

Assignment: Become a Pest Expert

We deal with pests all the time. But how can you prevent them from taking over your home?

Select a pest from any of the more than 20 animals featured on PestWorldforKids.org. Then, follow our 10-step procedure for researching and communicating your new knowledge.

In fact, why not share your new knowledge with others? Maybe you'll want to publish a research report for your school library. Maybe you'd like to make a digital slideshow for a PTA meeting. Or maybe you'll want to script a Public Service Announcement to broadcast during your school's morning announcements.

No matter what project you'd like to do, you first need to do a little research and a bit of writing. Research writing may seem like a lot of work, but if you follow a few simple steps you'll be amazed about how much you can learn.

Step 1: Getting Ready: Getting Supplies, Choosing a Subject, and Finding Sources

Get Supplies

Besides a pencil or pen and paper, you should have a bunch of note cards ready. You can download a template for taking notes: www.pestworldforkids.org/reports-notecards.pdf

Consider Your Audience

Consider your eventual audience. Think about how detailed your project should be. How will you keep your information organized so you don't lose anything?

Choosing A Subject

Subjects should be narrow. Instead of writing about all types of "pests", think about a particular pest that you believe is important to learn about.

To help you figure out how to take and organize your notes, we'll use the subject of "hornets" as an example.

Finding Sources

Your first stop is the pest guide section: www.pestworldforkids.org/guide.html There, you'll find piles of information you can use to research your subject.

Step 2: Think of what you already know

You might ask: *Why do I need to do this? If I already knew something, why bother researching it?*

When you think about what you already know, you're preparing your brain to make connections between the information you already know and new information. Making connections is the best way to remember new information as well as checking to make sure what you read makes sense.

For example, you might know that there are different types of wasps but that you just learned that European Hornets are the only type that will fly at night. Or perhaps you knew that wasps were social insects but didn't know that female workers were the only type of wasp that leaves the hive to find food. Connecting this new information to what you already know will help you remember it.

Step 3: Take Lots of Notes

Take Notes On What You Know

When taking notes, start with the information you already know from step 2. Write just the key ideas – don't worry if your notes are not complete sentences. That comes later. Use just one note card for each idea.

What?		_____ TOPIC _____ NUMBER
people are cautious around hornets		
Why?		

_____ SOURCE	WWW.PESTWORLDFORKIDS.ORG	_____ YOUR INITIALS

As you take notes, think of why the information is important. Add this information to the “**Why?**” section of your notecard.

For example, *why are people cautious around hornets? Because they can sting several times.*

What?		_____ TOPIC _____ NUMBER
people are cautious around hornets		
Why?		
sting several times		
_____ SOURCE	WWW.PESTWORLDFORKIDS.ORG	_____ YOUR INITIALS

All this thinking work now will help you when its time to write later. You don't need to add reasons “why” for everything you note. Aim to add the “why” information for every two or three note or when you think it's important.

Take Notes As You Read

Once you've added all that you can remember, continue to take the same types of notes as you read. Don't take notes on EVERYTHING – you won't have time. Instead, only take notes on the information that you find important or really interesting. And, again, only add the key idea. You don't need to write notes in complete sentences.


How many notes should you take? Depending on your subject and the sources you're using, you should try to have this many:

- Grades 1 – 2: 5 to 10 notes
- Grades 3 – 5: 15 to 30 notes
- Grades 5 – 8: 30+ notes

Remember Sources

A good researcher keeps track of her or his sources and gives credit where it's due. Make sure you right down a few words that identify where you got the idea or information. Put this in the lower left corner of your note card.

For example, if you got the information from the hornet entry on PestWorldforKids.org, you might write PWFK – hornet.

What?		TOPIC NUMBER
hornets hunt in - - - -		
groups - - - - -		
Why?		
- - - - -		
<u>pwfk-hornet</u> SOURCE	WWW.PESTWORLDFORKIDS.ORG	YOUR INITIALS

You'll use this information in your bibliography at the end of your paper.

Step 4: Sort Your Notes


You've got all these notes but what do you do with them? You might not realize it now, but a major portion of your project is already done.

Before you can start writing, you should review your information.


- 1) Start by stacking all your notes in a pile.
- 2) Go through the notes in the pile, one by one. **Sort** notes with related information into their own stacks.

For example, look at these notes. The first note is about hornets stripping bark to get sap. The second has information about how hornets will prey on bees and other insects. Do these notes belong in the same stack? You would think so because both are about the food a hornet finds – its **diet**.


	<small>TOPIC NUMBER</small>
<i>What?</i>	
hornets strip bark -	
from trees - - - - -	
<i>Why?</i>	
to get sap - - - - -	
<small>pwfk-hornet</small> <small>SOURCE</small>	<small>WWW.PESTWORLDFORKIDS.ORG</small>
	<small>PW</small> <small>YOUR INITIALS</small>

	<small>TOPIC NUMBER</small>
<i>What?</i>	
bees, grasshoppers, -	
flies are prey - - - - -	
<i>Why?</i>	
maybe more energy?	
<small>pwfk-hornet</small> <small>SOURCE</small>	<small>WWW.PESTWORLDFORKIDS.ORG</small>
	<small>PW</small> <small>YOUR INITIALS</small>

	<small>TOPIC NUMBER</small>
<i>What?</i>	
hornets strip bark -	
from trees - - - - -	
<i>Why?</i>	
to get sap - - - - -	
<small>pwfk-hornet</small> <small>SOURCE</small>	<small>WWW.PESTWORLDFORKIDS.ORG</small>
	<small>PW</small> <small>YOUR INITIALS</small>

	<small>TOPIC NUMBER</small>
<i>What?</i>	
bees, grasshoppers, -	
flies are prey - - - - -	
<i>Why?</i>	
maybe more energy?	
<small>pwfk-hornet</small> <small>SOURCE</small>	<small>WWW.PESTWORLDFORKIDS.ORG</small>
	<small>PW</small> <small>YOUR INITIALS</small>



	<small>TOPIC NUMBER</small>																				
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	<small>PW</small> <small>YOUR INITIALS</small>																				
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	<small>PW</small> <small>YOUR INITIALS</small>																				

Look at these notes. The first note is about living in hollow trees but the next is about hunting in groups. Where should these notes go?

What?	PESTWORLD FOR KIDS	TOPIC	NUMBER
nests made in hollow trees			
Why?			
pwfk-hornet SOURCE			
WWW.PESTWORLDFORKIDS.ORG		PW YOUR INITIALS	

What?	PESTWORLD FOR KIDS	TOPIC	NUMBER
hornets hunt in groups			
Why?			
pwfk-hornet SOURCE			
WWW.PESTWORLDFORKIDS.ORG		PW YOUR INITIALS	

Since the first note isn't about **diet** but where they live, you'd start a new pile – **habitat**. The next note about hunting could go in its own group or the **diet** pile since it's about how hornets get their food.

What?	PESTWORLD FOR KIDS	→ habitat	TOPIC	NUMBER
nests made in hollow trees				
Why?				
pwfk-hornet SOURCE				
WWW.PESTWORLDFORKIDS.ORG		PW YOUR INITIALS		

What?	PESTWORLD FOR KIDS	diet	TOPIC	NUMBER
hornets hunt in groups				
Why?				
pwfk-hornet SOURCE				
WWW.PESTWORLDFORKIDS.ORG		PW YOUR INITIALS		

- 3) Try to sort your notes into least 4 -5 stacks. These will become your **topics** later when you're ready to write.
- 4) As you make stacks with notes that are related, be sure to reserve one stack for notes that you can't relate to others. You'll label this stack "Miscellaneous" later because it contains notes that have no connection with other notes.
- 5) Once you've gone through all of your notes, decide what topic a stack of notes describes (such as "habitat", "reproduction", "impact"). Write the topic's first few letters in the upper left of each note.

For example, the notes about tree sap and hunting insects belong in the "**diet**" category. So, each of these note cards should have "**diet**" or "**d**" written in the upper right corner.

Step 5: Arrange the Note Stacks Into Topics

You're almost ready to begin writing. In fact, you already have. Those stacks of notes you just made will become your paragraph **topics** in the next step.

Before you really begin to write, think about your subject one more time. Look over your stacks. Can you arrange them in an order that makes sense?

For example, these stacks of notes about the hornet were arranged by **general info**, **diet**, **habitat**, **impact**, **prevention**, and **miscellaneous**. It made sense to put "general info" first since that information is like an introduction to the subject, hornets. **Diet** might come next since what an organism eats can determine where it lives (**habitat**). The topic **Miscellaneous** comes last because there is no real connection between **miscellaneous** and other topics.

gen info
TOPIC NUMBER

What?
Euro. hornets form colonies

Why?
social insect

pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS

diet
TOPIC NUMBER

What?
bees, grasshoppers, flies are prey

Why?
maybe more energy?

pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS

habitat
TOPIC NUMBER

What?
nests made in hollow trees

Why?

pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS

impact
TOPIC NUMBER

What?
h. damage trees and shrubs

Why?
stripping bark off

pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS

prevent
TOPIC NUMBER

What?
sweet drinks attract hornets

Why?
don't leave outside

pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS

misc
TOPIC NUMBER

What?
European hornets fly at night


Why?
only stinging insect

pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS
pwfk-hornet SOURCE WWW.PESTWORLD4ORKIDS.ORG PW YOUR INITIALS

The order you choose and how you label topics is really up to you. Just make sure you can explain why you've chosen to arrange the notes the way you have.

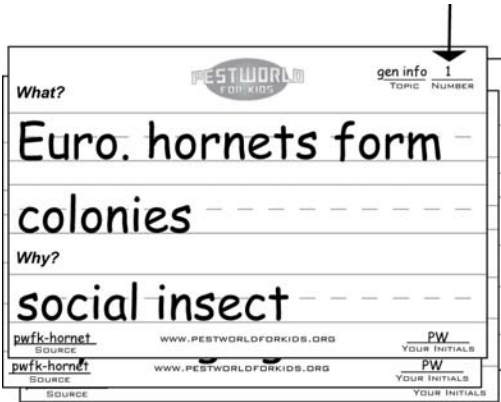
IMPORTANT: Write the **topic** or an abbreviation of the topic in the upper right corner. Then, use a paperclip to keep all the notes in each pile together so you don't lose them!

↓

What?		gen info	
		TOPIC NUMBER	
	Euro. hornets form		
	colonies		
Why?	social insect		
<u>pwfk-hornet</u> SOURCE	WWW.PESTWORLDFORKIDS.ORG	PW YOUR INITIALS	
<u>pwfk-hornet</u> SOURCE	WWW.PESTWORLDFORKIDS.ORG	PW YOUR INITIALS	
SOURCE		YOUR INITIALS	

Step 6: Number the Notes

Just as you arranged the stacks of notes in some kind of order, the next step is to arrange the notes in each stack in some kind of order. This can be a little trickier because it's not always clear. The nice thing about using note cards is that it's easy to re-order them in case you've discovered a better way later.



The diagram shows a note card with the following content:

- Top right: "gen info" above "1" (with an arrow pointing to it), and "TOPIC NUMBER" below.
- Section "What?": "Euro. hornets form colonies"
- Section "Why?": "social insect"
- Bottom left: "pwfk-hornet" above "SOURCE"
- Bottom middle: "WWW.PESTWORLD4ORKIDS.ORG"
- Bottom right: "PW" above "YOUR INITIALS"

Once you've ordered the notes, be sure to put a number in the upper right corner. That'll help you keep track of which note you used.

Step 7: Topic Sentences

Now, you're ready to start writing!

- 1) Get one more note card for each stack you've made.
- 2) Think of a topic sentence that introduces the information in a stack.

For example, the notes in the "diet" stack mention many different sources for food. So, a topic sentence could simply be:

"The European Hornet eats both animals and plants".

Sometimes it's a good idea to avoid using the actual word for the topic in the topic sentence. Notice that the sentence doesn't actually say "diet" but uses words to get that idea across.

Step 8: Introductory Paragraph

Now, you're ready to write the paragraph that will introduce your subject and the information you've collected. In some ways, this is the most difficult step.

- 1) It's always best to start with a hook – a sentence that will grab your reader's attention and introduce the subject. For example,

Of all the stinging insects, the hornet is perhaps the most feared.

Notice that the sentence doesn't start out with "Hornets are ...". Instead, there are some words that hopefully will grab the reader's attention.

- 2) Next, it's a good idea to let your readers know what topics are covered in your project. One way to do this is to write a sentence for each topic. You can even use a slightly different version of your topic sentences. For example,

Of all the stinging insects, the European Hornet is perhaps the most feared. A hornet's sting may give people a reason to fear it but there are many facts that make the hornet an interesting creature. A flexible eater, it has adapted to feast on a wide variety of plants and animals.

Step 9: Putting It All Together: Notes to Sentences, Sentences to Paragraphs

You're just about done with your draft. The last step is to take all those notes and write them as sentences.

- 1) To begin to write, use each stack's topic sentence as each paragraph's opening sentence.
- 2) Next take the first note in **diet** stack and use it to write a sentence:

	gen info <u>1</u> <small>TOPIC NUMBER</small>
<i>What?</i>	→
eat grasshoppers,	
bees	
<i>Why?</i>	
more energy?	
<small>pwfk-hornet</small> <small>SOURCE</small>	<small>PW</small> <small>YOUR INITIALS</small>

Hornets eat many large insects like grasshoppers and bees.

Remember those “why” questions you answered on so many notes? Now is the time to use them. For example,

they eat fruit and sap because they are attracted to sugary foods → Hornets are also attracted to sugary plant foods like fruit and sap.

- 3) Next, write a concluding statement or paragraph that sums up your subject. Because you're researching pests, consider making a pitch for how to avoid attracting pests in the first place. For example,

European Hornets can be fierce hunters and have painful stings. But if we think about it, it's not too hard to know how to avoid attracting them. We know they like sugary foods like honeydew and fruit. Therefore, people should not to leave out cans of soda or other sugary drinks that could attract them.
- 4) Now, put your draft away for a day or so. Don't even look at it. Why? Because you might figure out a better way to write something after you take a rest. This might even be the most important task you do during the entire process.
- 5) Time to get back to it. Take out your draft and read through it. Does everything still make sense to you? Are there any changes you could make to strengthen you paper?
- 6) After you make any changes, give it a friend to read it over. Find out if there are any changes she or he would suggest you make. Maybe there's a sentence that doesn't make sense or a word that that needs some explanation.
- 7) Revise your draft, making any changes you think are necessary.
- 8) Ask two to three other friends to read your paper and then to take a little quiz, to be sure your audience will learn the important information:
 - a. What does this pest eat?
 - b. Describe the pest's habitat. Where does it like to live?
 - c. How should you prevent the pest from invading your space?
- 9) Were your friends able to give you the correct answers? Make any final changes so that your paper's information is crystal-clear.

Step 10: Preparing to Share Your Work

The final step is to share your work with the world. How can you use the information you've researched and written to help people appreciate and prevent pests from impacting their lives?

Put Your Paper in Final Form

A research paper is best presented in a specific format. Your paper should have:

- a title page (an almost blank page with your paper's title and the author (that's you)
- an introduction (step 8)
- paragraphs with topic sentences (step 9)
- conclusion (step 9)
- bibliography

Making a Bibliography:

Don't forget to give credit where credit is due. Get one last page of paper and write down each source you've used. You should then list all your sources, as well as where and when you got them. That's called a **citation**.

For example, you might have used the "wasp" entry from PestWorldforKids.org:

"European Hornet". PestWorldForKids.org. October 15, 2008 <www.pestworldforkids.org>.

1. Put quotation marks around the entry's title: "European Hornet".
2. Then put a period.
3. List the website's URL address.
4. Finally, write down you accessed the site.

Share:

You're done with your paper! All that good and hard work shouldn't just sit on a shelf or in your backpack! Figure out how might you share the information with the world.

Consider your potential audience and your purpose. Sometimes a book is the best, other times a simple poster will work. It all depends on these factors:

- Do you want to provide in-depth information or just one or two important ideas?
- How old is your audience?
- How much time do they have to learn your information?
- Where is your audience located? What is the best way to reach them?

