Ice Fishing and Winter Safety

Words of winter wisdom:
Be wary of weather and wind chill, watchful on the ice, and stay warm and dry.

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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

Ice Fishing and Winter Safety

Minnesota Academic Standards

◒ Lesson *introduces* this Benchmark.
◒ Lesson *partially* addresses this Benchmark.
◒ Lesson *fully* addresses this Benchmark.

Language Arts

Grades 3, 4, 5
III. Speaking Listening, and Viewing
A. Speaking and Listening:
Benchmark 2—The student will demonstrate active listening and comprehension. ◒

History and Social Studies

Grades K—3
VII. Government and Citizenship
B. Beliefs and Principles of United States Democracy:
Benchmark 1—Students will give examples of rules in the classroom/school and community, provide reasons for the specific rules, and know the characteristics of good rules. ◒
Benchmark 2—Students will explain that rules and laws apply to everyone and describe consequences for breaking the rules or laws. ◒

Grade 4—8
V. Geography
D. Interconnections:
Benchmark 2—Students will analyze how the physical environment influences human activities. ◒

Science

Grade 3
III. Earth and Space Science
B. The Water Cycle, Weather and Climate:
Benchmark 1—The student will measure, record, and describe weather conditions using common instruments. ◒

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. ◒

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 6 • Lesson 2

Ice Fishing and Winter Safety

Grade Level: 3-5
Activity Duration: Part 1: 15 minutes
Part 2: 30 minutes
Part 3: 90 minutes, plus driving time
Group Size: any
Subject Areas: Health and Safety, Physical Education, Language Arts, Social Studies, Science
Academic Skills: application, identification, kinesthetic concept development, listening, role-playing, simulation
Setting: Part1 and Part 2: gathering area
Part 3: ice-covered lake
Vocabulary: hypothermia
Internet Search Words: ice fishing, ice rescue claws, ice safety

Instructor's Background Information

Ice fishing provides fun winter adventure in Minnesota, but heading onto the ice can be risky business. Cold weather, short winter days, and unsafe ice conditions can, singly or jointly, make ice fishing dangerous. With a little preparation, though, you can minimize danger and stay safe. This lesson discusses ice safety, ice rescue, and how to dress for an ice fishing trip. Students learn how to rig a line, fish through the ice, and what to do with their catch!

Cold Weather and Wind Chill

Minnesotans are used to extreme weather, but how cold is too cold? It's likely that your school has established guidelines for taking children outside in cold weather. If the temperature or wind chill factor is below 0° F, consider rescheduling the trip. If the temperature or wind chill is colder than minus 10° F, you should definitely reschedule.

Plan a trip in early or later winter to take advantage of warmer temperatures, but not too early or too late in the season—ice conditions must be kept in mind. In early and late winter, panfish frequent shallower areas, which are closer to shore and an easier walk for the class.

continued on page: 6:2-3

Summary

Minnesota's winter conditions demand extra safety preparations for outdoor activities. Before going on an ice fishing trip, it's imperative to cover basic ice fishing safety. Students learn about dressing in layers, ice self-rescue, ice fishing techniques, and enjoying an ice fishing trip.

Student Objectives

The students will:

1. Identify the importance of dressing in layers and staying dry during an ice fishing trip.
2. Identify the minimum suggested ice thicknesses that safely support walking on ice, ATVs, small pickups, and groups of people—and know that ice can never be considered 100 percent safe.
3. Demonstrate how to rescue a person who has fallen through the ice and describe what is appropriate for children to do in an ice emergency.
4. Demonstrate self-rescue technique.
5. Use a depth finder to set bobber location on a line and rig and bait a jiggle stick or ice fishing rod for panfish.
6. Demonstrate ice fishing techniques and what to do with the catch.

Materials

Part 1: Dressing for Ice Fishing

- **Dressing for Ice Fishing Word Finder Sheet**, one per student
- Stocking cap
- Scarf or neck gaiter
- Mittens and thin gloves
- Warm layers of clothing, such as long underwear, long pants, turtleneck, wool sweater
- Winter coat
- Snow pants
- Wool socks
- Insulated rubber-soled boots

Part 2: Ice Safety

- **Ice Safety Sheet**, one per student
- Seat cushion-type personal flotation device with attached rope
- Ice rescue claws—purchased or homemade with floating handles.
- *Danger, Thin Ice, Hypothermia the Cold Facts* brochures, and *Recommended Minimum Ice Thickness* cards available from the DNR info center 1-888-MINNDNR.
- *Danger, Thin Ice*, a video program available from the DNR information center or on-line at the DNR ice safety web page www.mndnr.gov/safety/ice (optional)

Part 3: Ice Fishing Trip

- Adult chaperones, one for each five to ten students, depending on students' ages and abilities
- **Setting Bobber Depth Sheet**, one per student
- Power auger (If you're taking the whole class fishing, each student will need a hole, so a power auger is recommended—ask an experienced ice angler to help. You may want to bring a hand auger as a demo, or to keep kids busy.)
- Fishing licenses for anyone 16 and older, including adult helpers*
- Ice scoops, one per adult*
- Clip-on depth finder, one per adult*
- Scrap of plywood (2' x 2'), cardboard, or Styrofoam, for simulated ice hole
- Needlenosed pliers, one per adult*
- Fingernail clippers for cutting line, one per adult*
- Ruler (for measuring ice depth and fish length; some scoops have rulers inscribed on their handles)
- Jiggle sticks, rigged and ready to go, one per student
- Bait, choose one or a combination of the following:
  - wax worms, five per student
  - minnows, three per student in Styrofoam bait bucket with minnow scoop
  - Eurolarva, ten per student
- Extra bobbers, sinkers, and hooks
- First aid kit
- Throwable personal flotation device (seat cushion-type) on a long rope
- Wool blanket (in case someone gets cold and wet)
- Sled with attached rope
- Cell phone
- Participants should dress in layers for the weather—emphasize insulated rubber-soled boots, stocking caps, scarves, and mittens
- Buckets or lawn chairs, one per person, (optional)
- Hot chocolate with cups and a trash bag, (optional)
- Camera, for taking photos of the class (optional)
- Underwater camera for viewing fish and plants (optional, but if you can borrow one from a parent or elsewhere, students will love the view)

* You may consider asking adult helpers to bring their own items for the trip. Otherwise, you can purchase ice fishing gear at any sporting goods store.

The Right Clothing Keeps Anglers Warm and Dry

Stocking Cap—Wear a knitted hat or cap that covers ears. A baseball cap just doesn't provide warmth. Worn alone, earmuffs or headbands don't cover the top of the head. Because 80 percent of the body's heat escapes through the head, a stocking cap may be the most important piece of winter clothing. In addition, a hood helps block the wind.

Scarf or Neck Gaiter—Out on the ice, there's little protection from wind. A scarf, or neck gaiter can be pulled over the face if it gets windy.

Mittens—Mittens trap more heat than gloves. Mittened fingers share heat with one another. Mittens should be thick and warm. While ice fishing, people often remove mittens while baiting hooks or taking fish off lines. This way, mittens don't get wet. Thin gloves worn under mittens are good in this situation. Connecting mittens to jacket cuffs may be a good idea for some.

Warming Layers—Layers of clothing trap body heat between them. They can be removed or added, depending on the weather and level of activity. The first layer (nearest the skin), wicks moisture away from the skin. Most long underwear made of polypropylene (or silk) does this. The second layer provides warming insulation. Ideal materials retain some insulating qualities, even when wet (such as a wool sweater or fleece jacket). If it's really cold, wear more than one insulating layer. The top layer blocks the wind. Most winter coats and snow pants have an insulating layer *and* an outer shell that blocks wind.

Socks—Encourage students to wear thick wool socks. Some people like to wear two pairs of socks.

Boots—Boots should be insulated and rubber-soled. Rubber soles keep feet dry by repelling water and provide some traction on ice. Make sure boots aren't too tight—toes should have room to wiggle.

Staying Dry

It's important to pay attention to body temperature. When you're out in the cold, you want to be warm and dry, not hot and sweaty. Your body cools you by sweating, but sweat can be deadly in the cold because body heat is lost 60 percent faster when you're wet.

Try not to get too sweaty. If you start to feel too hot while pulling your gear sled to your fishing site, unzip your jacket. If you feel cold at the fishing site, zip up your jacket.

If someone should get completely wet, the best thing would be to wrap them in a blanket and find a warm building or vehicle. Some materials, like polypropylene, wool, and fleece, will retain some insulating value when wet, so it's not always best to remove wet clothing. If there is extra clothing available, replace wet clothes with dry ones.

Dressing for Winter

Ice fishing is much more enjoyable when you're properly dressed for the weather.

Many students won't have clothes made from the most current materials, so stress the importance of trapping heat between layers and blocking the wind.

In addition to following your school's policies for off-site trips, you may want to ask an emergency medical technician or nurse to come along as a guest. It's also a good idea to notify your county sheriff's water patrol that you will be conducting an ice-fishing event.

Hypothermia
When the body is slightly chilled, it shivers to stay warm. If you lose too much body heat, the shivering will stop and you may be subject to the onset of **hypothermia**, a potentially fatal condition in which core body temperature drops. Warning signs of hypothermia include a dazed expression, stumbling, and difficulty speaking. Victims of hypothermia need medical attention.

If someone shows signs of hypothermia, call for medical help. Begin immediately to work on conserving body heat and rewarming the victim: get them out of wet, cold, or windy conditions, remove wet clothing, and add additional layers of dry clothing. Increase physical activity to generate heat. Provide food to replace the victim's body fuel—theirs has rapidly burned in an attempt to generate heat. A shivering person can rewarm at a rate of 3.6° F per hour. Provide hot liquids, if available, but avoid alcohol and caffeine.

Frostbite and Frostnip
Frostbite occurs when skin tissue freezes. It usually happens on areas of exposed skin, such as cheeks, nose, ears, and fingers. Watch for signs of the skin turning white and feeling numb and hard. Frostbite is a serious condition—to treat it, take the victim indoors and warm affected areas slowly, without rubbing, which can cause further tissue damage.

Frostnip is a precursor to frostbite. Exposed skin may turn blue before turning white, and feel cold to the touch. Warm affected area before frostbite occurs.

Proper clothing prevents frostbite and frostnip. You can also play active games on the ice, or show the students some motions to practice, such as stomping feet, clapping hands, and wiggling toes and fingers.

Games
Another way to keep warm is to plan some games for the day. Organize activities like Quick Frozen Critters (like frozen tag), making snow sculptures, a game of Follow the Leader involving the tracing of large patterns and designs in the snow, or Boot Hockey (soccer played on the lake.)

Basic Safety Gear for Your Ice Fishing Trip	
Personal flotation device on rope	to rescue someone if they fall in the water (seat cushion-type)
Cell phone (fully charged)	to call for help
Ice rescue claws (several sets with adults in group)	for self-rescue in case of falling through ice
Hand warmers	to warm hands and feet
Sled with attached rope	to carry gear—or a person, if necessary
Wool blanket or sleeping bag	for warming anyone who gets wet or cold
Band-aids	to patch hook pricks or minor cuts
Hot chocolate	to keep anglers happy

Ice Thickness
Your first concern should be the ice. Ice isn't the same thickness all the way across a lake, nor does its thickness remain constant throughout the winter. Inquire about known thin-ice areas at a local resort or bait shop.

Before going out on the ice, always test it using an auger or a chisel and a ruler. Although no ice is considered safe, make sure the ice is *at least* twelve inches thick along the entire distance from the shore to your fishing spot. This is the thickness recommended to safely support a truck, and assumes the total weight of your class is about the same as a truck. It's preferable to walk students onto the ice rather than driving.

Watch the weather and be wary of above-freezing temperatures during the days before your trip. If the temperature has been above 32 degrees for 24 hours, don't go on the ice until it returns below 32 for several days. Look for places where the ice may have melted and refrozen. This forms layers of ice with water between them, and if you break through the top layer of ice, you'll soak your feet. Also look for iced-over holes and springs. Early and late ice fishing seasons are the most dangerous, especially near the shore. Contact people who live on the lake and fish often, local resorts and bait shops, or the county sheriff's water patrol for assistance in gauging ice safety conditions.

See the **Ice Safety Sheet** at the end of this lesson—it provides ice rescue information and instructions on what to do if anyone (including yourself) falls through the ice. A life jacket and ice picks—or a pair of screwdrivers—are critical safety items out on the ice. If someone falls through, they can punch ice claws or screw drivers into the ice and use them as handholds to haul themselves out of the water and onto more

Is there a specific date by which Minnesota lakes are typically frozen over to allow for safe recreation?

It is not a good idea for anglers or anyone to rely on the calendar to determine whether or not a frozen lake is safe. In years past, ice may have been passable by December 1, but a warm start to another Minnesota winter makes it difficult to determine just when a lake or pond will freeze thick enough to allow recreation. Even once this finally happens, it is important realize that ice is never 100 percent safe. The DNR recommends the following ice thickness for these intended uses: a minimum of 4 inches of new, clear ice for foot traffic; 5 inches for ATVs and snowmobiles; and a minimum of 8 to 12 inches for cars or small trucks. Once the ice has started to soften in warm temperatures, these thicknesses no longer apply. Local resorts and bait shops can often provide information about ice thickness and point out dangerous areas. Also, anglers and others who venture out on the ice should take ice picks with them and wear a life jacket as a precaution.

—Tim Smalley,
DNR Boat & Water
Safety Specialist,

stable ice. Review the **Ice Safety Sheet** and practice ice rescue with your students before your ice fishing trip.

Beware of Accidents Other Than Falling Though the Ice

Accident	Preventive Measures
Slipping on the ice	Wear boots with rubber soles. Don't run on the ice.
Stepping in a hole	Set boundaries. Watch where you step. Look for holes in the ice.
Sunburn	Wear sunscreen.
Windburn	Cover your face. Wear layers to block wind.
Frostbite	Remain alert. Are you getting too cold? Wiggle fingers and toes. Tell an adult that you're feeling cold.
Getting lost	Know your area. Carry a phone, compass, map or a GPS unit.

For more ice safety information, check the DNR website **www.mndnr.gov/safety/ice** or obtain the *Danger, Thin Ice* and *Hypothermia, the Cold Facts* brochures by calling 651-296-6157 or 1-888-646-6367.

The Ice Fishing Trip
You've gathered safety equipment, scheduled adult volunteers, and prepared your students to dress properly and stay warm. You've practiced ice rescue. You have ice fishing poles for each student or the students have made their own jiggle sticks as described in **Lesson 5:7—Making Ice Fishing Jiggle Sticks**.

The Perfect Spot for Ice Fishing
If you need help finding a good spot to take your class for ice fishing, ask experts. Salespeople at sporting goods stores and bait shops, sportsmen's club members, and the DNR can help. Visit the lake and note the locations of icehouses. You can also check the DNR website's Lake Finder area for information about fish species and lake topography for the larger local lakes. Panfish frequent water that is fifteen to twenty feet deep near drop-offs and the edges of plants. In winter, panfish are more likely to cluster in schools. So, if one of your students catches a fish, there's a good chance that several others will, too. Dusk may be the best time to catch perch or crappies.

Setting the Depth
Panfish swim near the bottom of the lake in winter (it's warmer), but crappies may be closer to the surface. Use a **clip-on depth finder** to find out where to attach your bobber on the line in order to hold the bait or lure six to twelve inches from the bottom. Clip the weighted depth finder on your line and lower it through the hole you've drilled

through the ice. When the depth finder touches the bottom, lift the line six to twelve inches, and attach your bobber at the water's surface level. Bring in the line, remove the depth finder and finish rigging the line with your sinker, hook and bait or lure. If you don't catch anything at that depth, re-rig the line and try fishing a little closer to the surface.

Ice Fishing Rigging, Bait and Lures
After attaching your bobber for the proper depth, fish for panfish (such as yellow perch, crappies, and sunfish) with a sinker and a small, plain hook with a wax worm or small minnow. Minnows weighted with small sinkers will actively swim for quite a long time in the cold water and cover a larger area to attract more fish than heavily weighted bait. Also try an ice fly or teardrop jig (a very small, weighted head with a hook), and put a wax worm or small minnow on the hook. Live bait also attracts walleye and northern pike. Large bait will attract the larger fish.

Lower the rigged line into the fishing hole. Jiggle the bait periodically. When a fish bites, and the bobber is pulled below the surface, set the hook and bring in the line, keeping it taught. Let a larger fish run with the line to tire the fish, keeping the line taught to prevent it from throwing the hook, and, as the fish tires, bring in the line and raise your rod to gently lift the fish through the hole in the ice.

Conservation
Emphasize that fishing is fun and that catching a fish is an added bonus. Instill good stewardship habits by picking up litter, following regulations, and carefully returning fish to the water if you don't plan to eat them.

What should you do with your catch? You could save the fish for dinner, clean and cook a few for the class, or practice catch-and-release. If you're going to keep some fish to eat, they'll stay fresh on the ice until you collect them and place them in a cooler for the ride home. Keep them cold and clean them as soon as possible. Cook them immediately, or freeze them. Check the fishing regulations for current limits, as well as information on filleting, and transporting fish.

To practice catch-and-release, land (reel in) the fish quickly. Carefully remove the hook from the mouth, and gently lower the fish into the water. Try not to handle the fish too much or you'll disturb its protective slime coating, which protects the fish from parasites, bacteria, and fungus, and reduces friction as it swims. The sooner the fish returns to the water, the better its chances for survival. Released fish may grow larger and reproduce—or be caught by another angler, conserving resources. Catch-and-release sustains healthy ecosystems and fishing opportunities for Minnesota anglers.

Clip-on depth finder.

If taking students fishing for the first time, it helps to use circle hooks. The point faces the shank and is designed to hook the fish in the mouth as it turns to swim away rather than having to set the hook and rely on a quick response. Fish are less likely to be throat-hooked with circle hooks. This can reduce hooking mortality for catch-and-release. If circle hooks are available in your area, buy ones with long shanks that make them easier to handle.

Before having students use an ice auger, demonstrate safe operation. Ice auger blades are sharp! Using the ice auger to practice drilling holes is a good activity to help students keep warm. It will also hold their interest while they're out on the ice.

Procedure

Preparation

1. Obtain one ice fishing rigs for each student, or have students make their own jiggle sticks as illustrated in **Lesson 5:7—Making Ice Fishing Jiggle Sticks**. Students feel especially excited and empowered when they catch fish on rigs of their own making.
2. Make a copy of **Dressing for Ice Fishing Word Finder Sheet** and **Ice Fishing Safety Sheet** for each student.
3. Collect the materials.
4. Find a scrap of plywood, cardboard, or Styrofoam, and cut an eight-inch hole in the center. This is your simulated ice hole.
5. Choose a good fishing spot with accessible bathrooms. Watch the weather and ice thickness.
6. Confirm the fishing dates with students, obtain all necessary permissions from parents and the school administration, and organize and confirm ice fishing trip dates with your adult volunteers. (Use one adult chaperone for each five to ten students, depending on students' ages and abilities.)
7. Find volunteers to drill several holes with the ice augers scattered at your fishing site on the morning of the event. Place the holes at least 25 feet apart. The number of holes to drill depends the size of your group. Bring the hand auger along to have students practice using it to drill some holes.
8. Ask a volunteer to bring hot chocolate or cider, and to set up an area for serving the hot drinks. You may ask an emergency medical technician or nurse to come along. This person could stay with the hot drinks, safety gear, blanket, extra wool socks, mittens, scarves, hats, etc.
9. Notify the county sheriff's water patrol of your ice fishing event.
10. Buy bait.
11. Collect all equipment and ask the students to bring their jiggle sticks to the event.
12. Remind the students to dress appropriately.

Activity

Warm-up

It's always important to prepare for weather conditions to ensure safety during outdoor activities. Winter weather in Minnesota poses special safety considerations. With the students, brainstorm a list of dangers pertinent to winter weather and going out on the ice. Tell the students you'll be discussing these dangers throughout the lesson as the class talks about ice fishing safety. Have students suggest additional things they can do to have a safe ice fishing trip.

Lesson

Part 1: Dressing for Ice Fishing

1. Discuss the importance of dressing in layers. Explain types of layers: wicking, insulating, and wind-proofing. Choose one student in the group to stand at the front of the class and model winter gear. (This will be more humorous to students if you use adult clothing on the student. It might also be fun for the students to see their instructor or other adult chaperones dressed up.) Set the pile of clothes to the side.
2. Call on a student to pick one article of clothing from the pile and give it to the volunteer to put on. Ask the student to tell the class why they think this item is necessary for ice fishing. Expand on their answer if necessary. Ask the students to think of things that might be good substitutes.
3. Continue until all the clothes in the pile are used.
4. It's all right if items aren't chosen in a logical order. Just ask the volunteer to take off the boots to put on the socks.
5. Ask the volunteer if they're getting warm. If so, have the volunteer unzip the jacket and take off the hat. Discuss the danger of sweating in the cold. Tell the students that they lose body heat faster when they're wet than when they're dry.
6. To demonstrate this, ask the students to blow on their bare wrists. Then have them wet their wrists and blow on them again. Which feels colder?
7. Tell students that, when they dress in layers, they can remove or add layers to stay warm and dry. For example, they might get warm while walking to the fishing site and cold while sitting still and waiting for a fish to bite. Also, the weather might be warm when the sun is out, but it will get colder when the sun begins to set.
8. Hand out the **Dressing for Ice Fishing Word Finder Sheet**. When students have completed this, go over the answers as a class.

Part 2: Ice Safety

1. Hand out the **Ice Safety Sheets.**
2. Ask students how they know whether the ice is safe for ice fishing. Discuss how ice thickness varies on different parts of the lake, or from day to day. Remind them that they should always take a responsible adult with them when traveling on the ice. What equipment could you bring that would help you get out of the water and back to safe ice if you fell through? (Ice rescue claws or screwdrivers.)
3. Show the optional *Danger: Thin Ice* video program listed in Materials.
4. Discuss what to do if someone falls through the ice. Emphasize that children should never attempt to rescue someone who has fallen through the ice. They need to find an adult and/or call 911 immediately.
5. Discuss the steps you would take if *you* fell through the ice. As you read the steps a second time, have the students act out what they would do if they were the victims.

Part 3: Preparing for Fishing

1. Review the method of tying an improved clinch knot. This is the knot used to tie a depth finder and a hook or lure to a line. Instructions for tying an improved clinch knot can be found in **Lesson 5:7—Making Ice Fishing Jiggle Sticks**.
2. Demonstrate how to use a depth finder using the simulated "ice hole" and a jiggle stick. Attach the clip-on depth finder to the end of the line, and drop it until it hits the bottom. Then lift it up about a foot. Put your bobber at the water's surface. (You can adjust your fishing depth later if you don't catch any fish.) Then pull up your line, take off the depth finder, and bait the hook. Use the **Setting Bobber Depth Sheet** for easy reference. For more information on how to rig a jiggle stick or other ice fishing equipment see **Lesson 5:7—Making Ice Fishing Jiggle Sticks**. Students can set their own depths and attach their bobbers when they get to their fishing hole.

Part 4: Fishing

1. When you bring students to the fishing site and the holes that have been drilled, ask one volunteer to use a ruler or tape measure to measure ice thickness with group. It should be at least twelve inches thick at every site. Review ice thickness safety with the students. Ice should be at least four inches thick to safely support a person. To safely support a *group* of students (which weighs approximately as much as a pickup truck), the ice should be twelve inches thick. Review with students some conditions that could affect ice thickness in any given area such as springs, recent warm days, etc.
2. Baiting the hook—give the adults enough bait for their small groups of students. Have them show the students what type of bait you will use and how to put it on the hook. Refer to the illustrations. Keep the bait in an insulated container so that it doesn't freeze. When using minnows, emphasize keeping mittens dry. Encourage students to bait their own hooks.

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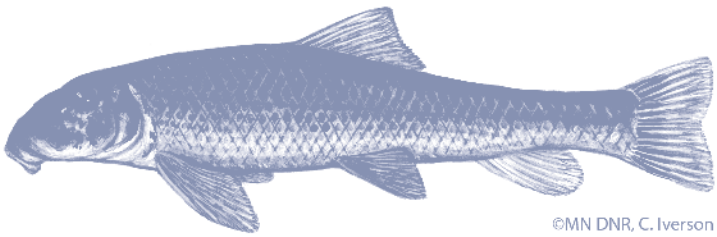
Bait your hook with a wax worm or minnow.

3. Split into small groups—assign a small group of students to each adult volunteer and give them a cluster of holes to fish. Give each adult one bobber per student, a depth finder for students to use to set the depth of their bobbers, fingernail clippers for cutting line, and needlenosed pliers for unhooking fish.
4. Discarding bait—it's illegal to discard unused minnows and worms on the ice or in the lake. Leftover bait should be saved for another day of fishing or put into the trash.
5. Landing and releasing fish—explain that when the bobber goes down under the water's surface you've got a fish! (Winter bites may be light, so watch the bobber closely!) Set the hook by pulling up on the jiggle stick. Then, set down the jiggle stick and pull in the line, keeping it taught. Gently grasp the fish by the sides and quickly take out the hook. Handle the fish carefully and briefly, disturbing the fish's slime covering as little as possible. If the fish has swallowed the hook, don't tug on it as this may tear the stomach. Instead, cut the line. If you haven't made arrangements to take fish home, release the fish immediately—and gently—back into the water. When handled gently, quickly, and with a few precautions, fish have an excellent chance of surviving when released. There are more catch-and-release tips in the *Catch-and-Release* brochure available through the Minnesota DNR, and in the Minnesota fishing regulations booklet.
6. Send students to their fishing spots and have fun!
7. Observe students as they are fishing. Rotate the groups to the warming station for hot chocolate or hot cider breaks. If students are getting cold, have them warm up with an activity, by stomping their feet, or playing a game. Demonstrate use of the ice auger to each group. Ask students why they may or may not be getting bites. Take photos of your trip!

Wrap-up

1. Review the list that the students made at the beginning of the class regarding the dangers of going on the ice. If there was a danger that wasn't covered, or a fear not alleviated, discuss those situations now. Review the ice thickness recommendations for various types of winter recreational activities on frozen lakes. Discuss the reasons why ice is never considered 100 percent safe.
2. Be sure you know that, although ice is never considered 100 percent safe, understanding ice, being prepared for your trip, keeping warm, and staying alert will help make ice fishing trips fun and safe.
3. Take some time to reflect on your fishing trip. Have students write down or share their answers to the following questions:
   - What was your favorite part of the day?
   - What did you notice about lakes in winter that you haven't noticed before?
   - What was one new thing you learned or a skill you improved?
   - How far off the bottom did you start to fish? At what depth did you catch fish? (From approximately six inches to one foot. The depth at which students caught fish will vary.)
   - How should you handle the fish that you catch? Why should fish be released gently? (Quickly and gently. If the fish swallows the hook, don't try to remove it—just cut the line. This gives the fish a better chance of surviving. This conserves the fish resource and keeps the ecosystem healthy. The fish can then grow and reproduce and people will have fish to catch in the future.)
   - Could you show someone else how to go ice fishing?
   - Would you like to go ice fishing again?



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Assessment Options

1. Have students make ice safety posters to display throughout their school. The posters should address one of the topics touched upon in this lesson—dressing warmly, supplies to bring on the trip, ice thickness, rescuing another person, and self-rescue.
2. Have students record information from four fellow classmates' posters. Include looking for the points covered in the student learning objectives:
   - Identify the importance of dressing in layers and staying dry during an ice fishing trip.
   - Identify the minimum suggested ice thicknesses for new clear ice that safely support walking on ice, ATVs, small pickups, and groups of people—and to know that ice can never be considered 100 percent safe.
   - Demonstrate how to rescue a person who has fallen through the ice. Practice throwing a flotation device into a circle the size of a hula hoop.
   - Demonstrate self-rescue after falling through the ice.
   - Demonstrate ice fishing techniques and what to do with the catch.

   Then have students evaluate whether the information is complete.
3. Observe students while ice fishing to see if they can demonstrate how to use a depth finder, attach a bobber correctly, rig and bait the line, ice fish, handle and release fish gently and quickly.
4. Have students create an ice fishing catch-and-release brochure to distribute to local bait shops and fishing equipment retailers. Include tips for handling and releasing fish, and reasons why anglers practice catch-and-release fishing.
5. Using photos from their ice fishing trip, have students write a news story for their local paper about ice fishing safety, ice rescue, how to ice fish, and their ice fishing experience. If you used a digital camera during the trip, students can use the computer to choose and arrange photos and write their article. Then have students review one anothers' stories and combine elements from all of the stories to create a final draft to submit to the local paper.
6. Assessment options include the Checklist and Rubric on the following pages.

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.

Ice Fishing and Winter Safety Checklist

Possible Points	Points Earned Student	Points Earned Instructor	
2	_____	_____	Student can define *hypothermia*.
3	_____	_____	Student can explain how *dressing in layers* keeps you warm.
2	_____	_____	Student can state two reasons why it's important to dress for the weather.
4	_____	_____	Student can list winter clothing important to wear for most ice fishing trips, including: • hat • scarf • mittens • neck gaiter • mittens and gloves • long underwear • wool sweater • wool or polypropylene clothing (versus cotton) • winter jacket • snow pants • wool socks • insulated rubber soled boots
4	_____	_____	Student can identify suggested minimum ice thickness that safely supports • ice fishing • ATVs • snowmobiles • cars • small pickup trucks • medium-sized pickup trucks
2	_____	_____	Student understands why ice that looks safe may not be safe, and states that thickness should be tested prior to going out on the ice.

3	_____	_____	Student can identify three factors that can cause thin ice (springs, aerators, moving water, etc.)
6	_____	_____	Student can identify six items of ice fishing safety equipment and reasons for using them on ice fishing trips, including: • ice rescue claws • warm beverages • hand warmers • blanket • throwable PFD • sled with attached rope
4	_____	_____	Student can demonstrate self-rescue and get out of the water if they should fall through the ice, including reducing or treating the subsequent threat of hypothermia using ice fishing safety equipment.
4	_____	_____	Student can demonstrate how to throw a PFD towards a designated target, recall that they should never attempt an ice rescue and they should find an adult and call 911, and demonstrate or describe how to treat hypothermia using ice fishing safety equipment.
2	_____	_____	Student can properly use a depth finder to set fishing depth and place bobber on line.
2	_____	_____	Student can tie an improved clinch knot and rig a line for ice fishing.
2	_____	_____	Student can bait the hook.
5	_____	_____	Describe fast release and gentle handling of fish, which maximizes survival odds for released fish.
Total Points			
45	_____	_____	**Score** _____

Grade

41-45 points = A
Excellent. Work is above expectations.

36-40 points = B
Good. Work meets expectations.

31-35 points = C
Work is generally good. Some areas are better developed than others.

24-30 points = D
Work doesn't meet expectations, it isn't clear that student understands objectives.

0-23 points = F
Work is unacceptable.

Ice Fishing and Winter Safety Scoring Rubric

Ice Fishing and Winter Safety Criteria	4 Excellent	3 Good	2 Fair	1 Poor	0 Unacceptable
Dressing for the weather	Can state two reasons why it's important to dress for the weather. Can state why dressing in layers is important in winter. Can list winter clothing important to wear for most ice fishing trips, including: hat, scarf, mittens, neck gaiter, mittens and gloves, long underwear, sweaters, wool or polypropylene clothing (versus cotton), winter jacket, snow pants, wool socks, insulated rubber-soled boots.	Can state one reason why it's important to dress for the weather. Can state why dressing in layers is important in winter. Student can list at least eight winter clothing items important to wear for most ice fishing trips, including: hat, scarf, mittens, neck gaiter, mittens and gloves, long underwear, sweaters, wool or polypropylene clothing (versus cotton), winter jacket, snow pants, wool socks, insulated rubber-soled boots.	Can state one reason why it's important to dress for the weather. Can state why dressing in layers is important in winter. Can list at least five winter clothing items important to wear for most ice fishing trips, including: hat, scarf, mittens, neck gaiter, mittens and gloves, long underwear, sweaters, wool or polypropylene clothing (versus cotton), winter jacket, snow pants, wool socks, insulated rubber-soled boots.	Can state one reason why it's important to dress for the weather. Student can't state why dressing in layers is important in winter. Can list at least five winter clothing items important to wear for most ice fishing trips.	Can't state a reason why it's important to dress for the weather. Can't state why dressing in layers is important in winter. Can't list at least five winter clothing items important to wear for most ice fishing trips.
Ice thickness	Can identify suggested minimum ice thickness that safely supports ice fishing or walking on ice (four inches), ATVs (five inches), snowmobiles (5 inches), cars and small pickups (eight to twelve inches), and medium-sized pickups (twelve to fifteen inches).	Can identify suggested minimum ice thickness that safely supports ice fishing and three of the following: ATVs, snowmobiles, cars and small pickups, and medium-sized pickups.	Can identify suggested minimum ice thickness that safely supports ice fishing and two of the following: ATVs, snowmobiles, cars and small pickups, and medium-sized pickups.	Can identify the suggested minimum ice thickness that safely supports ice fishing.	Can't identify the suggested minimum ice thickness that safely supports ice fishing.

Ice Fishing and Winter Safety Criteria	4 Excellent	3 Good	2 Fair	1 Poor	0 Unacceptable
Thin ice dangers	Understands that ice is never considered 100% safe, why ice that looks safe may not be safe, and that ice thickness should be tested. Can identify three factors that can cause thin ice (springs, aerators, moving water, etc.)	Understands why ice that looks safe may not be safe, and that ice thickness should be tested. Can identify two factors that can cause thin ice (springs, aerators, moving water, etc.)	Understands that ice that looks safe may not be safe. Can identify one factor that can cause thin ice (springs, aerators, moving water, etc.)	Understands that ice that looks safe may not be safe. Can't identify one factor that can cause thin ice.	Doesn't understand that ice that looks safe may not be safe. Can't identify one factor that can cause thin ice.
Ice rescue, self	Can identify six items of ice fishing safety equipment and reasons for using them on ice fishing trips, including ice rescue claws, warm beverages, hand warmers, blanket, throwable PFD, and a sled with attached rope. Can demonstrate self-rescue and get out of the water if they should fall through the ice, including reducing or treating the subsequent threat of hypothermia.	Can identify four items of ice fishing safety equipment and reasons for using them on ice fishing trips, including ice rescue claws, warm beverages, hand warmers, throwable PFD, and a sled with attached rope. Can demonstrate self-rescue and get out of the water if they should fall through the ice.	Can identify two safety items including ice rescue claws. Can demonstrate self-rescue should they fall through the ice.	Can demonstrate self-rescue should they fall through the ice.	Can't demonstrate an effective response for self-rescue should they fall through the ice.
Ice rescue, another person	Recalls that children should never attempt to rescue a person who has fallen through the ice, states that children should find an adult and/or call 911. Can demonstrate how to throw a personal floatation device, and how to treat hyperthermia.	Recalls that children should never attempt to rescue a person who has fallen through the ice, states one of the following: that children should find an adult and/or call 911. Can demonstrate how to throw a personal floatation device or how to treat hyperthermia.	Recalls that children should never attempt to rescue a person who has fallen through the ice, states one of the following: that children should find an adult and/or call 911.	Can demonstrate how to throw a personal floatation device or how to treat hyperthermia.	Doesn't recall that children should never attempt an ice rescue and cannot demonstrate how to throw a PFD or how to help someone with hypothermia.

Ice Fishing and Winter Safety Criteria	4 Excellent	3 Good	2 Fair	1 Poor	0 Unacceptable
Handling fish and depth finder; rigging and hook-baiting	Describes fast release and gentle handling of fish, which maximizes survival odds for released fish. Can tie an improved clinch knot, set depth for bobber placement, and bait hook safely.	Discusses either fast release or gentle handling, which maximizes survival odds for released fish. Can describe how to use a depth finder and bait a hook safely. Can tie an improved clinch knot.	Knows what to do, but not how it helps fish. Can identify a depth finder, and bait and describe how to rig a line.	Can't accurately describe how to handle and release fish, or how to bait a hook.	Doesn't try to describe how to handle and release fish or how to bait a hook.

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

Diving Deeper

Extensions

1. Have students perform ice safety skits for their classmates.
2. Ask a conservation officer, water patrol, or other ice safety specialist to visit your class and discuss ice safety.
3. Make ice rescue claws with your class. Find instructions from the DNR website by entering "ice rescue claws."
4. Have students plan an ice fishing event and invite their parents, caregivers, grandparents, or other adults.
5. Have students plan an ice fishing event for a group of younger students.

For the Small Fry

K-2 Option

Do the Dressing for Winter demonstration. Have students act out the self-rescue. Follow the instructions for Part 3: Ice Fishing.

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Name _____ Date _____

Dressing for Ice Fishing Word Finder Sheet

Unscramble the words and circle them in the word find.

cgikostn acp _____ _____ (two words)

rascf _____ (one word)

stnmeti _____

ertwni aotc _____ _____

sonw stanp _____ _____

sscko oowl _____ _____

rtinwe tosob _____ _____

gonl raewrednu _____ _____

Bonus: yweeaarslr _____ _____

P	L	M	O	K	N	I	J	B	U	H	V	Y	G
S	C	T	F	W	X	R	D	Z	E	S	W	W	A
S	T	A	K	O	N	E	R	R	D	U	M	L	F
Q	P	S	T	O	O	B	R	E	T	N	I	W	M
W	A	O	L	L	M	S	F	T	T	A	T	E	A
E	C	S	C	S	M	A	G	E	W	E	T	A	A
R	G	S	N	O	W	P	A	N	T	S	E	R	R
T	N	D	Z	C	I	Z	H	U	C	B	N	L	R
Y	I	F	X	K	N	N	J	A	E	Y	S	A	M
U	K	G	C	S	B	X	R	O	K	H	I	Y	Y
I	C	H	V	C	V	F	K	L	A	T	E	E	T
L	O	N	G	U	N	D	E	R	W	E	A	R	O
O	T	A	O	C	R	E	T	N	I	W	U	S	L
P	S	J	B	T	A	O	O	R	E	T	N	I	W

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Dressing for Ice Fishing Word Finder Answer Sheet

cgikostn acp	**stocking cap**
rascf	**scarf**
stnmeti	**mittens**
ertwni aotc	**winter coat**
sonw stanp	**snow pants**
sscko oowl	**wool socks**
rtinwe tosob	**winter boots**
gonl raewrednu	**long underwear**
Bonus: yweeaarslr	**wear layers**

P	L	M	O	K	N	I	J	B	U	H	V	Y	G
S	C	T	F	W	X	R	D	Z	E	S	W	W	A
S	T	A	K	O	N	E	R	R	D	U	M	L	F
Q	P	S	T	O	O	B	R	E	T	N	I	W	M
W	A	O	L	L	M	S	F	T	T	A	T	E	A
E	C	S	C	S	M	A	G	E	W	E	T	A	A
R	G	S	N	O	W	P	A	N	T	S	E	R	R
T	N	D	Z	C	I	Z	H	U	C	B	N	L	R
Y	I	F	X	K	N	N	J	A	E	Y	S	A	M
U	K	G	C	S	B	X	R	O	K	H	I	Y	Y
I	C	H	V	C	V	F	K	L	A	T	E	E	T
L	O	N	G	U	N	D	E	R	W	E	A	R	O
O	T	A	O	C	R	E	T	N	I	W	U	S	L
P	S	J	B	T	A	O	O	R	E	T	N	I	W

STUDENT COPY

Ice Safety Sheet

Ice Thickness Guidelines

These **ice thickness guidelines** are okay for new, clear, solid ice. But bear in mind that many things other than thickness can make the ice unsafe. **No ice is 100 percent safe!**

- four inches of new clear ice is the minimum thickness for travel on foot
- five inches is the minimum thickness for snowmobiles and ATVs
- eight to twelve inches is the minimum thickness to safely support cars or small trucks

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Ice Safety Sheet

What should you do if someone falls through the ice?

1. Stay calm. Think of a solution.
2. Do *not* run up to the hole. It's more than likely that you could fall in, too.
3. Throw or extend an item to the victim to pull them out of the water. Use a throwable personal flotation device attached to a rope, jumper cables, ski, sled, boat, or any object available.
4. If you can't rescue the victim immediately, call 911.
5. Get medical assistance for the victim. People coming out of very cold water can suffer a potentially fatal condition called **afterdrop**. Afterdrop occurs as the cold blood that had pooled in the body's extremities begins to circulate as the victim starts to rewarm.

What if you fall in?

1. Stay calm.
2. Turn toward the direction from which you came.
3. Place your hands and arms on the unbroken surface of the ice. Work forward onto the ice by kicking your feet. If you are carrying ice picks, dig the pointed ends into the ice to give you a handhold to grip.
4. If the ice breaks, maintain your position and slide forward again.
5. When you get out of the water and are lying on the ice, don't stand up. Instead, roll away from the hole. This spreads your weight over a greater area until you reach solid ice.
6. Get to a warm, dry place as soon as possible. Take off wet clothes and seek medical assistance.

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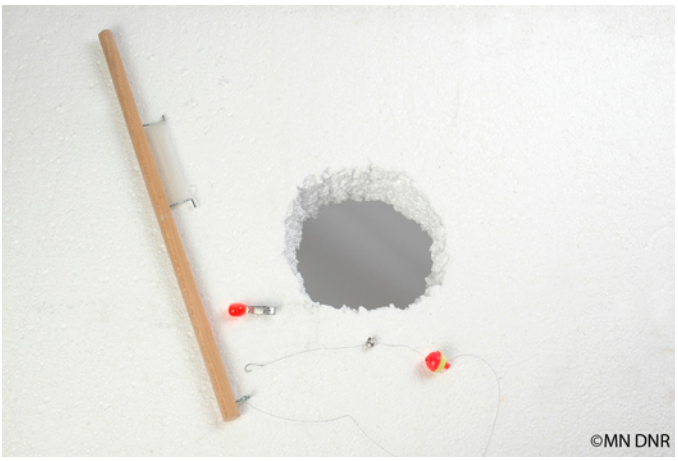
Setting Bobber Depth Sheet

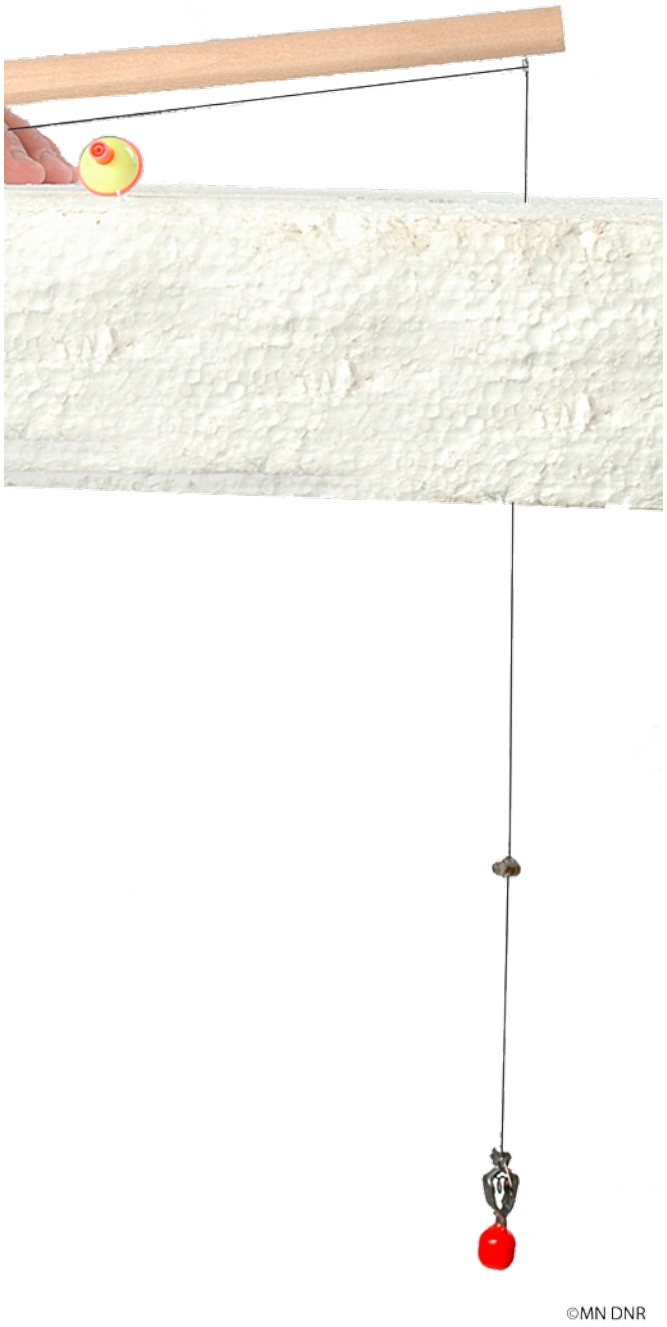
Demonstrate how to use a depth finder using a jiggle stick.

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.



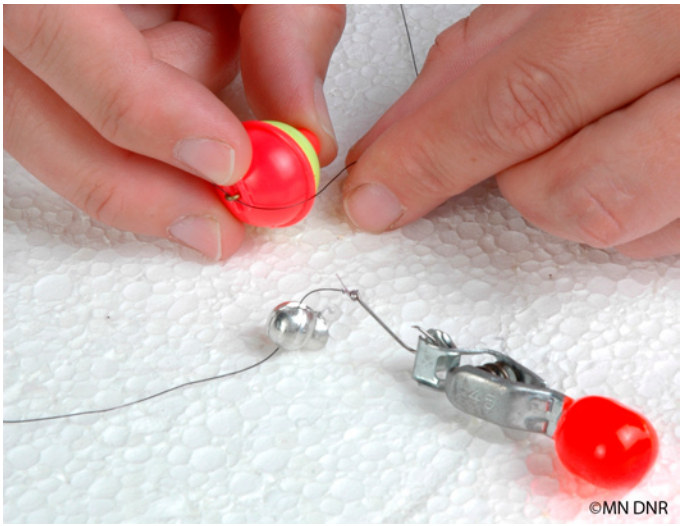
continued

STUDENT COPY

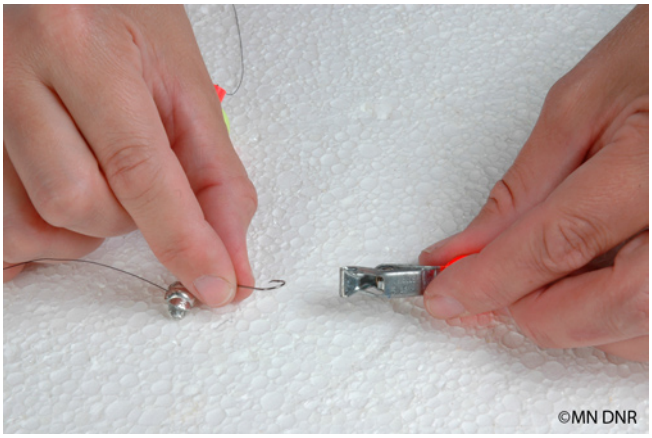
Setting Bobber Depth Sheet (continued)

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!