent suspects shared similar characteristics, such as the same impact: in these cases a biting defense or chewing through wood.
- 11) Model for students how to find impact that is similar to their culprit:
 - a. Identify the impact that their culprit inflicts on structures or people.



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For example, the Brown-Banded cockroach spreads disease and triggers allergic reactions by tracking germs and bacteria through homes.

- b. Look through the other species in the same family that may have the same impact.

For example, both the American and Brown-Banded cockroaches spread disease and trigger allergic reactions by tracking germs and bacteria through homes.

- c. Identify how the species with similar impacts are different.

For example, the American Cockroaches prefer moist environments while Brown-Banded Cockroaches prefer dry environments.

- d. Think of an animal that is similar to your culprit animal yet is from an entirely different family.

For instance the House Fly also spreads disease but does not leave tracks as cockroaches do.

- 12) Ask students to complete their chart with the suspect animals' information. If time is running out and students won't have access to the computer, suggest that they print out each suspect animal's (both culprit and innocents) information sheet.



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Session Three: Storyboarding

Storyboarding is, of course, just one way to organize information and ideas. In this session, students will use the information they've gathered in the "Evidence Chart" to develop a storyboard for their mystery.

- 1) Review the information in the "Story Analysis" chart from Session One. Identify the characters and ask students to recall how they were able to determine which was the guilty party.
- 2) Invite students to play the game again or play together as a class. Prompt students to pay special attention to how the statements made by each guilty party – both culprits have questionable statements:

"Slash" the Hobo Spider: *You think I'm a troublemaker? Nah, just leave me alone in my dark little corner and nobody gets hurt.*

"Chewy", the Easter Subterranean Termite: *I'm a termite – so sue me! Just because I fit the profile doesn't mean I'm guilty!*

Point out that the game's creator purposely wrote both statements to be evasive – that they provide little believable evidence that would "clear" them.

- 3) Repeat with the innocent suspects, again pointing out how the game's creator used statements that this time provided believable evidence that would "clear" them:

"Shy Girl", Brown Recluse Spider (innocent): *Folks have been blaming me for those bites for years! But I've never been to Seattle! I don't even know a soul there.*

"Big-eyed Bob", Zebra Jumping Spider (innocent): *Hey, I've got eight eyes! I could see that little girl coming from across the room. I was outta there.*

"Homey", Carpenter Ant (innocent): *Hey wood give me a stomach ache, so I just chew it up and spit it out. I'm telling ya, you got the wrong bug.*

"Jaws", Drywood Termite Soldier (innocent): *C'mon, I can't defend the colony on a meal of soggy wood! The nymphs only feed us soldiers the primo dry stuff.*

- 4) Display the first page of the storyboard handout. If you developed a model, display that now and walk students through how you used the information in the "Evidence Chart" to answer the questions in the storyboard handout.
- 5) Explain that this handout will help students develop the ideas for their mystery. For the remainder of the session, they are to answer the questions presented in the handout. These questions were designed to help your students sketch each scene and compose sentences.
- 6) Circulate through your class and assist as necessary. If students will need more time than the rest of the session to complete the assignment, consider assigning for homework or "seat work" over the next several days.



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Sessions Four and Five: Drafting and Revising

For the remaining sessions, students will follow standard process writing procedures. First, they will develop a draft from the storyboard pre-writing exercise. Once the drafting is complete, encourage your students to put their work aside for a few days before returning to it.

- 1) Explain to students that over the next two sessions, they'll take their sketches and ideas from the storyboard exercise and write their own mystery.
- 2) Demonstrate how to take the sentences from the 1st scene and turn them into a paragraph. Discuss what would be a good "hook", how might they use the illustration they drew to help describe the scene?
- 3) Invite students to write their own opening paragraph that describes "the crime".
- 4) For the second scene, the interview, suggest that students imagine talking with the victim. What would you ask? Examples:
Did you see anything unusual? Were there any signs of an pest, etc.?
- 5) For the other scenes, prompt students to continue to imagine holding conversations with the suspects. What would a "guilty" suspect say? Recall for students the rather unconvincing statements the guilty culprits made in the other "Pest Detective" cases.
- 6) For the last scene, which focuses on prevention and treatment, remind students that pest professionals should be called when an infestation is full-blown. For example, it is important for students to know that infestations of certain pests like cockroaches, termites and bed bugs can only be handled by a trained professional who knows how to correctly apply treatments and assess the environment to keep the problem from spreading and threatening one's home and health



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Handouts:

- Make copies of the “Evidence Chart” for each student.
- Make copies of the “Storyboard” handout for each student.



PEST DETECTIVE EVIDENCE CHART

| EVIDENCE TYPE | GUILTY CULPRIT: <hr/> <small>(species)</small> | INNOCENT SUSPECT 1: <hr/> <small>(species)</small> | INNOCENT SUSPECT 2: <hr/> <small>(species)</small> |
|----------------------|--|--|--|
| IMPACT: | | | |
| DIET: | | | |
| HABITAT: | | | |
| IMPACT: | | | |



PEST DETECTIVE: A NEW CASE STORYBOARD

SET THE STAGE: WHO? WHERE? WHEN?

WHO IS THE CAST:

WHERE DOES THE CRIME HAPPEN:

Describe the Victim:

What state? In the Country or City?
Inside or Outside?
Describe:

Describe the Detective:

Describe the Culprit:

WHEN DOES THE CRIME HAPPEN:

Describe Innocent Suspect 1:

What Time of Year? What Time of Day?
Describe:

Describe Innocent Suspect 2:

SCENE 1: THE CRIME

IMPACT

In your own words, describe the impact your culprit had on the scene:

EVIDENCE / CLUES

Write a few words about the evidence or clues the culprit might have left:

DRAW

Sketch a quick scene here:



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| SCENE 2: VICTIM INTERVIEW | |
|------------------------------|---|
| THINK: | In your own words, describe what the victim would say. What did she or he notice? What was she or he doing when the crime happened? |
| DIALOGUE: | Write out the dialogue between the detective and the victim here: |
| DRAW | Sketch a quick scene here: |

| SCENE 3: SUSPECT INTERVIEW 1 | |
|---------------------------------|---|
| THINK: | guilty? innocent? (circle one) In your own words, describe what the suspect would say. What alibi would she or he give? |
| DIALOGUE: | Write out the dialogue between the detective and the suspect here: |
| DRAW | Sketch a quick scene here: |

| SCENE 4: SUSPECT INTERVIEW 2 | |
|---------------------------------|---|
| THINK: | guilty? innocent? (circle one) In your own words, describe what the suspect would say. What alibi would she or he give? |
| DIALOGUE: | Write out the dialogue between the detective and the suspect here: |
| DRAW | Sketch a quick scene here: |



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| SCENE 5: SUSPECT INTERVIEW 3 | |
|---------------------------------|---|
| THINK: | guilty? innocent? (circle one) In your own words, describe what the suspect would say. What alibi would she or he give? |
| DIALOGUE: | Write out the dialogue between the detective and the suspect here: |
| DRAW | Sketch a quick scene here: |

| SCENE 6: DECISION | |
|----------------------|---|
| THINK: | In your own words, describe how the detective makes her or his decision: How will the culprit confess? |
| DIALOGUE: | Write out the dialogue between the detective and the culprit here: |
| DRAW | Sketch a quick scene here: |

| SCENE 7: PREVENTION | |
|------------------------|---|
| THINK: | In your own words, describe how to prevent the crime from happening in the first place: When is it a good time to call a pest management professional? |
| DIALOGUE: | Write out the advice the detective would give to the victim here: |
| DRAW | Sketch a quick scene here: |