

Making Ice Fishing Jiggle Sticks

"Cold, alone, and waiting—ah, the good life."

—The title of an article on Lake Mille Lacs ice fishing
by Abraham McLaughlin, *The Christian Science Monitor*, February 18, 1999



Table of Contents

Making Ice Fishing Jiggle Sticks	5:7-A
Minnesota Academic Standards	5:7-C
Minnesota Environmental Literacy Scope and Sequence	5:7-C
Instructor’s Background Information	5:7-1
Summary	5:7-1
Student Objectives	5:7-1
Materials.....	5:7-1
Procedure.....	5:7-3
Activity.....	5:7-4
Assessment Options	5:7-5
Checklist.....	5:7-6
Scoring Rubric	5:7-7
Extensions	5:7-8
K-2 Option.....	5:7-8
Basic Ice Fishing Equipment Cards	5:7-9
Making and Rigging a Jiggle Stick Sheet.....	5:7-12
Tying an Improved Clinch Knot Sheet	5:7-13
Setting Bobber Depth Sheet	5:7-14

Chapter 5 • Lesson 7

Making Ice Fishing Jiggle Sticks

Minnesota Academic Standards

- ☉ Lesson *introduces* this Benchmark.
- ☪ Lesson *partially* addresses this Benchmark.
- ☺ Lesson *fully* addresses this Benchmark.

Language Arts

Grades 3, 4, 5

I. Reading and Literature B. Vocabulary Expansion:

Benchmark 1—The student will acquire, understand and use new vocabulary through explicit instructions 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

V. Geography D. Interconnections:

Standard: The student will give examples that demonstrate how people are connected to each other and the environment.

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 responsible use of science. ☪

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

Minnesota 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 Minnesota Environmental Literacy Scope and Sequence, see:

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

Chapter 5 • Lesson 7

Making Ice Fishing Jiggle Sticks

Grade Level: 3-5

Activity Duration: 90 minutes

Group Size: any

Subject Areas: Language Arts, Social Studies, Science, Environmental Education

Academic Skills: application, communication, construction, demonstration, observation, problem solving, small group skills

Setting: indoor gathering area with tables and chairs

Vocabulary: clip-on depth finder, hand auger, ice scoop, jiggle stick, jigging rod and reel, rattle reel, spinning combo, throwable personal flotation device, tip-up

Internet Search Words: children and ice fishing, ice fishing equipment

Instructor's Background Information

Minnesotans have traditionally and enthusiastically participated in winter sports and activities. Finnish, Norwegian, and Swedish settlers brought ice fishing to Minnesota. Ice fishing is a great way to take advantage of cold, snowy weather. With basic equipment, a few skills, and good planning, ice fishing can be easy, enjoyable, and exciting.

In this lesson, students will learn about ice fishing equipment and skills. They will also learn that ice fishing outings will be even more fun when they use ice fishing rods that they've made themselves.



Before taking students on an ice fishing trip, complete **Lesson 6:2—Ice Fishing and Winter Safety** to prepare students for winter weather, ice conditions, ice fishing safety—and fun.

Equipment

Ice fishing gear is different than fishing gear used during other parts of the year. Ice fishing rods are short because ice fishing doesn't require casting. The line guides are wide to accommodate ice filling some of the space. Reels are simple—or absent—because, with no casting involved, they merely hold line.

A lightweight monofilament fishing line (4- to 8- pound test) is sufficient for most types of ice fishing trips. If you're fishing for northern pike or walleye, use the heavier line.

Summary

Students make and rig their own ice fishing jiggle sticks.

Student Objectives

The students will:

- 1 Identify the equipment used in ice fishing.
- 2 Tie an improved clinch knot.
- 3 Assemble and rig a jiggle stick.

Materials

Part 1: Equipment and Techniques

- Hand auger or ice chisel (optional)
- Ice scoop (also known as a skimmer), to remove ice chips from fishing hole
- Ruler
- Rod and reel types, including a jiggle stick, jigging rod, spinning combo, tip-up, rattle reel (collect as many of these as possible, or use pictures)
- Clip-on depth finder
- Needlenosed pliers
- Fingernail clipper
- Ice rescue claws (optional)
- Small tackle box with tackle such as ice flies (optional)
- First aid kit
- Throwable personal flotation device
- Bucket, for carrying things and, later, to sit on
- Wool blanket
- Sled
- **Basic Ice Fishing Equipment Cards** (or projection overhead)

Part 2: Knot Tying

- Nylon cord or rope (one-quarter-inch thick, cut in two-
- continued*

Materials (continued)

- foot lengths), one per student
- Hula-hoops, one for each group of four or five students
- **Tying an Improved Clinch Knot Sheet**, one per group
- Adult helpers, one per group

Part 3: Making and Rigging a Jiggle Stick

- Wood dowels (one-half to three-quarter-inch diameter, cut in eighteen-inch lengths), one per student
- Eye screws, at least one per student
- Square bend screws, at least two per student
- Pony (small) spools of 4- to 8-pound test monofilament line, one per student
- Bobbers, one -inch round clip-on type, at least one per student
- Split shot sinkers, four-ounce (preferably non-lead), at least one per student
- Hooks, sizes 6, 8, or 10, at least one per student (if available, try circle hooks with a long shank; see photo in **Lesson 5:2—Casting a Closed-face Rod and Reel**, or use ice flies, which are small hooks with colored “heads”)
- Rubber bands, at least one per student
- Scissors or fingernail clipper, one per adult helper
- Needlenosed pliers, one per adult helper
- **Making and Rigging a Jiggle Stick Sheet**
- **Setting Bobber Depth Sheet**
- Adult helpers, one for each group of four or five students

Basic Equipment for Ice Fishing

To prepare for an ice fishing trip, you'll need to collect some basic equipment in addition to jiggle sticks. These are some other items that will make your fishing trip successful and lots of fun.

Hand auger—To catch fish through the ice, you must first drill a hole. Traditionally, people used long chisels to chip holes in the ice. The invention of the hand ice auger in the 1940s made this chore much easier. An auger looks like a giant screw with a sharp blade on one end. To use an auger, push down on the top of it as you wind the handle—two people can do this together. Power augers make hole-drilling fast and easy, but they're too heavy for children. Another handy tool is a **spud**, a long-handled chisel with a sharp blade, which is used to check ice thickness and chip extra ice from holes.

Ice scoop—A ladle-type tool with small holes is used to scoop ice chips from the hole so they don't freeze to the line and keep the angler from noticing a bite.

Ruler—Use this to measure ice thickness and the length of the fish you catch. Some scoops have rulers etched into their handles, or you could tape a rule to the handle.

Jiggle stick—This is a fishing pole without a reel. The line wraps around two pegs. A long pole and reel aren't necessary for ice fishing because there is no casting. A reel isn't necessary: when a fish is on the line, the angler drops the rod and pulls the line by hand. Moving the stick up and down is referred to as jigging and entices fish to the bait. Students will learn to make their own jiggle sticks in this lesson.

Jigging rod and reel—This type of ice fishing rod has a reel that holds the line. The reel has no drag feature, so the line comes out freely.

Spinning combo—This rod looks more like those used in summer, only shorter, and with larger line guides. It has a spinning reel (or open-face reel) that holds the line and has drag, that can be set so line doesn't come out freely.

Tip-up—Some anglers use a tip-up for larger fish such as northern pike and walleye. A tip-up allows hands-free fishing. A tip-up rests over the hole. A short rod swings down into the water—it's attached to a spool with line. Tip-ups are used with larger bait such as a big sucker minnow. When a fish takes the bait, a flag springs up from the stick and across the hole to alert the angler, who can then pull the fish up with the line. (Minnesota fishing regulations allow anglers to use as many as two fishing rigs at a time while ice fishing.)

Rattle reel—Who says you even need a rod? Sometimes anglers attach a free-spinning reel with no drag to the wall of their fish house. These reels have a mechanism that clicks as the line comes off the reel, alerting the angler. As the fish makes off with the bait, the wooden spool spins, causing the beads or bells inside to click or rattle, hence the name.

Clip-on depth finder—A weight on a spring-clip that helps locate the desired position to set the bobber on the line so the bait or lure will be at a specific depth in the water while fishing.

Bait—For ice fishing, use worms in a Styrofoam container or minnows in Styrofoam bait bucket with a minnow scoop. The Styrofoam will keep bait from freezing.

Small tackle box—Inside the tackle box should be a clip-on depth finder for setting the location of the bobber, needlenosed pliers for removing hooks, a fingernail clipper to cut line, hooks, bobbers, and sinkers.

Ice rescue claws—If anglers fall through the ice, they can use these as handholds to pull themselves out of the water.

First aid kit—This should include bandages and hand warmers, for emergencies.

Throwable personal flotation device—The PFD should be on a rope so it can be thrown just past an angler who has fallen through the ice.

Wool blanket—Someone might get cold or wet.

Buckets—An overturned bucket makes a great chair—and a good container for transporting fish.

Sled—To carry gear or pull someone to shore in an emergency.

If this seems like a lot of gear, it is! Ask an ice fishing enthusiast to bring their equipment to show to your class. You may wish to find out if a local sportsman's club or sporting goods store will donate fishing gear and tackle to your group.

Fish Houses and Shelters

Some ice anglers use fish houses or shelters, which block the wind and offer relief from the weather. Portable propane heaters provide quick warmth.

Fish houses can make an ice fishing experience much more enjoyable with children. With a group of children, it may be good to have at least one fish house on the ice to serve as a windbreak or warming house. You may wish to ask a local ice angling enthusiast to set up a fish house for your group.

Procedure

Preparation

- 1 Find adult volunteer helpers.
- 2 Collect equipment and materials.
- 3 Cut the nylon cord or rope into two-foot lengths for your class. Consider melting or knotting the ends so they don't come unraveled.
- 4 Cut dowels into eighteen-inch lengths and pre-drill three holes in each, as shown on the **Making and Rigging a Jiggle Stick Sheet**. Drill the holes in line with one another. Drill one hole one and one-half inches from the tip, one hole nine inches from the tip, and the last hole twelve inches from the tip, for a total of three holes, all in line with one other.
- 5 Make copies of the **Tying an Improved Clinch Knot Sheet**, one per group of four or five students. (Copy one per student if you think they'd like to take one home.)



The heaters in fish houses can be safety hazards, so take precautions if you use them. Anglers are tempted to get too close to them when cold and wet, resulting in burnt skin, singed clothes, or fires. Define a boundary between students and heaters, and don't allow students to hang mittens and socks on them. Heaters also produce carbon monoxide, a deadly gas. Follow these tips to prevent carbon monoxide build-up inside the fish house:

- Use only those heaters listed and approved for indoor use.
- Follow the manufacturer's installation recommendations.
- Check all gas connections for leaks.
- Place propane cylinders outside the fish house.



Tip-ups that automatically set the hook are illegal in Minnesota.

- 6 Make copies of the **Making and Rigging a Jiggle Stick Sheet**, one per group of four or five students.

Activity

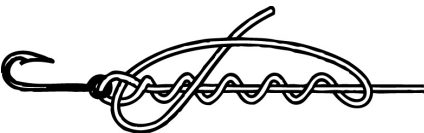
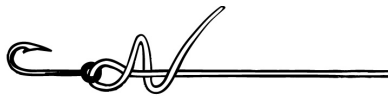
Warm-up

- 1 Ask the students what type of winter outdoor activities they enjoy. Have any students ever been ice fishing? What was it like—or what do they think it would be like? Discuss how winter fishing is different than fishing in the summer.
- 2 Tell the students that they will make their own jiggle sticks to use for ice fishing.

Lesson

Part 1: Ice Fishing Equipment and Techniques

Show the students the ice fishing equipment. Have them help you deduce how each piece is used. You can use the cards, or project the images on the **Basic Ice Fishing Equipment Cards**.



Part 2: Knot Tying

- 1 The knot that attaches your hook to your line is important. If it's not tied properly, you could lose your fish! Using a hula-hoop and nylon cord, demonstrate how to tie an improved clinch knot as shown on the **Tying an Improved Clinch Knot Sheet**.
- 2 Have a student hold the hula-hoop while you talk through the steps on the sheet and tie the knot. The hula-hoop represents the eye of the fish hook. The length of cord represents fishing line.
- 3 Untie the knot and have the class talk you through the steps as you tie the knot again.
- 4 Divide the class into groups of four or five and give each group a hula-hoop. Give each student a length of cord and ask them to practice tying the knot onto the hula-hoop. Assist those who may need additional help, and encourage those who can tie the knot to help others.
- 5 Make sure everyone has mastered this knot before making jiggle sticks.

Part 3: Making and Rigging Jiggle Sticks

- 1 Divide the students into small groups, with one adult helper for each group. Give each adult a pair of needlenosed pliers, scissors or fingernail clipper, and the **Making and Rigging a Jiggle Stick Sheet**.
- 2 Hand out the dowels, square bend screws, and eye screws. Have the students twist the screws into the predrilled holes in the dowels as shown on the sheet. An adult may need to help with the last few twists by using needlenosed pliers.
- 3 Hand out the spools of line. Have students tie an improved clinch knot on one of the square bend screws.
- 4 Make about 80 wraps around the square bend screws. Cut the line with scissors or a fingernail clipper. Thread the tag end (or free end)

of the line through the eye on the tip of the stick.

- 5 Have the students pull out line so that about two feet of line hangs from the tip of the rod. Hand out the tackle one piece at a time so students don't lose the small pieces.
- 6 Hand a split shot sinker to each student. Split shot sinkers are the easiest for students to put on and remove by themselves. Notice that one end has "wings" and the other has a deep slit, or "mouth." If you squeeze the wings together, the mouth opens. Open the mouth slightly, using needlenosed pliers or your fingers, and slide in the line—about nine inches from the end of the line. Now squeeze the mouth of the sinker tight onto the line with your fingers. Occasionally, you'll need pliers to help squeeze the sinker. If you use ice flies or teardrops, they're already weighted, but you may still need to place a split shot sinker above the teardrop to balance the weight. The holes in teardrops may be painted closed—to open them, take another hook and poke it through the eye.
- 7 Before handing out hooks, remind the students that the hooks are sharp. (You may wish to cover the sharp ends with masking tape.) Have the students tie their hook onto the end of the line using the improved clinch knot they practiced earlier. Snip off the tag end of the line close to the hook.
- 8 Wait until the group is outside to attach bobbers. See the **Setting Bobber Depth Sheet**. For setting bobber depth with the class, also see **Lesson 6:2—Ice Fishing and Winter Safety**.
- 9 Hand out a rubber band to each student. Have students wrap the rubber band over the line to secure the line to the jiggle stick while they wait to go outside.
- 10 Check to make sure everyone has a properly rigged jiggle stick.

Wrap-up

- 1 Ask the following knowledge questions. Name three pieces of equipment you might need for ice fishing. (See the equipment list in this lesson.) How is a jiggle stick different from a rod you would use in the summer? Why is it different? (It's shorter; it doesn't need a reel; it's made of wood.)
- 2 Go on to **Lesson 6:2—Ice Fishing and Winter Safety** to conduct a safe fishing trip.

Assessment Options

- 1 Assessment options include the Checklist and Rubric on the following pages.



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.

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

18-19 points = A
Excellent. Work is above expectations.

16-17 points = B
Good. Work meets expectations.

13-15 points = C
Work is generally good. Some areas are better developed than others.

10-12 points = D
Work does not meet expectations; it’s not clear that student understands objectives.

0-9 points = F
Work is unacceptable.

Making Ice Fishing Jiggle Sticks Checklist

Possible Points	Points Earned	Points Earned	
	Student	Instructor	
2	_____	_____	Student ties a clinch knot with a rope.
2	_____	_____	Student ties a clinch knot with monofilament line.
2	_____	_____	Student explains the importance of using a clinch knot.
3	_____	_____	Student correctly places the hook, bobber and sinker on the line without assistance.
3	_____	_____	Student describes reasons for using hook, bobber, and sinker.
3	_____	_____	Student follows instructions.
4	_____	_____	Student makes the jiggle stick without assistance.
Total Points			
19	_____	_____	Score _____ (Calculate score by dividing total points by number of criteria.)

Making Ice Fishing Jiggle Sticks Scoring Rubric

Skill Criteria	4 Excellent	3 Good	2 Fair	1 Poor	0 Unacceptable
Clinch knot	Ties a clinch knot with both rope and monofilament line. Can explain the importance of using a clinch knot.	Ties a clinch knot with both rope and monofilament line. Knows why fishing knots are important but can't explain why.	Ties 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.	
Hook, bobber, and sinker	Correctly places hook, bobber, and sinker on the line without help. Can describe the reason for each item.	Correctly places the hook, bobber and sinker on the line without help. Can describe reasons for two of the items.	Can attach a hook, bobber, and sinker, but places two of the items on incorrect spots on the line. Can describe the reason for two of the items.	Needs help placing the hook, bobber, and sinker on the line. Doesn't know the reason for each of the items.	
Jiggle stick construction	Follows instructions and completes the jiggle stick without assistance.	Follows instructions and completes the jiggle stick with minimal assistance.	Follows instructions and completes the jiggle stick with moderate assistance.	Unable to build a jiggle stick without assistance.	

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

Diving Deeper

Extensions

- 1 Try **Lesson 6:2—Ice Fishing and Winter Safety** and **Lesson 2:8—Fish in Winter**.
- 2 Make rod holders out of wire coat hangers.
- 3 Set up a portable fish house in your classroom the week before your trip and add equipment.
- 4 Design your ideal ice fishing house.
- 5 Ask a volunteer set up a dark house with a spearing decoy out on the ice for the students to examine, or have a volunteer demonstrate decoy-carving and talk about fish spearing.
- 6 Use the Internet to research Minnesota ice fishing events and contests or the history of ice fishing.
- 7 What types of materials and tools might early Minnesota Indian cultures have used for winter fishing? You could ask your students to brainstorm ideas and then have them do research on the Internet or in the library. Compare these materials with the ones they used to make their own jiggle sticks.

For the Small Fry

K-2 Option

- 1 Younger students will have a hard time making jiggle sticks, but they could still go fishing. Increase the adult-child ratio to 1:2, and plan to be outside for no longer than 45 minutes. See **Lesson 6:2—Ice Fishing and Winter Safety**.
- 2 Talk about fun things to do outside in the winter. Read a story about an ice-fishing trip. Try *Fishing for Methuselah*, by Roger Roth or *Kitaq Goes Ice Fishing*, by Margaret Nicolai.



INSTRUCTOR COPY

Basic Ice Fishing Equipment Cards

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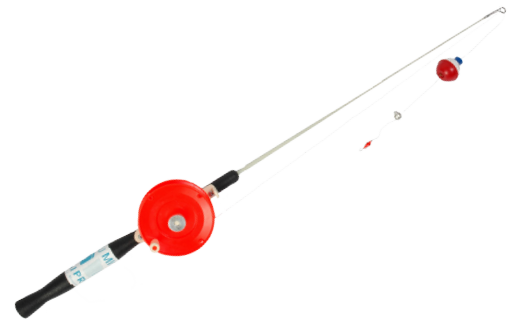
Hand augers drill holes in the ice.



Jiggle sticks are ice fishing rods without reels. Try jigging by moving them up and down.



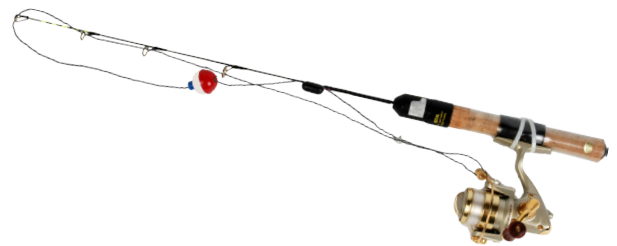
Ice scoops or skimmers scoop ice chips from the hole in the ice to prevent it from re-freezing.



Jigging rods and reels have reels that hold the line but have no drag, so the line comes out freely. Try jigging by moving them up and down.



Rulers measure ice thickness and the length of fish.



Spinning combos sized for winter have reels to hold the line and provide drag.

INSTRUCTOR COPY*Basic Ice Fishing Equipment Cards*

This sheet can be cut into cards or projected.



Tip-ups sit over a hole in the ice. When a fish takes the bait, a lever releases a flag to alert the angler.



Bait kept in a Styrofoam container won't freeze as quickly. If using minnows instead of worms, don't forget the minnow scoop!



Rattle reels are free-spinning, clicking reels with no drag. Find them attached to the wall of an icehouse.



Small tackle box holds a clip-on depth finder, needlenosed pliers, a fingernail clipper, hooks, bobbers, sinkers, and ice fishing lures.



Clip-on depth finders set the depth of the bobber.



Ice rescue claws allow people who have fallen through the ice to pull themselves out of the water.

INSTRUCTOR COPY

Basic Ice Fishing Equipment Cards

This sheet can be cut into cards or projected.



First aid kit holds bandages and hand warmers for emergencies.



Buckets carry gear and fish. You can also sit on an overturned bucket.



Throwable personal flotation device on a rope can be tossed to someone who has fallen through the ice to pull them to safety.



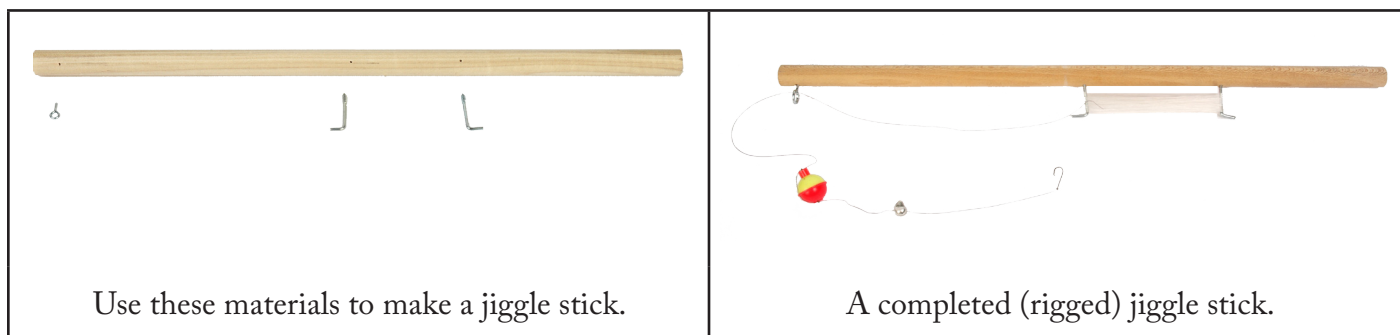
Sled carries gear, or can be used to pull someone to shore in an emergency.



Wool blankets warm people who get cold or wet.

Making and Rigging a Jiggle Stick Sheet

The instructor does Steps 1 and 2. Students begin at Step 3.

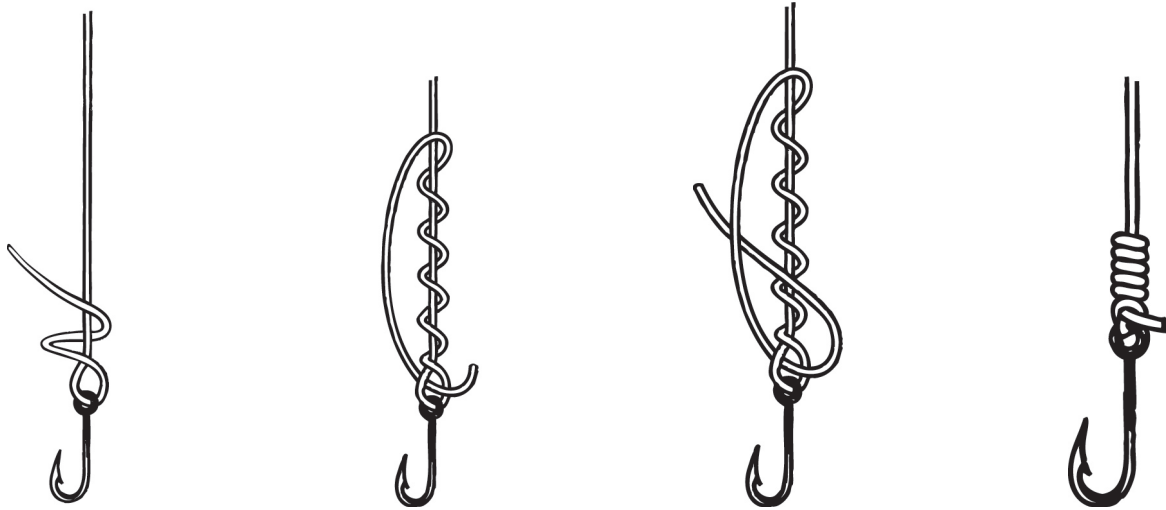


1. Cut a ½- or ¾-inch diameter dowel into an 18-inch length.
2. Drill three holes in line with one another as shown: 1½ inches from the tip, 9 inches from the tip, and 12 inches from the tip. Use the drill bit size recommended on the boxes of the eye screws and square bend screws.
3. Twist an eye screw into the hole 1½ inches from the tip as shown. (Squeeze the eye screw to close it if there's a gap that lets the line slip through it.)
4. Twist the square bend screws into the other holes. When you're finished, the ends should be pointing away from each other as shown.
5. Using an improved clinch knot, tie the line to one square bend screw.
6. Wrap the line around the square bend screws approximately 80 times.
7. Cut the line and thread the end through the eye screw, so that about two feet of line hangs from the tip of the rod.
8. Attach the sinker about 9 inches from the end of the line.
9. Tie on the hook with an improved clinch knot. And remember—hooks are sharp.
10. Secure the line to the jiggle stick with a rubber band to keep the hook from swinging when you're not fishing.
11. At the fishing spot, set the bobber depth with a depth finder and bait the hook. Now you're ready to go ice fishing!

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.

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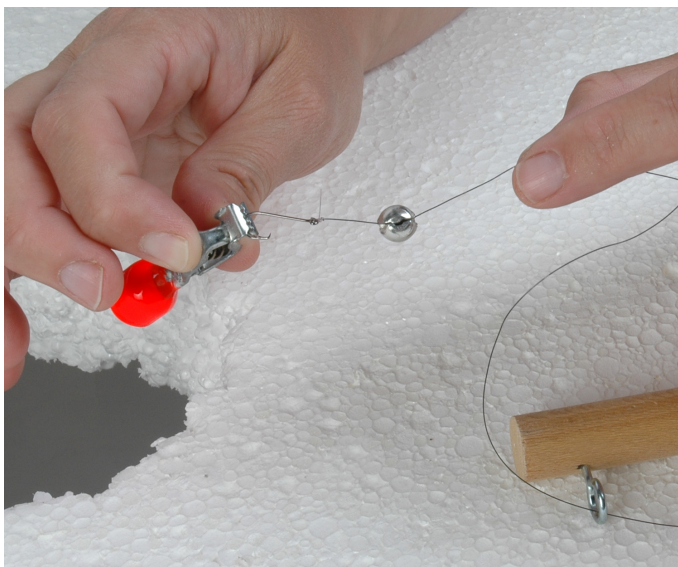
Setting Bobber Depth Sheet

Demonstrate how to use a depth finder using a jiggle stick.

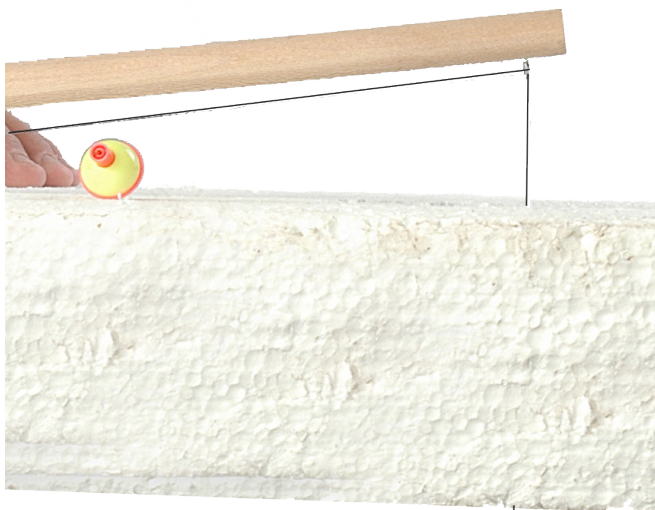
1. Set up a simulated ice hole on two chairs.



2. Attach the clip-on depth finder to the hook on the end of the line.



3. Drop the weighted depth finder until it hits the bottom. You'll see some slack in the tension when it hits the bottom.



continued

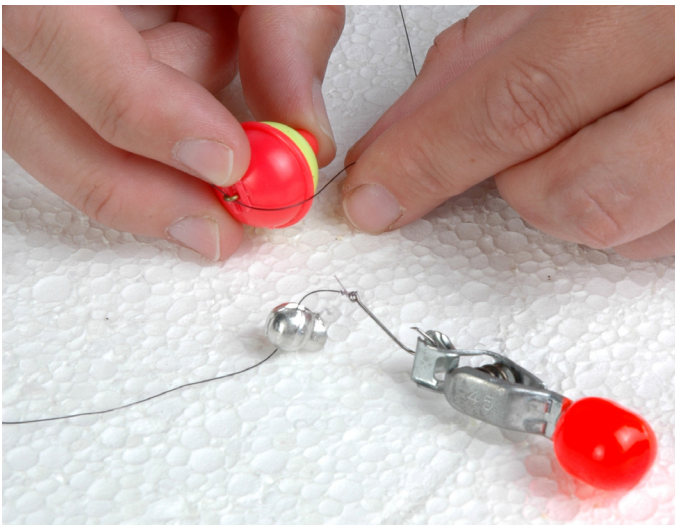
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Setting Bobber Depth Sheet (continued)

4. Pinch the line at the water level and lift it up about one foot.



5. Attach your bobber at the water's surface.



6. Pull up your line and remove the depth finder.



7. Now you are ready to bait the hook!

