

# Teachers Guide

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## “Let’s Make A Fishing Pole” Multidisciplinary Classroom Activities

Teachers guide for the Young Naturalists article “Let’s Make a Fishing Pole” by Roland Sigurdson. Illustrations by Bill Reynolds. Published in the May–June 2009 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/fishing\\_pole](http://www.mndnr.gov/young_naturalists/fishing_pole).

*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, 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 a to suit user needs. Users are encouraged to provide feedback through an online survey at [www.mdnr.gov/education/teachers/activities/ynstudyguides/survey.html](http://www.mdnr.gov/education/teachers/activities/ynstudyguides/survey.html). Please note that if you are downloading articles from the Web site only the Young Naturalists article is available in PDF.*



### Summary

“Let’s Make a Fishing Pole” provides a brief history of angling equipment, from pre-historical times to present-day rods and reels, computerized graphs, and underwater cameras. Readers learn how to make bamboo poles and pop can rigs, how to find the right bait, where to fish, and how to fish safely and ethically.

**Suggested reading levels:**  
**Total words:**  
**Materials**  
**Preparation time:**

third through middle grades  
1,952  
Paper, poster board, pencils, pens, markers, and print resources from your media center, materials to make bamboo poles and pop can rigs.  
One to two hours, not including time for extension activities

## “Let’s Make a Fishing Pole”—Teachers Guide

### Estimated instructional time:

Two to three 50-minute class periods (not including extensions)

### Minnesota Academic Standards applications:

“Let’s Make a Fishing Pole” may be applied to the following Minnesota Department of Education standards:

#### **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

#### **Science**

##### **Grades 3 and 4**

#### **IV. Life Science**

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

##### **Grades 5 and 8**

#### **IV. Life Science**

- F. Flow of Matter and Energy

##### **Grade 7**

#### **IV. Life Science**

- F. Flow of Matter and Energy

#### **Social Studies**

##### **Grades 4–8**

#### **II. Minnesota History**

- A. Pre-contact to 1650: The student will demonstrate knowledge of Minnesota’s indigenous peoples.

#### **V. Geography**

- D. Interconnections: The student will describe how humans influence the environment and in turn are influenced by it.

#### **Arts**

##### **All grades**

#### **Artistic Expression**

- D. Visual Arts

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

Bring a bamboo pole and pop can rig to class. Ask if any students have fished with such simple equipment. Why has modern equipment replaced simpler technology? Use the KWL strategy (Ogle, 1986) to find out what your students already know (K) about fishing, what (W) they would like to learn, and eventually, what they learned (L) while reading the article and related materials, and through participating in extension activities. You might begin by asking small groups to brainstorm their ideas. Then combine the groups’ data to make a class list. Display your K and W ideas on poster board or paper (see Vocabulary preview). 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. Individual organizers may be useful as students read the article for answers to W questions. KWL also gives you the opportunity to introduce interdisciplinary connections you will make during extension activities. For example, if you plan to use the article during social studies, science, or art, you may ask students to review their KWL for concepts that are specific to those disciplines. If students plan to fish during May encourage them to write and tell about their experiences. Students may bring photos to class. Add their experiences to your L list.

## “Let’s Make a Fishing Pole”—Teachers Guide

### Vocabulary preview

See the copy-ready vocabulary list included in this guide as well as italicized words in the article. You may wish to modify the list based on your knowledge of your students’ needs. 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).

Connections to vocabulary in the article may also be made during KWL. If students are not familiar with some of the terms, include them in the W list. Other terms may be added to the W list as they read the article. 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. Notes: Some of the words in the vocabulary list definitions may require further explanation. Also, preview the study questions for unfamiliar terms.

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 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 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 1, 8, 12, 13, 17 and the Challenge require varying degrees of critical thinking.

### Adaptations

Read aloud to special needs students. Abbreviate the study questions or highlight priority items, such as items 2, 4, 5, 7, 9, 11, and 14, 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 write an essay describing how fishing equipment has changed over the past 12,000 years. (2) Students may write multiple choice, short answer, or true-false questions to test their classmates’ understanding of the story. Student-generated questions may be then used as an alternative to study questions. (3) Challenge students to write their own instructions for making a simple fishing rig out of found materials. (4) Poster presentations may illustrate how simple fishing rigs are made, where to find good bait, or how to fish safely and ethically.

## “Let’s Make a Fishing Pole” —Teachers Guide

### Extension activities

1. Contact Take-a-Kid Fishing ([www.mndnr.gov/takeakidfishing](http://www.mndnr.gov/takeakidfishing)) to find out opportunities for students in your area.
2. Invite a DNR fisheries biologist to your classroom. Possible topics may include fish rearing and stocking programs, environmental concerns for fish populations, and economics of sport and commercial fishing in Minnesota.
3. Challenge students to become experts on a specific fish species or a fishing issue in Minnesota, such as mercury contamination or monofilament line. See Web Resources/ Related Articles below. Presentations of research might include visual art, writing, video and/or still photography, computer technology (e.g., PowerPoint or Inspiration), and speaking.
4. Arrange a debate between teams of students, arguing for and against the use of lead tackle in sport fishing.
5. Give your students a global perspective by exploring the current state of the oceans’ fisheries. Access the Web sites listed below.
6. Order materials from the DNR Boat and Water Safety section ([www.mndnr.gov/safety/boatwater](http://www.mndnr.gov/safety/boatwater)).
7. Challenge students to take the online Minnesota Fishing Quiz ([www.cloudnet.com/~edrbsass/mnfish.htm](http://www.cloudnet.com/~edrbsass/mnfish.htm)).
8. Students may be interested in learning more about traditional Native American fishing methods and ethics. Contact a tribe near you ([www.indianaffairs.state.mn.us/tribes.html](http://www.indianaffairs.state.mn.us/tribes.html)) to inquire about guest speakers.
9. Contact MinnAqua ([www.mndnr.gov/minnaqua](http://www.mndnr.gov/minnaqua)) for programs or resources that may be brought to your school.

### Web resources

#### Lead Tackle

[www.pca.state.mn.us/oea/reduce/sinkers.cfm](http://www.pca.state.mn.us/oea/reduce/sinkers.cfm)

[www.asafishing.org/asa/government/lead\\_in\\_tackle.html](http://www.asafishing.org/asa/government/lead_in_tackle.html)

[www.adkscience.org/loons/lead.htm](http://www.adkscience.org/loons/lead.htm)

#### Minnesota DNR Fishing Information

[www.dnr.state.mn.us/fisheries](http://www.dnr.state.mn.us/fisheries)

[www.mndnr.gov/publications/fisheries](http://www.mndnr.gov/publications/fisheries)

[www.dnr.state.mn.us/faq/mnfacts/fishing.html](http://www.dnr.state.mn.us/faq/mnfacts/fishing.html)

#### Fishing Knots

[www.animatedknots.com/indexfishing.php](http://www.animatedknots.com/indexfishing.php)

[www.netknots.com/html/fishing\\_knots.html](http://www.netknots.com/html/fishing_knots.html)

#### Ocean Fisheries

[news.mongabay.com/2005/0504-rhett\\_butler.html](http://news.mongabay.com/2005/0504-rhett_butler.html)

[www.sciencedaily.com/releases/2008/12/081215091017.htm](http://www.sciencedaily.com/releases/2008/12/081215091017.htm)

[marinebio.org/Oceans/ThreatenedEndangeredSpecies.asp](http://marinebio.org/Oceans/ThreatenedEndangeredSpecies.asp)

#### Fishing Line

[fishing.about.com/library/weekly/aa111702a.htm](http://fishing.about.com/library/weekly/aa111702a.htm)

[www.fishingminnesota.com/fishinfo63.html](http://www.fishingminnesota.com/fishinfo63.html)

[www.sjwildlifecare.org/the\\_dangers\\_of\\_monofilament\\_and\\_other\\_items.htm](http://www.sjwildlifecare.org/the_dangers_of_monofilament_and_other_items.htm)

## “Let’s Make a Fishing Pole” — Teachers Guide

### Web resources continued

#### Online Minnesota Fishing Quiz

[www.cloudnet.com/~edrbsass/mnfish.htm](http://www.cloudnet.com/~edrbsass/mnfish.htm)

#### Contaminants in Fish

[www.health.state.mn.us/divs/eh/fish/faq.html](http://www.health.state.mn.us/divs/eh/fish/faq.html)

[www.health.state.mn.us/divs/eh/fish/](http://www.health.state.mn.us/divs/eh/fish/)

[www.northlandoutdoors.com/index\\_articles.cfm?id=112576&property\\_id=36](http://www.northlandoutdoors.com/index_articles.cfm?id=112576&property_id=36)

#### Teacher Resources

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

### Related articles

Many related *Minnesota Conservation Volunteer* articles are available online at [www.mndnr.gov/magazine/articles/index.html](http://www.mndnr.gov/magazine/articles/index.html), including:

May–June 1996

“Fish Sense” (YN article with teachers guide)

[www.mndnr.gov/young\\_naturalists/fishsense/index.html](http://www.mndnr.gov/young_naturalists/fishsense/index.html)

March–April 1999

“The Mighty Muskie”

[www.mndnr.gov/volunteer/marapr99/muskie.html](http://www.mndnr.gov/volunteer/marapr99/muskie.html)

January-February 2006

“You Don’t Want to Eat That Raw”

[www.mndnr.gov/volunteer/janfeb06/raw.html](http://www.mndnr.gov/volunteer/janfeb06/raw.html)

July-August 2006

“The Scoop on Minnows”

[www.mndnr.gov/volunteer/julaug06/minnows.html](http://www.mndnr.gov/volunteer/julaug06/minnows.html)

May–June 2008

“VHS: New Threat to Fish”

[www.mndnr.gov/volunteer/mayjun08/vhs.html](http://www.mndnr.gov/volunteer/mayjun08/vhs.html)

“Forecast: Warmer Waters”

[www.mndnr.gov/volunteer/mayjun08/warmer\\_waters.html](http://www.mndnr.gov/volunteer/mayjun08/warmer_waters.html)

“Can’t Wait for Walleye”

[www.mndnr.gov/volunteer/marapr08/walleye.html](http://www.mndnr.gov/volunteer/marapr08/walleye.html)

July–August 2008

“In Search of Blue Pike”

[www.mndnr.gov/volunteer/julaug08/blue\\_pike.html](http://www.mndnr.gov/volunteer/julaug08/blue_pike.html)

November–December 2008

“The Fish that Time Forgot”

[www.mndnr.gov/volunteer/novdec08/muskie.html](http://www.mndnr.gov/volunteer/novdec08/muskie.html)

Note: The *Conservation Volunteer* has published hundreds of articles about fish, fishing, fish management, and fishing-related issues. To learn more, see [www.mndnr.gov/volunteer/article\\_index/subject.html](http://www.mndnr.gov/volunteer/article_index/subject.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.

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### Study Questions

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

1. Why do you think the author refers to Huck Finn and Tom Sawyer? \_\_\_\_\_

\_\_\_\_\_

2. Describe how American Indians fished thousands of years ago. \_\_\_\_\_

\_\_\_\_\_

3. If you want to learn how anglers fished in the seventeenth century what book could you read? \_\_\_\_\_

\_\_\_\_\_

4. How did the author’s dad use spark plugs? \_\_\_\_\_

\_\_\_\_\_

5. Explain why willow or dogwood branches make good fishing rods. \_\_\_\_\_

\_\_\_\_\_

6. What are weirs and how do fisheries biologists use them? \_\_\_\_\_

\_\_\_\_\_

7. As a boy, what bait did the author use to catch bluegills? \_\_\_\_\_

\_\_\_\_\_

8. Why do you suppose bamboo is a good material for a fishing pole? \_\_\_\_\_

\_\_\_\_\_

## “Let’s Make a Fishing Pole”—Teachers Guide

9. If you do not have any fishing line on hand, what might you use as a substitute? \_\_\_\_\_

\_\_\_\_\_

10. Why does the DNR recommend lead-free sinkers? \_\_\_\_\_

\_\_\_\_\_

11. Some anglers pinch down the barb on their hook. Why? \_\_\_\_\_

\_\_\_\_\_

12. Of the eight steps listed in tying an improved clinch knot, which is the most important? Why? \_\_\_\_\_

\_\_\_\_\_

13. Why is a pop can rig suggested for catching crappies, sunfish, and perch? \_\_\_\_\_

\_\_\_\_\_

14. The best bait for any fish is \_\_\_\_\_.

15. If you have left over worms after a day of fishing, what should you do? Why? \_\_\_\_\_

\_\_\_\_\_

16. Public fishing piers are good places to fish for \_\_\_\_\_

\_\_\_\_\_

17. What safety advice could you give to novice anglers? \_\_\_\_\_

\_\_\_\_\_

*Challenge* Why is [www.mndnr.gov/lakefind](http://www.mndnr.gov/lakefind) a good Web site for anglers? \_\_\_\_\_

\_\_\_\_\_

## Study Questions Answer Key

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1. Why do you think the author refers to Huck Finn and Tom Sawyer? **Answers will vary. The author wanted to show that even though fishing technology has changed a great deal, kids can still use simple, inexpensive materials to make fishing rigs, jut like Huck and Tom did a long time ago.**
2. Describe how American Indians fished thousands of years ago. **They used spears, nets, bone hooks on lines and weirs.**
3. If you want to learn how anglers fished in the seventeenth century what book could you read? ***The Compleat Angler*, by Izaak Walton.**
4. How did the author’s dad use spark plugs? **He used spark plugs for sinkers on his homemade fishing rigs.**
5. Explain why willow or dogwood branches make good fishing rods. **They are strong and flexible.**
6. What are weirs, and how do fisheries biologists use them? **Weirs are fish traps made with stone or stakes that funnel fish so they can be caught for studies or to collect eggs.**
7. As a boy, what bait did the author use to catch bluegills? **Bacon**
8. Why do you suppose bamboo is a good material for a fishing pole? **It is light, strong, and inexpensive.**
9. If you do not have any fish line on hand, what might you use as a substitute? **Any kind of string will do.**
10. Why does the DNR recommend lead-free sinkers? **Lead is a poisonous metal and may harm people and wildlife.**
11. Some anglers pinch down the barb on their hook. Why? **To make unhooking the fish easier for the angler and safer for the fish.**
12. Of the eight steps listed in tying an improved clinch knot, which is the most important? Why? **Any of the first seven steps might be listed. However, step eight uses the word “important.” An un-neatened knot is quite likely to snag or unravel.**
13. Why is a pop can rig suggested for catching crappies, sunfish, and perch? **Answers may vary. A pop can rig is not well suited to catching bigger fish because it has no rod or reel.**
14. The best bait for any fish is **one that fits in its mouth.**
15. If you have left over worms after a day of fishing, what should you do? Why? **Save them or throw them in the trash, because earthworms are an invasive species. They harm native plants and animals.**
16. Public fishing piers are good places to fish for **sunfish, crappies, perch, and bullheads.**
17. What safety advice could you give to novice anglers? **Answers may include preventing the transfer of invasive species, informing an adult when and where they are fishing, fishing with a friend, and wearing a life vest if fishing in a boat or off a pier.**

Challenge Why is [www.mndnr.gov/lakefind](http://www.mndnr.gov/lakefind) a good Web site for anglers? **A brief answer to this question is found in the article. Before students try to answer this, ask them to explore this Web site. They will find data on water clarity, environmental warnings, fish species census numbers, and lake maps.**



## Minnesota Comprehensive Assessments Practice Items

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

1. Izaak Walton is well known for

- A. work he has done as a DNR fisheries biologist.
- B. writing *The Compleat Angler*.
- C. catching the state record walleye.
- D. inventing a new kind of muskie lure.

2. Explain how to make a fishing rig out of a pop can. \_\_\_\_\_

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3. Huck Finn and Tom Sawyer were

- A. characters in television show about fishing.
- B. characters in a Mark Twain novel.
- C. players on the Minnesota Twins.
- D. fishing guides on Mille Lacs Lake.

4. What have archeologists discovered about ancient American Indian fishing technology? \_\_\_\_\_

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5. Crickets can be excellent bait for \_\_\_\_\_.

- A. walleye
- B. perch
- C. sunfish
- D. crappie

## Minnesota Comprehensive Assessments Answer Key

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1. Izaak Walton is well known for **B. writing *The Compleat Angler***.
2. Explain how to make a fishing rig out of a pop can. **Answers should include a list of materials: clean, empty pop can; fishing line; tape; hook; sinkers; and bobber. The six steps needed to assemble the rig are: (1) Tie one end of the line to the pop tab. (2) Tape the knot. (3) Wrap the line around the can 50 times. (4) Attach the bobber about 2 feet from the end of the line. (5) Put the sinker halfway between the bobber and the end of line. (6) Tie the hook on the line with an improved clinch knot.**
3. Huck Finn and Tom Sawyer were **B. characters in a Mark Twain novel**.
4. What have archeologists discovered about ancient American Indian fishing technology? **They have discovered that Indians used a variety of methods for catching fish, including harpoons, hooks, nets, canoes, decoys, and weirs.**
5. Crickets can be excellent bait for **C. sunfish**

## Vocabulary

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**anglers** people who fish with a hook and line

**aquatic** living in or near water

**archeologist** person who studies the human past

**bamboo** tall, woody, hollow tropical plant that grows in dense clumps

**Dacron** polyester fiber often used to make braided fish line and sails

**harpoon** spear with cord attached; used to hunt fish and aquatic mammals

**graphite** carbon fiber; light, flexible and strong; used to make fishing rods, golf club shafts, and bows

**monofilament** a single strand of fiber

**pier** platform built on stilts that juts out into the water from the shore

**predator** animal that kills and eats other animals

**species** group of similar organisms that may reproduce

**split-shot** sinker cut halfway through; line is threaded in the slot and  
**sinker** the sinker squeezed tight, holding the sinker in place

## “Let’s Make a Fishing Pole”—Teachers Guide

### Vocabulary Study Cards

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

Who are  
**anglers?**

FOLD HERE

**People who fish with  
a hook and line  
are called**

When a plant or animal is  
**aquatic** it

FOLD HERE

When a plant or animal  
**lives in or near water** it is

What is an  
**archeologist?**

FOLD HERE

**A person who studies the  
human past** is called an

### Vocabulary Study Cards

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

What is  
**bamboo?**

FOLD HERE

**A tall, woody, hollow tropical plant that grows in dense clumps is called**

What is  
**Dacron?**

FOLD HERE

**A polyester fiber often used to make braided fish line and sails is called**

What is a  
**harpoon?**

FOLD HERE

**A spear with cord attached used to hunt fish and aquatic mammals is a**

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

What is  
**graphite**?

FOLD HERE

What is a **carbon fiber** that  
is **light, flexible and strong**,  
and is used to make **fishing  
rods, golf club shafts, and  
bows** called?

What does  
**monofilament**  
mean?

FOLD HERE

A **single strand of fiber**  
is a

A **pier**  
is a

FOLD HERE

A **platform built on stilts**  
that **juts out into the water**  
from the shore is a

## “Let’s Make a Fishing Pole”—Teachers Guide

### Vocabulary Study Cards

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

What is a  
**predator**?

FOLD HERE

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

A plant or animal  
**species** is a

FOLD HERE

**A group of similar  
organisms that may  
reproduce with other  
members of the group** is  
called a

A **split-shot sinker**  
is a

FOLD HERE

**A sinker cut halfway through**  
is called a

# “Let’s Make a Fishing Pole”—Teachers Guide

## Vocabulary Study Cards

Teachers guide for the Young Naturalists article “Let’s Make a Fishing Pole” by Roland Sigurdson. Illustrations by Bill Reynolds. Published in the May–June 2009 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/fishing\\_pole](http://www.mndnr.gov/young_naturalists/fishing_pole).

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

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