

# Teachers Guide

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## “Look Down in the Woods” Multidisciplinary Classroom Activities

Teachers guide for the Young Naturalists article “Look Down in the Woods,” by Mary Hoff. Published in the May–June 2006 *Minnesota Conservation Volunteer*, or visit [www.dnr.state.mn.us/young\\_naturalists/forest\\_floor](http://www.dnr.state.mn.us/young_naturalists/forest_floor).

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 Conservation Volunteer articles), copy-ready study questions with answer key, 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.dnr.state.mn.us/education/teachers/activities/ynstudyguides/survey.html](http://www.dnr.state.mn.us/education/teachers/activities/ynstudyguides/survey.html).



### Summary

“Look Down in the Woods” catalogs 10 common plants found in Minnesota’s forests. Readers learn the common and scientific names, habitat requirements, and physical characteristics of each species, as well as which ones provide food for animals and people. Accompanying photos provide an excellent field guide.

**Suggested reading levels:**

mid-elementary through eighth grade

**Total words:**

1,120

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**Materials:** Paper, poster board, pencils, pens, markers, and print resources from your media center, plants of Minnesota field guide

**Preparation time:** One to two hours (not including extension activities)

**Estimated instructional time:** Two to three 50-minute class periods (not including extension activities)

**Minnesota Academic Standards applications:** “Look Down in the Woods” may be applied to the following Minnesota Department of Education Academic Standards:

### Language Arts

#### I. Reading and Literature

- A. Word Recognition, Analysis and Fluency
- B. Vocabulary Expansion
- C. Comprehension

#### II. Writing

- A. Types of Writing
- B. Elements of Composition
- C. Spelling
- D. Research
- E. Handwriting and Word Processing

#### III. Speaking, Listening and Viewing

- A. Speaking and Listening
- B. Media Literacy

### Arts

**Artistic Expression:** Visual Arts

### Science

#### Grade 3

#### IV. Life Science

- B. Diversity of Organisms
- C. Interdependence of Life

#### Grade 4

#### IV. Life Science

- B. Diversity of Organisms

#### Grade 5

#### IV. Life Science

- E. Biological Populations Change Over Time
- F. Flow of Matter and Energy

#### Grade 7

#### IV. Life Science

- B. Diversity of Organisms
- C. Interdependence of Life
- E. Biological Populations Change Over Time
- F. Flow of Matter and Energy

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

### Preview

Begin your preview with a survey of the article. Ask your students to examine the photos. Then pass out Wint O Green Life Savers. After students have tasted each, ask where the flavoring comes from. Use the **KWL** strategy (Ogle, 1986) to find out what your students already know (**K**) about forest-floor plants; what they want (**W**) to learn, and eventually, what they learned (**L**) while reading the article and related materials, and

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through participating in extension activities. Display your **K** and **W** ideas on poster board or paper (see Vocabulary preview, below). Add to your **L** list as you read and discuss the article. 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. You may also introduce your students to one of several field guides that catalog plant life. See Minnesota’s Bookstore for *Field Guide to the Native Plant Communities of Minnesota: The Eastern Broadleaf Forest Province* and *Field Guide to the Native Plant Communities of Minnesota: The Laurentian Mixed Forest Province* at [www.dnr.state.mn.us/publications/books](http://www.dnr.state.mn.us/publications/books), or consult your school media center or local public library.

### Vocabulary preview

You may wish to review the attached list as well as any other words based on knowledge of your students’ needs. Many connections to vocabulary in the article may be made during the **KWL** activity. Ask students to highlight the italicized words in the story. These are key concepts and should be discussed before reading. Perhaps some of these terms are included in your **K** list. If students are not familiar with some of the terms, include them in the **W** list. Eventually, they can be moved to the **L** list. You may write vocabulary from the article in green ink, while other ideas are written in black. You may wish to use the study cards found at the end of this guide. Study cards (Hock, Deshler, and Schumaker, 2000) can be applied to any subject area. 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. On one side of the card, in large letters, write a key word or phrase from the article that 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 or match to the question or statement. Finally, in smaller letters, frame the answer in a question or statement.

### 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, below). The study questions may also be used as a quiz. Note: Items 3, 4, 12, and 13 and the challenge require analytical thinking.

### Adaptations

Read aloud to special needs students. Abbreviate the study questions or highlight priority items to be completed first, for example, items 1, 2, 5, 6, 9, and 14. 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.

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**Assessment** You may use all or some of the study questions, combined with vocabulary, as a quiz. Other assessment ideas: (1) Students may write an essay describing a selected species, to include details regarding appearance, habitat, propagation, and food properties. (2) Students may sketch one or more species observed during a field trip (see Extension activities) and then make positive identifications with field guides. (3) Poster presentations may illustrate the interrelationships of trees and forest floor plants. (4) On a field trip (see Extension activities) students may identify plants from the article as well as others from field guides. (4) Challenge students to match scientific names to common names.

- Extension activities**
1. A field trip to a nearby school forest, state park, or nature area will give students the opportunity to identify some or all of the plants in the article, as well as many other plants in field guides. (See [www.dnr.state.mn.us/schoolforests/listing.html](http://www.dnr.state.mn.us/schoolforests/listing.html) for a list of school forests, or [www.dnr.state.mn.us/state\\_parks](http://www.dnr.state.mn.us/state_parks) for a list of state parks.)
  2. Plants, like animals, can become endangered. See [www.dnr.state.mn.us/ets/vascular\\_endangered.html](http://www.dnr.state.mn.us/ets/vascular_endangered.html) for a list of endangered plants in Minnesota. The site [www.fws.gov/endangered/Kids](http://www.fws.gov/endangered/Kids) provides many excellent activities specific to endangered species. See “Plants in Peril” lesson plans.
  3. Learn about official state flowers for Minnesota and the other 49 states at [www.50states.com/flower.htm](http://www.50states.com/flower.htm).
  4. Scientific nomenclature may interest your advanced students. See [en.wikipedia.org/wiki/Binomial\\_nomenclature](http://en.wikipedia.org/wiki/Binomial_nomenclature) for an excellent introduction to the logic behind the system.

**Web resources** Related *Minnesota Conservation Volunteer* articles (see [www.dnr.state.mn.us/volunteer/articles](http://www.dnr.state.mn.us/volunteer/articles)) include:

**January–February 2006**

“Lichens: Two Lives in One”

**May–June 2005**

“A Fondness for Ferns”

**July–August 2004**

“Western Poison Ivy”

“The Rare Ones”

**January–February 2003**

“Where’s Nature in the Twin Cities?”

**March–April 2002**

“Plants That Eat Animals” (YN article with teachers guide)

“Paper Birch”

**July–August 2001**

“Western Prairie Fringed Orchid”

**November–December 2000**

“High-bush Cranberry”

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**May–June 2000**

“Prairie Wild Rose”

**July–August 1998**

“The Trouble With Backyard Buckthorn”

“Last Stands of Big Woods”

### References

1. Hock, M.F., Deshler, D.D., and Schumaker, J.B. *Strategic Tutoring*. Lawrence, Kan.: Edge Enterprises, 2000.
2. 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.

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### Study Questions

“Look Down in the Woods,” by Mary Hoff

Minnesota Conservation Volunteer, May–June 2006

[www.dnr.state.mn.us/young\\_naturalists/forest\\_floor](http://www.dnr.state.mn.us/young_naturalists/forest_floor)

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

1. Why might you miss some of the more interesting sights in the forest? \_\_\_\_\_

\_\_\_\_\_

2. You probably won't find bunchberry plants growing under maple trees. Why not? \_\_\_\_\_

\_\_\_\_\_

3. How do rhizomes help plants that animals eat? \_\_\_\_\_

\_\_\_\_\_

4. Can you think of another reason rhizomes could mean the difference between survival and extinction? \_\_\_\_\_

\_\_\_\_\_

5. How do birds help sarsaparilla propagate? \_\_\_\_\_ .

6. Ground-pine looks like a pine tree, but it is actually a \_\_\_\_\_ .

7. Ground-pine is used for \_\_\_\_\_ and \_\_\_\_\_ .

8. Are you likely to find starflowers in bloom in August? Why or why not? \_\_\_\_\_

\_\_\_\_\_

9. Where does baneberry get its name? \_\_\_\_\_

\_\_\_\_\_

10. Describe the pattern of leaves on a *Streptopus roseus* stalk. \_\_\_\_\_

\_\_\_\_\_

11. Is it likely you will find rose twisted-stalk in a pine forest? Why or why not? \_\_\_\_\_

\_\_\_\_\_

12. Are wintergreen berries white or red? \_\_\_\_\_

\_\_\_\_\_

13. What does *Clintonia borealis* have in common with *Actaea rubra*? \_\_\_\_\_

\_\_\_\_\_

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14. Explain how wild strawberries differ from the strawberries you buy at the grocery store.

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15. *Aster* is from the Latin word for \_\_\_\_\_ .

Challenge: Classify the 10 plants in this article by habitat, propagation, and toxicity. Which one is in a category of its own?

## Study Questions Answer Key

“Look Down in the Woods,” by Mary Hoff

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[www.dnr.state.mn.us/young\\_naturalists/forest\\_floor](http://www.dnr.state.mn.us/young_naturalists/forest_floor)

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1. Why might you miss some of the more interesting sights in the forest? **Many interesting and beautiful plants grow on the forest floor. If you don't look down, you will miss them.**
2. You probably won't find bunchberry plants growing under maple trees. Why not? **Bunchberries prefer a coniferous forest floor.**
3. How do rhizomes help plants that animals eat? **Once the parts of the plant above ground are eaten, the plant has no way to reproduce unless it can begin new growth from its root system.**
4. Can you think of another reason rhizomes could mean the difference between survival and extinction? **When tops of plants are destroyed or damaged in fires, rhizomes are able to send up new growth.**
5. How do birds help sarsaparilla propagate? **They eat the berries, fly away, and deposit the seeds in their droppings.**
6. Ground-pine looks like a pine tree, but it is actually a fern.
7. Ground-pine is used for **decorations and medicine.**
8. Are you likely to find starflowers in bloom in August? Why or why not? **No. Star flowers bloom in May and June.**
9. Where does baneberry get its name? **Its berries are toxic. Bane means poisonous.**
10. Describe the pattern of leaves on a *Streptopus roseus* stalk. **The leaves on this plant do not grow opposite one another on the stalk, but are staggered.**
11. Is it likely you will find rose twisted-stalk in a pine forest? Why or why not? **No. Rose twisted-stalk prefers a deciduous forest.**
12. Are wintergreen berries white or red? **Both. Wintergreen berries are white in spring and turn red by late summer.**
13. What does *Clintonia borealis* have in common with *Actaea rubra*? **The berries are toxic.**
14. Explain how wild strawberries differ from the strawberries you buy at the grocery store. **They are much smaller than farm-grown berries and are also sweeter.**
15. *Aster* is the Latin word for **star.**

Challenge: Classify the 10 plants in this article by habitat, propagation, and toxicity. Which one is in a category of its own? **This item would make a good poster. Ground pine is in its own category.**



**Minnesota Comprehensive Assessments Practice Items**

“Look Down in the Woods,” by Mary Hoff

Minnesota Conservation Volunteer, May–June 2006

[www.dnr.state.mn.us/young\\_naturalists/forest\\_floor](http://www.dnr.state.mn.us/young_naturalists/forest_floor)

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

1. \_\_\_\_\_ is a favorite food of spruce grouse.
  - A. *Aralia nudicaulis*
  - B. Bunchberry
  - C. Baneberry
  - D. *Streptopus roseus*
  
2. \_\_\_\_\_ is easily identified by its pink-striped, bell-shaped flowers.
  - A. *Streptopus roseus*
  - B. Ground pine
  - C. Wintergreen
  - D. *Fragaria virginiana*
  
3. This plant has much in common with its domesticated cousin.
  - A. miniature pine
  - B. scootberry
  - C. wild strawberry
  - D. wild sarsaparilla
  
4. Forest-floor plants are found in \_\_\_\_\_ .
  - A. wetlands
  - B. both coniferous and deciduous forests
  - C. city parks
  - D. deserts
  
5. Rhizomes are important because \_\_\_\_\_ .
  - A. they hold plants to the ground
  - B. they provide a way for plants to reproduce if flowers are destroyed
  - C. they keep predators away
  - D. they are difficult to find

## Minnesota Comprehensive Assessments Practice Items Answer Key

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[www.dnr.state.mn.us/young\\_naturalists/forest\\_floor](http://www.dnr.state.mn.us/young_naturalists/forest_floor)

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1. **B. Bunchberry** is a favorite food of spruce grouse.
2. **A. Streptopus roseus** is easily identified by its pink-striped, bell-shaped flowers.
3. This plant has much in common with its domesticated cousin. **C. wild strawberry**
4. Forest-floor plants are found in **B. both coniferous and deciduous forests**.
5. Rhizomes are important because **B. they provide a way for plants to reproduce if flowers are destroyed**.

## Vocabulary

“Look Down in the Woods,” by Mary Hoff

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**acidic** sour or sharp to the taste

**azure** sky blue

**coniferous** mostly evergreen trees and shrubs with true cones

**deciduous** trees that lose their leaves in fall

**disk** flat, round object, like a plate

**leaflets** small, young leaves

**millisecond** one one-thousandth of a second

**miniature** small

**oval** elongated circle

**parallel** straight lines that run in the same direction

**pollinate** transfer pollen from one flower to another

**rhizomes** lumps or masses on a plant’s root that send up new growth

**toxic** poisonous

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**vireo** small, gray-green bird found in Minnesota forests

**whorl** leaves arranged in a circle

# “Look Down in the Woods”—Teachers Guide

## Vocabulary Study Cards

“Look Down in the Woods,” by Mary Hoff

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[www.dnr.state.mn.us/young\\_naturalists/forest\\_floor](http://www.dnr.state.mn.us/young_naturalists/forest_floor)

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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 object is  
**miniature**  
when it is

A  
**small version of a larger  
object** is called a

What does  
**coniferous**  
mean?

A **tree or shrub  
that has cones**  
is

When soil is  
**acidic,**  
it

If soil  
**is high in acid,**  
it is

What is a  
**vireo**?

What is a  
**small gray-green bird of the  
forests of Minnesota**  
called?

An  
**azure** butterfly  
is the color of

The butterfly that is the color of  
**the blue sky**  
is called the

A  
**millisecond**  
is

**One one-thousandth  
of a second**  
is a

What are **rhizomes**?

**Lumps on roots that  
produce new growth**  
are called

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To  
**pollinate**  
is to

To  
**transfer pollen from one  
flower to another**  
is to

When a substance is  
**toxic,**  
it is

What is a substance that is  
**poisonous**  
called?

When lines are  
**parallel,**  
they

When two lines  
**run in the same direction at a  
constant distance apart,**  
they are

What are  
**deciduous**  
trees?

What are  
**trees that lose their  
leaves in the fall**  
called?

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What are  
**leaflets?**

What are  
**small leaves**  
called?

An  
**oval-shaped object**  
is

An  
**elongated circle**  
is an

A  
**disk**  
is

A  
**flat, round object**  
is a



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