This insect looks—and sounds—like anything but a run-of-the-mill roach. Madagascar hissing cockroaches are one of many fascinating animal species to hail from the island of Madagascar. These cockroaches are shiny brown and oval-shaped, with no wings and a single pair of antennae. Males sport large horns, which give them an unusual and impressive appearance.

Males use their horns in aggressive encounters reminiscent of battles between horned or antlered mammals. Rivals ram one another with their horns (or abdomens) and during the fight often unleash the amazing hisses that give the animal its name. Winning roaches hiss more than losers, so the sounds may be used to help determine a roach hierarchy.

Hissing is also part of the cockroach's mating ritual, and can be used as an effective alarm cry. Most insects that make noise do so by rubbing their body parts together or by employing vibrating membranes. Madagascar hissing cockroaches, however, exhale air through their breathing holes. This audible use of the respiratory system is far more common in vertebrates.

Like 99 percent of all cockroach species, Madagascar hissing cockroaches are not pests and do not inhabit human dwellings. These insects live on forest floors, where they hide amidst leaf litter, logs, and other detritus. At night, they become more active and scavenge for meals, feeding primarily on fruit or plant materials.

The Madagascar hissing cockroach even begins its life in an unusual manner. Females create a cocoon-like egg case called an ootheca and carry their eggs (and neonatal nymphs) inside their bodies. They then bear living young—as many as 60 nymph roaches.

**Fast Facts**  
**Type:** Bug  
**Diet:** Herbivore  
**Average life span in the wild:** 2 to 5 years  
**Size:** 2 to 3 in (5 to 7.5 cm) long  
**Weight:** Up to 0.8 oz (22.7 g)  
**Group name:** Colony  
**Did you know?** A small colony of hissing cockroaches can eat a large carrot in a single day.  
**Size relative to a paper clip:**
Signal Words

1. Continuation Signals (Warning—there are more ideas to come.)
   and also another
   again and finally first of all
   a final reason furthermore in addition
   last of all likewise more
   moreover next one reason
   other secondly similarly
   too with

2. Change-of-Direction Signals (Watch out—we’re doubling back.)
   although but conversely
   despite different from even though
   however in contrast instead of
   in spite of nevertheless otherwise
   the opposite on the contrary on the other hand
   rather still yet
   while though

3. Sequence Signals (There is an order to these ideas.)
   first, second, third A, B, C
   in the first place for one thing
   then next
   before now
   after while
   into (far into the night) until
   last during
   since always
   o’clock on time
   later earlier
4. Time Signals (*When is it happening?*)

- when
- lately
- at the same time
- once

- immediately
- already
- final
- during

- now
- little by little
- after awhile

5. Illustration Signals (*Here’s what that principle means in reality.*)

- for example
- for instance
- such as
- in the same way as

- specifically
- to illustrate
- much like
- similar to

6. Emphasis Signals (*This is important.*)

- a major development
- a significant factor
- a primary concern
- a key feature
- a major event
- a vital force
- a central issue
- a distinctive quality
- above all
- by the way
- especially important
- especially relevant
- especially valuable
- important to note

- it all boils down to
- most of all
- most noteworthy
- more than anything else
- of course
- pay particular attention to
- remember that
- should be noted
- the most substantial issue
- the main value
- the basic concept
- the crux of the matter
- the chief outcome
- the principle item
7. Cause, Condition, or Result Signals (*Condition or modification is coming up.*)

because if of
for from so
while then but
that until since
as whether in order that
so that therefore unless
yet thus cue to
resulting from consequently without

8. Spatial Signals (*This answers the “where” question.*)

between below about left alongside
here outside around close to far
right over away side near
near in into beside
middle next to beyond north
east on opposite over
south there inside in front of
under these out behind
across this adjacent above
toward west by upon
9. Comparison-Contrast Signals (*We will now compare idea A with idea B.*)

and or also
too best most
either less less than
more than same better
even then half
much as like analogous to
but different from still
yet however although
opposite rather while
though

10. Conclusion Signals (*This ends the discussion and may have special importance.*)

as a result consequently finally
from this we see in conclusion in summary
hence last of all therefore

11. Fuzz Signals (*Idea is not exact, or author is not positive and wishes to qualify a statement.*)

almost if looks like
maybe could some
except should alleged
nearly might reputed
seems like was reported purported
sort of probably
12. Nonword Emphasis Signals

exclamation point (!)
underline
italics
bold type
subheads, like The Conclusion
indentation of paragraph
graphic illustrations
numbered points (1, 2, 3)
very short sentence: Stop war.
"quotation marks"

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# Five Expository Text Structures and their Associated Signal Words

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Description</th>
<th>Cue Words (signal words)</th>
<th>Graphic Organizer</th>
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</table>
| **Description** | The author describes a topic by listing characteristics, features, attributes, and examples | • for example  
• characteristics  
• for instance  
• such as  
• is like  
• including  
• to illustrate | ![Diagram](image) |
| **Sequence** | The author lists items or events in numerical or chronological sequence, either explicit or implied | • first  
• second  
• third  
• later  
• next  
• before  
• then  
• finally  
• after  
• when  
• later  
• since  
• now  
• previously  
• actual use of dates | 1.  
2.  
3.  
4. |
| **Comparison** | Information is presented by detailing how two or more events, concepts, theories, or things are alike and/or different | • however  
• nevertheless  
• on the other hand  
• but  
• similarly  
• although  
• also  
• in contrast  
• different  
• alike  
• same as  
• either/or  
• in the same way  
• just like  
• just as  
• likewise  
• in comparison  
• where as  
• yet | ![Diagram](image) |
| Cause and Effect | The author presents ideas, events in time, or facts as causes and the resulting effect(s) or facts that happen as a result of an event. | • if/then  
• reasons why  
• as a result  
• therefore  
• because  
• consequently  
• since  
• so that  
• for  
• hence  
• due to  
• thus  
• this led to |
| --- | --- | --- |
| Problem and Solution | The author presents a problem and one or more solutions to the problem | • problem is  
• dilemma is  
• if/then  
• because  
• so that  
• question/answer  
• puzzle is solved |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Cause [Branches: Effect #1, Effect #2, Effect #3]</td>
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| | | Problem
| | | Solution