

Pop Can Casting

Pop can casting is a can-do activity!



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Chapter 5 • Lesson 3

Please note: Academic Standards are updated regularly and our alignments will be updated on the DNR Academic Standards Website at: www.mndnr.gov/education/teachers/edstandards_intro.html

Pop Can Casting

Minnesota Academic Standards

- ☉ Lesson *introduces* this Benchmark.
- ☑ Lesson *partially* addresses this Benchmark.
- ☑ Lesson *fully* addresses this Benchmark.

Language Arts

Grades 3, 4, and 5

I. Reading and Literature

B. Vocabulary Expansion:

Benchmark 1—The student will acquire, understand and use new vocabulary through explicit instruction and independent reading. ☑

III. Speaking, Listening and Viewing

A. Speaking and Listening:

Benchmark 2—The student will demonstrate active listening and comprehension. ☑

Grade 3

III. Speaking, Listening and Viewing

A. Speaking and Listening:

Benchmark 3—The student will follow multi-step oral directions. ☑

History and Social Studies

Grade 4-8

V. Geography

D. Interconnections:

Benchmark 2—Students will analyze how the physical environment influences human activities. ☑

Science

Grade 4

I. History and Nature of Science

A. Scientific World View:

Benchmark 1—The student will explore the uses and effects of science in our interaction with the natural world. ☑

Benchmark 2—The student will discuss the responsible use of science. ☑

Benchmark 3—The student will recognize the impact of scientific and technological activities on the natural world. ☑

Environmental Literacy Scope and Sequence

Benchmarks

- Social and natural systems are made of parts. (PreK-2)
- Social and natural systems may not continue to function if some of their parts are missing. (PreK-2)
- When the parts of social and natural systems are put together, they can do things they couldn't do by themselves. (PreK-2)
- In social and natural systems that consist of many parts, the parts usually influence one another. (3-5)
- Social and natural systems may not function as well if parts are missing, damaged, mismatched or misconnected. (3-5)

For the full Environmental Literacy Scope and Sequence, see:

www.seek.state.mn.us/eemn_c.cfm

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Chapter 5 • Lesson 3

Pop Can Casting

Grade Level: 3-5**Activity Duration:** 60 minutes**Group Size:** any**Subject Areas:** Language Arts, Social Studies, Science, Environmental Education, Physical Education**Academic Skills:** application, communication, kinesthetic concept development, observation**Setting:** Warm-up, Part 1, and Part 3: indoor or outdoor gathering area with tables

Part 2: large indoor or outdoor gathering area

Vocabulary: improved clinch knot**Internet Search Words:** casting, knot tying

Instructor's Background Information

Traditionally, people have fished to feed themselves, their families, and their communities. Archeological research and ancient literature reveal that fishing has been as important as hunting to many aboriginal people worldwide. The survival of numerous ancient tribes and civilizations depended on fishing skills. Knowledge of fish behavior, migration patterns, and habitats were essential for people who relied on fishing. Having a bad fishing day just wasn't an option when lives depended on an adequate supply of fish. Many people in the world still rely on fish as a primary food source. People who depend on the fish they catch as a primary food source are involved in the activity referred to as subsistence fishing.

Sport fishing, or angling for enjoyment, began in medieval times. Sport anglers may fish for food, too, but fish isn't these anglers' primary food. The sport angler has fun fishing and enjoys the challenges of learning about fish behavior and developing fishing skills. These anglers also enjoy spending time outdoors, appreciating nature, and spending time with friends and family. Fly-tying, boating, making fishing equipment, and taxidermy are fulfilling, lifelong hobbies for many sport anglers. In Minnesota, more people fish per capita than in any other state. The majority of these anglers fish for recreation or sport rather than subsistence.

Many techniques for harvesting fish have been developed over the centuries. People have long used everyday materials to make fishing gear. Techniques include: catching fish with bare hands, hooks and lines, spears, nets, night fishing with lights, weirs (traps), and dip nets. The rod and reel assembly used by most modern sport anglers is a relatively recent invention, first documented in fifteenth century

Summary

In this activity, students will learn that, like early native peoples and Minnesota settlers, they can use everyday materials to make fishing gear. They'll learn how to tie a clinch knot and make a pop can rig. They'll practice casting, using hula-hoops to simulate fish cover. Once they've mastered casting, they'll learn basic fish handling and release techniques. The final step is rigging the pop can with hooks, bobbers, and sinkers in preparation for the fishing trip—and learning the signs that tell you that you've got a bite!

Student Objectives

The students will:

- 1 Tie an improved clinch knot.
- 2 Make a fishing rig from a pop can.
- 3 Demonstrate how to accurately cast a line.
- 4 Relate fishing techniques to fish habits and habitats.

Materials

- **Pop Can Rigging Sheet**, one per student
- **To Cast Your Line**
- **Tying an Improved Clinch Knot Sheet**, one per student
- Four to six hula-hoops
- Nylon cord or rope (five pieces per hula-hoop—quarter-inch thick, cut in two-foot lengths)
- One or two needlenosed pliers
- One or two fingernail clippers
- Three or four rolls of masking tape
- Construction paper (for making cover props such as lily pads, stumps, docks, rocks)
- Scissors
- Eye screws, paper clips, or magnets (for K-2 Option)
- Adult helpers, one for every five to ten students

Enough for each student:

- sinkers
- bobbers
- #6 or #8 hooks
- clean pop cans (residual sugar attracts bees, leading to painful stings)
- monofilament line pony spools (6-pound test)
- casting plugs

literature. In many parts of the world, angling is still done by hand with a hook and line rather than with a rod. The hook, bait, and weight are simply cradled in the angler's throwing hand while holding the end of the line with the other. The whole assembly is then tossed into the water toward good fish habitat.

Although many people who fish today take advantage of widely available technological advances in fishing gear and equipment, such as graphite rods, depth finders, and underwater cameras, expensive high-tech equipment isn't necessary for catching fish and enjoying angling. Everyday materials can still be used to make a fishing rig. In this lesson, basic hook and line fishing techniques will be used to construct pop can fishing rigs.

Pop can fishing rigs are simple to make with a few basic supplies. With an ordinary pop can, a length of monofilament fishing line, a bobber, sinker, hook, and the improved clinch knot (a versatile fishing knot), students will make their own fishing rig. Catching fish on rigs they've made themselves is exciting and satisfying for students.



The pop can rig is made from everyday materials—and it works!

Pop can casting was developed to allow participants to learn basic fishing skills using limited resources. Everyone can learn to enjoy the thrill of sport angling. Many instructors find that this simple fishing gear allows students to learn about and experience ancient fishing techniques.

Today, we may not often think about the source of our food. Our modern lives can seem quite disconnected from the skill and work that brings our food to the supermarket. Today, we simply buy fish provided

by commercial fishers. Fishing with pop can casters can help students learn some basic skills needed to acquire food for themselves. They will also begin to understand and appreciate how environmental resources provide for our daily needs.

Procedure

Preparation

- 1 Gather supplies from the Materials List.
- 2 Make a sample pop can caster to show to students before beginning the lesson.

Activity

Warm-up

- 1 Minnesota has many lakes and rivers with fish. Ask students to discuss foods eaten by early native peoples and Minnesota settlers. Did they have grocery stores back then? Did their diet include fish? Discuss the different fishing methods that these people may have used. Where did they get materials to make their fishing gear?
- 2 Where do we get the materials for fishing gear today? Do we *need* expensive equipment to catch fish? Tell students that, if they know how to rig a line, they can use everyday materials to make a fishing rig that will catch fish!
- 3 Begin by teaching the group how to tie a clinch knot. This knot is important because it links your hook to the line. Without a sturdy setup, you're likely to lose your fish!
- 4 Pass out the **Tying an Improved Clinch Knot Sheets**. Using a hula-hoop and nylon cord, demonstrate how to tie an improved clinch knot as shown on the handout. The hula-hoop represents the eye of the hook. The nylon cord represents the fishing line. One end of the fishing line is the end of the line that would be attached to the pop can; the other end of the cord is the free end (or tag end) of the line.
- 5 Have a student hold the hula-hoop while you talk through the steps and tie the knot.
- 6 Untie the knot and have the class talk you through the steps as you tie the knot again.
- 7 Divide the class into groups of four or five, and give each group a hula-hoop. Give each person a length of cord and ask the student to practice tying the knot onto the hoop. Assist those who need additional help, and encourage those who tie the knot successfully to help others.
- 8 Make sure everyone has mastered this knot before going on to rigging.





Make sure that the pop cans are clean. Residual sugar attracts bees, leading to painful stings.



With any group, it's important to emphasize safety when casting. Make sure students stand several feet apart. Remind everyone to look around for other people, overhead wires, branches, and other obstacles before casting.



Many students have seen people cut fishing line by biting the line with their teeth. This is a safety concern because people can chip teeth or swallow a loose piece of line. Use nippers or nail clippers to cut fishing line. Many students have seen someone secure a sinker by biting on it. Sinkers are easily swallowed and they're made of hard metal that can chip teeth. Use needlenosed pliers to open and secure sinkers. Most sinkers are still made of lead, which can be toxic if ingested. Always keep sinkers away from the mouth.

Lesson

Part 1: Make the Pop Can Casters

Your group is now ready to construct the pop can rig shown on the **Pop Can Casting Sheet**. These rigs take the place of a rod and reel—and yes, you can catch fish with these rigs!

- 1 Hand out the **Pop Can Casting Sheet**.
- 2 Set up the empty pop cans, masking tape, fishing line, clippers, and casting plugs at tables, allowing enough work space for everyone.
- 3 Have students follow the steps on the sheet.
- 4 At this time, change Step 4 on the handout to attaching only a casting plug with an improved clinch knot so students can use the pop can rigs for casting practice.

Part 2: Casting for Cover

- 1 Discuss the importance of casting close to cover. For instance, largemouth bass wait for prey in the shade of a lily pad. Our fishing lure imitates prey. If we can fool the bass, we'll get a bite!
- 2 Demonstrate the proper technique for casting a pop can rig. Make sure your hand or thumb isn't over the line wrapped around the can.
- 3 To practice casting, and to reinforce the importance of habitat in picking a fishing spot, set up a pop can casting course. Place hula-hoops on the ground for targets. Set up a series of stations golf course-style, with each station representing a different fish habitat. For example, put construction paper lily pads around one hula-hoop to represent good largemouth bass habitat. Then let the group "cast for cover" from fifteen to twenty feet away. Allow everyone at least three tries at each station before moving to the next station. Once a person casts inside the hula-hoop, they should be asked to identify the type of fish they would have caught and move on to the station of their choice. Watch the group and help as needed.

Part 3: Rigging for Fishing

- 1 Remove the casting plugs.
- 2 Refer to the **Pop Can Rigging Sheet** distributed earlier.
- 3 Have the students pull a two-foot length of line from the pop can.
- 4 Demonstrate how to attach each piece of tackle (bobber, sinker, and hook). (See **Lesson 5:2—Casting a Closed-face Rod and Reel Combo** for detailed instructions on how to rig a line.)
- 5 Hand out the tackle one piece at a time so students don't lose the small pieces. Have students rig their pop can casters.
- 6 It might help to tape the hook to the top of a desk or table using a piece of masking tape, with the eye exposed over the edge. The sharp hook is safely secured, and the students then have both hands free for tying the knot.
- 7 Check to make sure that everyone has properly rigged their pop can caster.
- 8 Review how to safely carry the pop can casters.

Wrap-up

Remind students that they don't need a lot of expensive equipment to go fishing. Once they know how to tie a clinch knot and attach a split shot sinker and bobber, they can make their own pole and reel with an empty, clean soda pop can! The pop can rig will work best when fishing for crappies, sunfish, and perch. Now you are ready to go fishing. See **Lesson 6:1—Water's Edge Safety and Fishing** to plan your fishing trip.

Assessment Options

- 1 Assess accurate construction of the pop can rig. Ask students to describe the importance of tying good fishing knots, and how they will handle the fish they catch. Ask students to think of everyday materials other than pop cans that could be used to make fishing rigs. How would they make rigs from these items?
- 2 Have students draw or describe the different habitats in a lake, indicating the best places to cast for specific types of fish (such as bluegills or crappies).
- 3 Assessment options include the Checklist and Rubric on the following pages.

**Get the Lead Out**

Consider using fishing tackle that doesn't contain lead. Lead is a toxic metal and, in sufficient quantities, it adversely affects the nervous and reproductive systems of mammals and birds. Ask for non-lead tackle at your bait shops.

Checklists are tools for students and instructors. Checklists involve students in managing their own learning. They help students understand and set learning goals before the lesson begins, and help them monitor their progress during the lesson, ensuring that they meet learning goals and objectives by the end of the lesson. Students can also use checklists to discover areas that may need improvement. Checklists help instructors monitor each student's progress throughout the lesson, facilitating appropriate adjustment of instruction to ensure learning by the end of the lesson. The instructor may wish to have students add several of their own learning goals to the checklist to personalize it, and to accommodate varied learning needs and styles.

Grade

20-22 points = A

Excellent. Work is above expectations.

18-20 points = B

Good. Work meets expectations.

14-18 points = C

Work is generally good. Some areas are better developed than others.

11-14 points = D

Work does not meet expectations; it's not clear that student understands objectives.

0-10 points = F

Work is unacceptable.

Pop Can Casting Checklist

Possible Points	Points Earned	Points Earned	
	Student	Instructor	
2	_____	_____	Tie a clinch knot with both rope and monofilament line.
2	_____	_____	Explain the importance of a clinch knot.
3	_____	_____	Correctly place the hook, bobber, and sinker on the line.
3	_____	_____	Describe the reason for using a hook, bobber and sinker.
4	_____	_____	Make a pop can caster without extra assistance.
3	_____	_____	Aim for cover and accuracy rather than distance in casting.
3	_____	_____	Identify three types of fishing equipment or methods used in Minnesota before European settlement.
2	_____	_____	Understand that, historically, people have used available materials to make fishing rigs.
Total Points			
22	_____	_____	Score _____

Pop Can Casting Scoring Rubric

Skill Criteria	4 Excellent	3 Good	2 Fair	1 Poor	0 Unacceptable
Clinch knot	Can tie a clinch knot with both rope and monofilament line. Can explain the importance of using a clinch knot.	Can tie a clinch knot with both rope and monofilament line. Has an idea why fishing knots are important.	Can tie a clinch knot with a rope but needs help tying the knot using monofilament line. Can't explain the importance of the knot.	Can't tie a clinch knot unassisted.	Didn't try to tie a clinch knot.
Hook, bobber, and sinker	Can correctly place the hook, bobber, and sinker on the line unassisted. Can describe the reason for each item.	Can correctly place the hook, bobber, and sinker on the line unassisted. Can describe the reason for two of the items.	Can attach a hook, bobber, and sinker, but places two of the items in the incorrect spot on the line. Can describe the reason for two of the items.	Needs assistance in placing the hook, bobber, and sinker on the line; doesn't know the reason for each of the items.	Didn't try to rig the line.
Pop can caster making and casting for cover	Can make a pop can caster without assistance and aims for cover and accuracy rather than distance in casting.	Can make a pop can caster without assistance and aims for cover for 75% of their casts with the pop can rig.	Can make a pop can caster with slight help from instructor. Aims for cover and accuracy in 50% of their casts with the pop can rig.	Can make a pop can caster with significant help. Aims for cover and accuracy in less than 50% of their casts with the pop can rig.	Didn't follow directions and didn't complete the pop can caster.
History of fishing	Can identify three types of fishing equipment or methods used in Minnesota before European settlement. Understands that people used everyday materials to make fishing rigs.	Can identify two types of fishing equipment or methods used in Minnesota before European settlement. Understands that people used everyday materials to make fishing rigs.	Can identify one type of equipment or method used in Minnesota before European settlement. Understands that people used everyday materials to make fishing rigs.	Can't correctly identify a type of equipment or method used in Minnesota before European settlement.	Can't identify a type of equipment or method used in Minnesota before European settlement.

Score _____ (Calculate score by dividing total points by number of criteria.)

Diving Deeper

Extensions

- 1 Introduce live bait hunting. Have students search the school area for insects, worms, and other invertebrates that would make good fishing bait to use with their pop can casters.

For the Small Fry

K-2 Option

- 1 Prepare the pop can casters ahead of time. Tape the hook to the can for safety.
- 2 Teach students how to tie the improved clinch knot with ropes and hula-hoops. Young students may not always be able to tie the knot with the fishing line, but they can tie the knot with rope and some assistance.
- 3 Attach fishing line to dowels or hula-hoops. Have students handle the bobbers and practice opening the hooks on each side. Then have students put bobbers on fishing line. (**See Lesson 5:2—Casting a Closed-face Rod and Reel Combo** for detailed instructions on how to rig a line and attach a bobber.) Students can also practice closing sinkers on fishing line. Use eye screws to practice attaching the line to a hook. Students can try to tie the knot with the fishing line, and a paper clip or magnet can be attached to the end of the line instead of an eye screw so the students can place the “hook” in the correct place on the line. Review the order that the tackle needs to be placed on the fishing line.
- 4 Review how to safely carry hooks. Have them practice carrying the fully-rigged pop cans. (Hooks can still be covered.)
- 5 Practice fishing with the pop cans using casting plugs, or with the hooks covered with paper and tape. (The paper helps with tape removal later—hooks covered in tape alone are very hard to get out of the tape!) Students can drop the plug to the floor and practice wrapping the line around the can to reel in the fish. Casting is not necessary, especially if fishing on a dock or pier. See **Lesson 6:1—Water’s Edge Safety and Fishing** to plan your fishing trip.

STUDENT COPY

Pop Can Rigging Sheet

You don't need a lot of expensive equipment to fish. Once you know how to tie a clinch knot and attach a split shot sinker and bobber, you can make your own pole and reel from an empty, clean soda pop can! Your soda pop can rig will work best when fishing for crappies, sunfish, and perch.

Materials for a Pop Can Rig

- One clean, empty pop can (must be clean: sugary pop attracts bees!)
- Masking tape
- 6- to 8-pound test fishing line (about 50 wraps)
- Fingernail clipper to cut the line
- Hook
- Split shot sinker (or sinkers)
- Bobber

Build Your Pop Can Rig

1. Tie one end of the line to the tab on the soda pop can, or around the top of the can with a knot.
2. Securely tape the knot and fishing line near the top of the soda pop can.
3. Wrap the line around the pop can 50 times. Tape the line down and leave approximately 2 feet of line loose from the can.
4. Attach the bobber, split shot sinker, and hook.



STUDENT COPY*To Cast Your Line*

1. Unwind your line about two feet past the bobber.
2. Hold the top end of the pop can in one hand and the bobber in your other hand. Remember not to cover the line wrapped on the pop can with your hand or fingers as you cast.
3. Point the bottom end of the pop can at the place in the water where you want the bobber to fall.
4. Toss the bobber underhanded toward the water.
5. The rest of the line should unwind and follow.



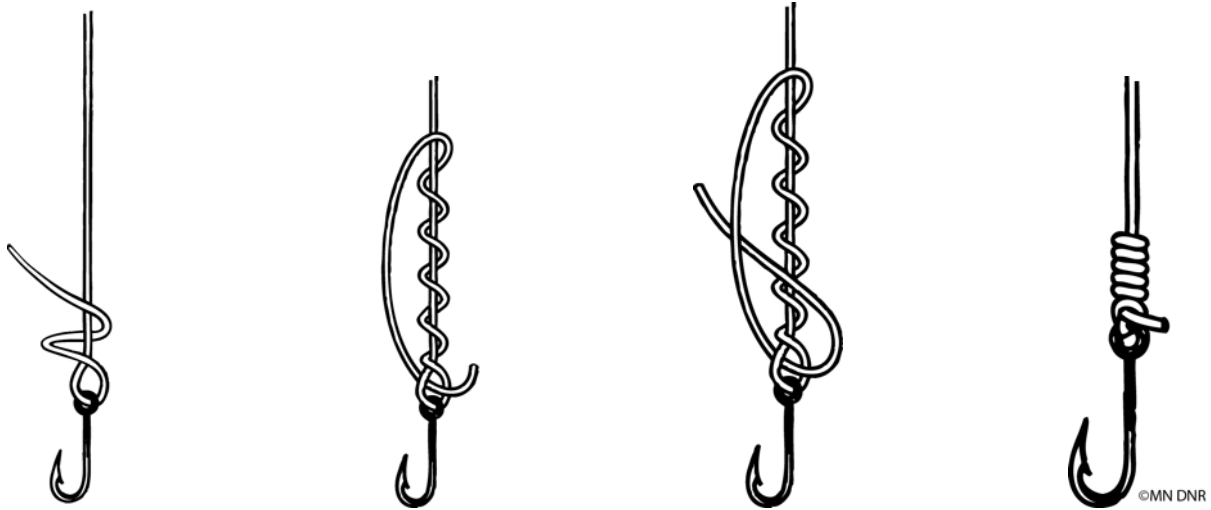
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To Reel in Your Fish

If your bobber tells you that you've got a bite, give the line a quick jerk to set the hook. If using circle hooks, just begin to wind the line without setting the hook. Then wind the line around the can, keeping it tight until you can grab the fish.

STUDENT COPY*Tying an Improved Clinch Knot Sheet*

The clinch knot is probably the most popular fishing knot used today. When properly tied, the clinch knot is very strong and it won't slip. This is a versatile fishing knot, and it can also be used to attach lures to your fishing line.



1. Thread one end of the line through the eye of the hook.
2. Wrap the line around itself five times to make five twists. Fishing tackle manufacturers have found that five wraps of the line work best. With fewer than five wraps, fish might pull out the knot. With more than five wraps, the line may break.
3. Take the tag (loose) end of the line and put it through the first twist, near the hook.
4. Notice the new loop you have made. Take the same tag end and pass it through the new loop. (This is the “improved” part of the knot that prevents it from slipping.)
5. Drop this end.
6. Slide the whole knot down to the hook.
7. Gently tug on the end you previously dropped.
8. Neaten the knot. It's important to make sure the knot is “neat,” or that the coils are tightly lined up. If there are loose wraps, or wraps on both sides of the eye, the knot may snag and break.
9. Voila! There should be neatly stacked coils lined up next to the eye.