

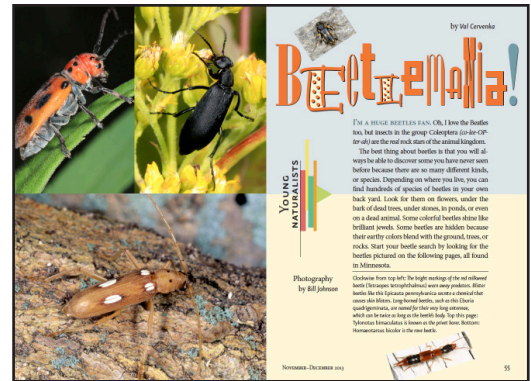
# Teachers Guide

Prepared by **“Beetlemania!” Multidisciplinary Classroom Activities**

Jack Judkins, Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with  
Curriculum photographs by Bill Johnson. Published in the November–December 2013 *Minnesota  
Connections Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

Minnesota

Young Naturalists teachers guides are provided free of charge to classroom teachers, parents, and students. This guide contains a brief summary of the article, suggested independent reading levels, word count, materials list, estimates of preparation and instructional time, academic standards applications, preview strategies and study questions overview, adaptations for special needs students, assessment options, extension activities,



Web resources (including related Minnesota Conservation Volunteer articles), copy-ready study questions with answer key, and a copy-ready vocabulary sheet and vocabulary study cards. There is also a practice quiz (with answer key) in Minnesota Comprehensive Assessments format. Materials may be reproduced and/or modified to suit user needs.

Users are encouraged to provide feedback through an online survey at [www.mndnr.gov/education/teachers/activities/ynstudyguides/survey.html](http://www.mndnr.gov/education/teachers/activities/ynstudyguides/survey.html).

**\*All Minnesota Conservation Volunteer articles published since 1940 are now online in searchable PDF format. Visit [www.mndnr.gov/magazine](http://www.mndnr.gov/magazine) and click on past issues.**

## Summary

“Beetlemania!” takes readers on a tour of the beetles of Minnesota. Seventeen of the hundreds of beetle species that live in Minnesota are pictured. Physical characteristics that make beetles unique are described. Beetles are among the most adaptable organisms. They live in niches all over the world, eat just about anything, and make up about 40 percent of known insect species.

### Suggested reading levels:

Third through middle school grades

### Total words:

494

### Materials:

Paper, poster board, colored pencils, crayons, pens, markers, print and online resources your media specialist may provide

### Preparation time:

One to two hours, not including time for extension activities

### Estimated instructional time:

One or two 50-minute class periods (not including extensions)

## “Beetlemania!”—Teachers Guide

### Minnesota Academic Standards applications:

“Beetlemania!” may be applied to the following Minnesota Department of Education standards:

#### Language Arts

##### Reading Benchmarks

Informational Text 3-8  
Key Ideas and Details  
Craft and Structure  
Integration of Knowledge and Ideas  
Range of Reading and Level of Text Complexity

##### Writing Benchmarks 3-8

Text Types and Purposes  
Writing Process  
Research to Build and Present Knowledge  
Range of Writing

##### Reading Benchmarks: Literacy in Science and Technical Subjects 6-8

Key Ideas and Details  
Craft and Structure  
Integration of Knowledge and Ideas  
Range of Reading and Level of Text Complexity

##### Writing Benchmarks: Literacy in History/Social Studies, Science and Technical Subjects 6-8

Text Types and Purposes  
Writing Process: Production and Distribution of Writing  
Research to Build and Present Knowledge  
Range of Writing

#### Science

##### Grades 3, 4, 5, and 7

Life Science  
3.4.1.1.1; 3.4.1.1.2; 3.4.3.2.2;  
5.4.1.1.1; 7.4.2.1.1; 7.4.2.1.2;  
7.4.3.2.3; 7.4.4.2.1;  
Interactions Among Science, Technology Engineering, Mathematics, and Society  
3.1.3.4.1; 5.1.3.4.1; 6.1.3.4.2  
Physical Science  
4.2.1.1.1

#### Arts

##### Grades K-12

1. Artistic Foundations: Visual Arts
2. Artistic Process: Create or Make: Visual Arts
3. Artistic Process: Perform or Present: Visual Arts
4. Artistic Process: Respond or Critique: Visual Arts

Current, complete Minnesota Academic Standards are available at [www.education.state.mn.us](http://www.education.state.mn.us). Teachers who find other connections to standards are encouraged to contact *Minnesota Conservation Volunteer*.

### Preview

(1) Preview the photos in the article. Ask students to predict what they will learn from the article. (2) Asian lady beetles, an introduced species, seem to be everywhere, especially during September and October. Display photos or bring live or dead beetles into your classroom. Tell students they will be learning about beetles that, unlike the Asian lady beetle, are native to our state. (3) Another preview strategy is **KWL** (Ogle, 1986). To find out what your students already know (**K**) about beetles, ask small groups to brainstorm their ideas. Then combine the groups' data to make a class list. Repeat step one by asking what students would like to

## “Beetlemania!”—Teachers Guide

### Preview continued

learn (W). As you read and discuss the article you will begin to compile the (L) list, or what they learn while reading the article and related materials and participating in extension activities. Display your K and W ideas on poster board or paper. See [www.teach-nology.com/web\\_tools/graphic\\_org/kwl](http://www.teach-nology.com/web_tools/graphic_org/kwl) for a KWL generator that will produce individual organizers for your students. KWL gives you the opportunity to introduce interdisciplinary connections you will make during extension activities. If you use the article in math or art class, you may wish to focus your prereading discussion on academic standards that apply for that class. Another strategy for accessing prior knowledge is a brainstorming web. You may download a printable web at [www.teachervision.fen.com/tv/printables/TCR/0743932080\\_007.pdf](http://www.teachervision.fen.com/tv/printables/TCR/0743932080_007.pdf).

### Vocabulary preview

See the copy-ready vocabulary list included in this guide. You may wish to modify the list based on your knowledge of your students' needs or the subject you are teaching. Pretesting vocabulary individually, in small groups, or with your entire class can be an effective vocabulary preview strategy. You may then post-test at the conclusion of this activity (see Assessment section below). Italicized words are not generally included on the list or in the study cards.

You may wish to use the study cards found at the end of this guide. Cut along the horizontal line, fold in the middle, and tape or staple. Study cards (see *Strategic Tutoring*, Hock, Deshler, and Schumaker 2000) can be applied to any subject area. On one side of the card, in large letters, write a key word or phrase students are expected to know. In smaller letters, frame the word or phrase in a question or statement. On the other side of the card, in large letters, write the answer to the question. Finally, in smaller letters, frame the answer in a question or statement. Blanks are provided to allow you or your students to add new words or phrases.

### Study questions overview

Study questions parallel the story (the answer to the first question appears first in the article, followed by the second, and so on). **Preview the entire guide with your class before you read the article.** You may wish to read the story aloud and complete the study questions in class, in small groups, or as an independent activity. The questions may be assigned as homework, depending on the reading ability of your students. Inclusion teachers may provide more direct support to special needs students (see Adaptations section). The study questions may be also used as a quiz. Note: Items with an asterisk require varying degrees of critical thinking.

### Adaptations

Read aloud to special needs students. Abbreviate the study questions or highlight priority items to be completed first. If time allows, remaining items may be attempted. Peer helpers, paraprofessionals, or adult volunteers may lend a hand with the study questions. With close teacher supervision, cooperative groups can also offer effective support to special needs students, especially for extension activities.

### Assessment

You may use all or part of the study guide, combined with vocabulary, as a quiz. Other assessment ideas include: (1) Students may compare and contrast two of the beetles in the article. See compare and contrast tools in Web resources. (2) Students may write multiple-choice, true-false, or short-answer questions. Select the best items for a class quiz. (3) Students may write essays describing how beetles are unique insects and how they have adapted to many environmental niches. (4) Poster presentations may supplement or take the place of essays. Students may work in small groups with each group focusing on a different species or other main idea from the article.

## “Beetlemania!”—Teachers Guide

### Extension activities

1. Take your class outside during warmer seasons to look for beetles. Collect photos, not specimens, because several beetle species are endangered/threatened (see [files.dnr.state.mn.us/natural\\_resources/ets/endlist.pdf](http://files.dnr.state.mn.us/natural_resources/ets/endlist.pdf)).
2. Use the article as an introduction to the field of taxonomy. How do beetles fit into the grand scheme of nature? Where on the tree of life do insects fit?
3. Nonnative or invasive species of beetles have played a major role in the degradation of Minnesota’s rural and urban forests over the past 50 years. Challenge student to learn about the Dutch elm disease epidemic of the 1960s and ’70s, as well as the current threat to our ash forests (see “Big Trouble for Ash Trees,” in Related Articles.) Why don’t native beetles pose similar threats? Hint: Over time, plants adapt to predators and native parasites. Additionally, predators and other organisms help keep native beetle populations in balance.
4. Create posters of the life cycle of beetles. Do all beetles follow the same cycle? Write haiku poems describing the life cycle.
5. “Bright Lights on Hot Nights,” a story about fireflies, is an excellent companion piece for “Beetlemania.” See Related Articles for the link to a PDF.
6. Use beetle dimensions on page 58 to work on converting inches to millimeters.

### Web resources

#### Minnesota DNR

[www.dnr.state.mn.us/invasives/terrestrialanimals/eab/index.html](http://www.dnr.state.mn.us/invasives/terrestrialanimals/eab/index.html)

[www.dnr.state.mn.us/treecare/forest\\_health/tlcb/index.html](http://www.dnr.state.mn.us/treecare/forest_health/tlcb/index.html)

[www.dnr.state.mn.us/rsg/filter\\_search.html?insect=Y&allstatus=Y&action=doFilterSearch](http://www.dnr.state.mn.us/rsg/filter_search.html?insect=Y&allstatus=Y&action=doFilterSearch)

[www.dnr.state.mn.us/invasives/terrestrialanimals/japanese\\_beetle/index.html](http://www.dnr.state.mn.us/invasives/terrestrialanimals/japanese_beetle/index.html)

#### Classification (taxonomy)

[www.exploringnature.org/db/detail.php?dbID=87&detID=1192](http://www.exploringnature.org/db/detail.php?dbID=87&detID=1192)

[ology.com/biology\\_basics/five\\_kingdoms\\_life/classification1.php](http://ology.com/biology_basics/five_kingdoms_life/classification1.php)

[www.youtube.com/watch?v=vqxomJIBGcY](http://www.youtube.com/watch?v=vqxomJIBGcY)

[www.beatricebiologist.com/2009/09/tree-of-life.html](http://www.beatricebiologist.com/2009/09/tree-of-life.html)

#### Insects

[www.bbc.co.uk/nature/life/Insect](http://www.bbc.co.uk/nature/life/Insect)

#### Beetles

[www.biokids.umich.edu/critters/Coleoptera/](http://www.biokids.umich.edu/critters/Coleoptera/)

[www.entomology.wisc.edu/insectid/beetle.php](http://www.entomology.wisc.edu/insectid/beetle.php)

[waynesword.palomar.edu/ww0502.htm](http://waynesword.palomar.edu/ww0502.htm)

[www.animalcorner.co.uk/insects/beetles/beetle\\_lifecycle.html](http://www.animalcorner.co.uk/insects/beetles/beetle_lifecycle.html)

[blog.lib.umn.edu/efans/ygnews/2013/06/stage-beetles-in-yards.html](http://blog.lib.umn.edu/efans/ygnews/2013/06/stage-beetles-in-yards.html)

#### Invasive species

[www1.extension.umn.edu/garden/insects/find/japanese-beetles/](http://www1.extension.umn.edu/garden/insects/find/japanese-beetles/)

[www1.extension.umn.edu/garden/yard-garden/trees-shrubs/dutch-elm-disease/](http://www1.extension.umn.edu/garden/yard-garden/trees-shrubs/dutch-elm-disease/)

#### Asian lady beetles

[www1.extension.umn.edu/garden/insects/find/multicolored-asian-lady-beetles/](http://www1.extension.umn.edu/garden/insects/find/multicolored-asian-lady-beetles/)

#### Parasite-host relationships

[necsi.edu/projects/evolution/co-evolution/parasites/co-evolution\\_parasite.html](http://necsi.edu/projects/evolution/co-evolution/parasites/co-evolution_parasite.html)

[www.youtube.com/watch?v=4j6jikayKZA](http://www.youtube.com/watch?v=4j6jikayKZA)

## “Beetlemania!”—Teachers Guide

### Web resources continued

#### Minnesota DNR

[www.dnr.state.mn.us/invasives/terrestrialanimals/eab/index.html](http://www.dnr.state.mn.us/invasives/terrestrialanimals/eab/index.html)  
[www.dnr.state.mn.us/treecare/forest\\_health/tlcb/index.html](http://www.dnr.state.mn.us/treecare/forest_health/tlcb/index.html)  
[www.dnr.state.mn.us/rsg/filter\\_search.html?insect=Y&allstatus=Y&action=doFilterSearch](http://www.dnr.state.mn.us/rsg/filter_search.html?insect=Y&allstatus=Y&action=doFilterSearch)  
[www.dnr.state.mn.us/invasives/terrestrialanimals/japanese\\_beetle/index.html](http://www.dnr.state.mn.us/invasives/terrestrialanimals/japanese_beetle/index.html)

#### Classification (taxonomy)

[www.exploringnature.org/db/detail.php?dbID=87&detID=1192](http://www.exploringnature.org/db/detail.php?dbID=87&detID=1192)  
[ology.com/biology\\_basics/five\\_kingdoms\\_life/classification1.php](http://ology.com/biology_basics/five_kingdoms_life/classification1.php)  
[www.youtube.com/watch?v=vqxomJIBGcY](http://www.youtube.com/watch?v=vqxomJIBGcY)  
[www.beatricebiologist.com/2009/09/tree-of-life.html](http://www.beatricebiologist.com/2009/09/tree-of-life.html)

#### Insects

[www.bbc.co.uk/nature/life/Insect](http://www.bbc.co.uk/nature/life/Insect)

#### Beetles

[www.biokids.umich.edu/critters/Coleoptera/](http://www.biokids.umich.edu/critters/Coleoptera/)  
[www.entomology.wisc.edu/insectid/beetle.php](http://www.entomology.wisc.edu/insectid/beetle.php)  
[waynesword.palomar.edu/ww0502.htm](http://waynesword.palomar.edu/ww0502.htm)  
[www.animalcorner.co.uk/insects/beetles/beetle\\_lifecycle.html](http://www.animalcorner.co.uk/insects/beetles/beetle_lifecycle.html)  
[blog.lib.umn.edu/efans/ygnews/2013/06/stage-beetles-in-yards.html](http://blog.lib.umn.edu/efans/ygnews/2013/06/stage-beetles-in-yards.html)

#### Invasive species

[www1.extension.umn.edu/garden/insects/find/japanese-beetles/](http://www1.extension.umn.edu/garden/insects/find/japanese-beetles/)  
[www1.extension.umn.edu/garden/yard-garden/trees-shrubs/dutch-elm-disease/](http://www1.extension.umn.edu/garden/yard-garden/trees-shrubs/dutch-elm-disease/)

#### Asian lady beetles

[www1.extension.umn.edu/garden/insects/find/multicolored-asian-lady-beetles/](http://www1.extension.umn.edu/garden/insects/find/multicolored-asian-lady-beetles/)

#### Parasite-host relationships

[necsi.edu/projects/evolution/co-evolution/parasites/co-evolution\\_parasite.html](http://necsi.edu/projects/evolution/co-evolution/parasites/co-evolution_parasite.html)  
[www.youtube.com/watch?v=4j6jikayKZA](http://www.youtube.com/watch?v=4j6jikayKZA)

#### Compare and contrast

[www.readwritethink.org/files/resources/interactives/compcontrast/](http://www.readwritethink.org/files/resources/interactives/compcontrast/)  
[www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm](http://www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm)  
[www.readingquest.org/strat/compare.html](http://www.readingquest.org/strat/compare.html)

#### Haiku poetry

[www.wikihow.com/Write-a-Haiku-Poem](http://www.wikihow.com/Write-a-Haiku-Poem)  
[www.gigglepoetry.com/poetryclass/Haiku.html](http://www.gigglepoetry.com/poetryclass/Haiku.html)  
[homepage2.nifty.com/haiku-eg/](http://homepage2.nifty.com/haiku-eg/)

#### Metric conversions

[mdmetric.com/tech/cvtcht.htm](http://mdmetric.com/tech/cvtcht.htm)  
[www.metric-conversions.org/length/inches-to-millimeters.htm](http://www.metric-conversions.org/length/inches-to-millimeters.htm)

#### Minnesota DNR teacher resources

[www.mndnr.gov/education/teachers/index.html](http://www.mndnr.gov/education/teachers/index.html)  
[www.mndnr.gov/dnrkids/index.html](http://www.mndnr.gov/dnrkids/index.html)

\*Note: All websites were active at the time of this guide’s publication. However, some may no longer be active when this guide is accessed.



## “Beetlemania!”—Teachers Guide

### Related Articles

In addition to the related articles listed below, every *Minnesota Conservation Volunteer* article published since 1940 is now online at [webapps8.dnr.state.mn.us/volunteer\\_index](http://webapps8.dnr.state.mn.us/volunteer_index)

#### July–August 1994

“Butterflies: Flying Flowers” (YN article)

[www.dnr.state.mn.us/young\\_naturalists/butterflies/index.html](http://www.dnr.state.mn.us/young_naturalists/butterflies/index.html)

#### July–August 1996

“Damsels and Dragons” (YN article with teachers guide)

[www.dnr.state.mn.us/young\\_naturalists/dragons/index.html](http://www.dnr.state.mn.us/young_naturalists/dragons/index.html)

#### July–August 2001

“What’s Eating You?” (YN article with teachers guide)

[www.dnr.state.mn.us/young\\_naturalists/biting\\_bugs/index.html](http://www.dnr.state.mn.us/young_naturalists/biting_bugs/index.html)

#### July–August 2004

“Buggy Sounds of Summer” (YN article with teachers guide)

[www.dnr.state.mn.us/young\\_naturalists/buggysounds/index.html](http://www.dnr.state.mn.us/young_naturalists/buggysounds/index.html)

#### May–June 2007

“Ants” (YN article with teachers guide)

[www.dnr.state.mn.us/young\\_naturalists/ants/index.html](http://www.dnr.state.mn.us/young_naturalists/ants/index.html)

#### March–April 2008

“The Magic of Morphing” (YN article with teachers guide)

[www.dnr.state.mn.us/young\\_naturalists/magic\\_morphing/index.html](http://www.dnr.state.mn.us/young_naturalists/magic_morphing/index.html)

#### May–June 2008

“Spring to Life Ponds” (YN article with teachers guide)

[www.dnr.state.mn.us/young\\_naturalists/ponds/index.html](http://www.dnr.state.mn.us/young_naturalists/ponds/index.html)

#### May–June 2009

“Big Trouble for Ash Trees”

[www.dnr.state.mn.us/volunteer/mayjun09/ash\\_trees.html](http://www.dnr.state.mn.us/volunteer/mayjun09/ash_trees.html)

#### July–August 2012

“Bright Lights on Hot Nights”

[www.dnr.state.mn.us/volunteer/julaug12/fireflies.html](http://www.dnr.state.mn.us/volunteer/julaug12/fireflies.html)

### References

Hock, M.F., Deshler, D.D., and Schumaker, J.B. *Strategic Tutoring*. Lawrence, Kan.: Edge Enterprises, 2000.  
Ogle, D.S. K-W-L Group Instructional Strategy. In A.S. Palincsar, D.S. Ogle, B.F. Jones, and E.G. Carr (Eds.), *Teaching Reading as Thinking: Teleconference Resource Guide*, pp.11–17. Alexandria, Va.: Association for Supervision and Curriculum Development, 1986.

# “Beetlemania!”—Teachers Guide

## Study Questions

Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with photographs by Bill Johnson. Published in the November–December 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

---

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

1. The author describes beetles as “rock stars.” Why? (**Hint: Wait until you read the entire article to answer.**) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. If you search for beetles in your back yard, where do you look? \_\_\_\_\_  
\_\_\_\_\_

3. Don’t touch *Epicauta pennsylvanica*. What might happen? \_\_\_\_\_  
\_\_\_\_\_

4. Explain why Aristotle named beetles “Coleoptera.” \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Do some Coleoptera species have eyespots in order to see? Why or why not? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. What are elytra? \_\_\_\_\_

7. What do beetles have to do with niches? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. Where are beetles *not* found? \_\_\_\_\_

9. Are beetles’ mouthparts well adapted? Why or why not? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. The smallest beetle is \_\_\_\_\_ mm long, while the largest beetle is \_\_\_\_\_ mm long. How many millimeters long is the largest native Minnesota beetle? \_\_\_\_\_ mm

11. How is the sumac beetle specially adapted? \_\_\_\_\_

12. Compare the estimated number of species of mammals, birds, and insects on Earth. What do you conclude?

13. How do you think the stag beetle got its nickname? \_\_\_\_\_

14. Match the species with its clue:

- |  |             |
|--|-------------|
| _____ <i>Psuedanostirus hieroglyphicus</i> | a. scarab   |
| _____ <i>Pelidnota punctata</i>            | b. lady     |
| _____ <i>Tylonotus bimaculatus</i>         | c. shimmery |
| _____ <i>Eburia quadrigeminata</i>         | d. antennae |
| _____ <i>Polydrusus impressifrons</i>      | e. click    |
| _____ <i>Calvia quatuordecimguttata</i>    | f. wood     |

Challenge: Compare parasites and predators. \_\_\_\_\_



## Study Questions Answer Key

Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with photographs by Bill Johnson. Published in the November–December 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

- \*1. The author describes beetles as “rock stars.” Why? (Hint: Wait until you read the entire article to answer.) Answers will vary. Encourage divergent thinking. Key concept: beetle species have evolved an amazing array of adaptations to a wide variety of habitats.
2. If you search for beetles in your back yard, where do you look? Beetles will be found just about anywhere you look.
3. Don't touch *Epicauta pennsylvanica*. What might happen? Your skin might blister.
4. Explain why Aristotle named beetles “Coleoptera.” The term comes from the Greek words for “sheath” and “wings.” Beetles' wings are covered by a hard sheath.
5. Do some Coleoptera species have eyespots in order to see? Why or why not? No. Eyespots are not eyes. They are markings that scare off predators.
6. What are elytra? Wing covers.
- \*7. What do beetles have to do with niches? Beetles have evolved specialized adaptations that enable them to live in different spaces, or niches, within the same habitats. That's why so many species can be found in your backyard.
8. Where are beetles not found? So far, no beetles have been discovered in the oceans or at the north and south poles.
- \*9. Are beetles' mouthparts well adapted? Why or why not? Yes. Beetles' mouthparts allow them to eat a wide variety of foods, increasing their chances for survival.
- \*10. The smallest beetle is 1.6 mm long, while the largest beetle is 152.4 mm long. How many millimeters long is the largest native Minnesota beetle? 44.5 mm
11. How is the sumac beetle specially adapted? The sumac beetle's hind legs are adapted for jumping.
- \*12. Compare the estimated number of species of mammals, birds, and insects on Earth. What do you conclude? Answers will vary. There are about 5,400 known species of mammals, and about 10,000 of birds; that's just a tiny fraction of the estimated millions of species of insects, of which beetles comprise about 40 percent. One might conclude that (1) insects have been around longer and/or evolve adaptations more quickly than mammals or birds, and (2) insects have evolved a wider variety of adaptations, enabling them to take advantage of a diverse range of environments.
13. How do you think the stag beetle got its nickname? Its large jaws look like pincers.
14. Match the species with its clue:  
Beetle Species Clue \_\_\_\_\_  
e *Psuedanostirus hieroglyphicus*  
a *Pelidnota punctata*  
f *Tylonotus bimaculatus*  
d *Eburia quadrigeminata*  
c *Polydrusus impressifrons*  
b *Calvia quatuordecimguttata*
- \*Challenge: Compare parasites and predators. Answers will vary. Encourage divergent thinking. Parasites need host organisms to survive, while predators must have prey. Predators kill their prey, while parasites harm but might not kill their hosts.

## Minnesota Comprehensive Assessments Practice Items

Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with photographs by Bill Johnson. Published in the November–December 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

---

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

1. The main idea of the first paragraph on page 56 is
  - A. beetles are interesting.
  - B. beetles are the only insects with wing covers.
  - C. beetles are parasites.
  - D. beetles are predators.
2. Large animal species are \_\_\_\_\_ than small animal species.
  - A. more numerous
  - B. more adaptable
  - C. more aggressive
  - D. less numerous
3. Koleon is a \_\_\_\_\_ word that means \_\_\_\_\_ .
  - A. Latin; water
  - B. Spanish; sheath
  - C. Greek; short
  - D. Greek; sheath
4. Beetles eat
  - A. pollen.
  - B. dung.
  - C. mold.
  - D. A, B, and C
5. How did *Psuedanostrirus hieroglyphicus* get its name?
  - A. It is found in Egypt.
  - B. It is used to make ink.
  - C. Markings on its wings look like ancient Egyptian writing.
  - D. It was kept as a pet by the pharaohs.

## Minnesota Comprehensive Assessments Answer Key

Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with photographs by Bill Johnson. Published in the November–December 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

---

1. The main idea of the first paragraph on page 56 is **B. beetles are the only insects with wing covers.**
2. Large animal species are **D. less numerous** than small animal species.
3. Koleon is a **D. Greek** word that means **sheath**.
4. Beetles eat **D. A, B, and C**
5. How did *Pseudanostirus hieroglyphicus* get its name? **C. Markings on its wings look like ancient Egyptian writing.**

## “Beetlemania!”—Teachers Guide

### Vocabulary

Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with photographs by Bill Johnson. Published in the November–December 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

---

<b>adaptable</b>	able to adjust to new conditions
<b>Aristotle</b>	Greek philosopher and scientist who lived from 384 to 322 B.C.
<b>dung</b>	manure
<b>fungus</b>	spore-producing organism that absorbs nutrients from its host organism
<b>habitat</b>	home environment of a plant or animal
<b>insect</b>	invertebrate within the arthropod phylum, characterized by a three-part body, six legs, compound eyes, and two antennae
<b>lichens</b>	organisms composed of fungi and algae
<b>mammal</b>	warm-blooded, vertebrate animal with hair that feeds its young milk secreted by the female
<b>mold</b>	fungus that grows filaments that appear fuzzy
<b>pollen</b>	sperm cells of flowering and coniferous plants
<b>parasite</b>	organism that grows on or in another organism (host) without contributing to the survival of its host
<b>predator</b>	animal that kills and eats other animals
<b>species</b>	group of organisms that resemble each other and may reproduce
<b>weevil</b>	type of small beetle that often damages crops

## “Beetlemania!”—Teachers Guide

### Vocabulary Study Cards

Teachers guide for the Young Naturalists article “Beetlemania!” by Val Cervenka, with photographs by Bill Johnson. Published in the November–December 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/beetles](http://www.mndnr.gov/young_naturalists/beetles).

---

Cut along the horizontal lines, fold in the middle and tape or staple. Blanks are provided to allow you or your students to add new words or phrases.

An  
**adaptable**  
organism is

FOLD HERE

An organism that is  
**able to adjust to new**  
**conditions** is

Who was  
**Aristotle?**

FOLD HERE

Who was **the**  
**Greek philosopher and**  
**scientist who lived from**  
**384 to 322 B.C.?**

What is  
**dung?**

FOLD HERE

Another name for  
**manure** is

A  
**fungus**  
is a

FOLD HERE

A **spore-producing organism**  
**that absorbs nutrients from**  
**its host organism** is a

What is a **habitat**?

FOLD HERE

**The home environment of a plant or animal is called its**

An **insect** is an

FOLD HERE

**An invertebrate within the arthropod phylum, characterized by a three-part body, six legs, compound eyes and two antennae is an**

What are **lichens**?

FOLD HERE

**Organisms composed of fungi and algae are**

What is a **mammal**?

FOLD HERE

**A warm-blooded, vertebrate animal with hair that feeds its young milk secreted by the female is a**

What is **mold**?

FOLD HERE

**A fungus that grows filaments that appear fuzzy is called**

What is  
**pollen?**

FOLD HERE

**The sperm cells of flowering  
and coniferous plants are called**

A **predator** is an

FOLD HERE

**An animal that kills and  
eats other animals is a**

What is a  
**species?**

FOLD HERE

**A group of organisms that  
resemble each other and  
may reproduce is a**

What is a  
**weevil?**

FOLD HERE

**A type of small beetle that  
often damages crops is a**

FOLD HERE