



Winter Survival Post-visit

Classroom Activities

Brief Synopsis

After participating in Winter Survival at Eagle Bluff, students will use what they learned to assess a survivalist's skills, in the first activity, Lost in the Woods. This activity will emphasize the importance of basic survival needs and a positive mental attitude. In the second activity, How Our Bodies Give Off Heat, students will be asked to draw and label a picture of how heat is lost in cold weather. This activity reinforces vocabulary learned in Winter Survival class.

Ages: Designed for 4th–8th grade

Time Considerations: Activity 1, 45 minutes
Activity 2, 30 minutes

Materials, Activity 1:

- Print out Survival Stories Worksheet (1 per student/group)
- Print out Story Ending Worksheet (1 per student/group)
- Pen/Pencil

Materials, Activity 2:

- Sheet of Paper
- Crayons, markers, or colored pencils
- How Our Body Gives Off Heat Worksheet

Vocabulary: convection, conduction, evaporation, respiration, radiation, hypothermia

Outcomes:

1. Students will learn what skills are important for survival.
2. Students will understand how heat is lost.
3. Students will learn new vocabulary.

Minnesota Academic Standards:

Science: 6.II.C

Language Arts: 4.I.B.1, 4.IC, 4.II.E.1, 4.III.A, 5.I.B.1, 5.IC, 5.II.E.1, 5.III.A, 6.I.B.1, 6.IC, 6.II.E.1, 6.III.A, 7.I.B.1, 7.IC, 7.II.E.1, 7.III.A, 8.I.B.1, 8.IC, 8.II.E.1, 8.III.A,

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Activity 1: Lost in the Woods

Background:

Survival skills are very important, even here in Minnesota there are many examples of people surviving extreme situations. *The Minnesota Conservation Volunteer Magazine* featured an article that highlighted some of these stories. Real-life people in these stories demonstrated many important survival skills, but were often missing some of the most essential ones. Below are just some of the keys to surviving once you are lost in the woods. Students should come up with some of these answers based on their evaluation of their character's survival/non-survival scenarios.

- Know where you are going and make sure to use your map and compass.
- Tell someone where you're going and when you'll be back.
- Stay together
- Don't go alone if you lack experience or skills.
- Always carry the essentials: Water or a purifying system, Matches and fire starter, Extra clothing, Extra food, Signal flag and whistle, Compass and area map, Flashlight with extra bulb and batteries, Pocketknife, Sunscreen and sunglasses, First-aid kit
- If you do get lost, stay put.
- Make yourself seen and heard.
- Remember the rule of three's; in 3 seconds you need a positive mental attitude, 3 minutes oxygen, 3 hours warmth and shelter, 3 days rest and water, 3 weeks food.

Procedures:

1. Gather the materials listed on the left.
2. Have students read the real-life scenarios on the *Survival Story Sheet* and give each survivalists a letter grade. Students can use the following discussion questions to evaluate and grade the survivalists:

- How did this person use what items he or she had with them and were they prepared?
- What skills and attitudes did the person possess?
- What could he or she have done better in the situation?
- What did he or she do well?
- How well did they use the rule of 3's?

Students can read and grade all 5 Survival Stories or break into 5 groups each working on a different story and present their findings to the rest of the class.

3. When students are finished grading give them the *Story Ending Sheet*. Have them think about the following questions while they are reading the sheet:

- Do you think the grade you gave each situation was accurate?
- What was the biggest mistake or success made in each situation?



Activity 2: How Our Bodies Give Off Heat

Background:

The best way to avoid heat loss is to stay out of the wind, keep dry, and dress appropriately for the weather conditions. Failure to do so may result in a life threatening medical emergency called hypothermia. Hypothermia occurs when the body's core temperature drops below normal impairing a person's muscular and cerebral functions. Recognizing how the body loses heat is the first step in preventing hypothermia. Once this is understood a person then can take action to prevent further heat loss. In this activity students will identify 5 ways the body loses heat: conduction, convection, radiation, evaporation, and respiration.

Procedures:

1. Print off the How Your Body Loses Heat Sheet.
2. Gather whatever medium for drawing your students will use.
3. Have students draw a picture that illustrates any warm object, person, animal, etc. giving off or maintaining heat. Label convection, radiation, evaporation, conduction, respiration, or as many as they can in their drawings.

Teacher Tips

- For Activity 1, break students into the same group they had during their *Winter Survival* class at Eagle Bluff. They can use their experiences to reflect on the survival scenarios.
- For Activity 1, save paper by breaking students into 5 groups, printing one copy of each worksheet, and cutting each story out along the line.
- For Activity 2, save paper by reading the definitions and directions on the *How Your Body Loses Heat* Sheet, or by drawing on the back of the sheet.



Additional Resources

<http://outside.away.com/outside/culture/200711/survival-stories-3.html>

This website is the source of survival story #4.

<http://www.time.com/time/magazine/article/0,9171,1004805,00.html>

Time Magazine's website is the source of survival story #5.

<http://www.dnr.state.mn.us/volunteer/janfeb04/lost.html>

This is a link to the "Lost in the Woods" article from the Minnesota Conservation Volunteer Magazine. Survival stories #1, #2, & #3 were found on this website and color PDF files can be downloaded.



Convection: Convection occurs when exposed skin is in contact with moving air or water. The heat generated by the body is pulled away exposing the skin to a constant supply of colder air or water. To prevent heat loss through convection, cover exposed skin. Put on a hat and gloves, zip up a jacket, and wear windproof clothing.

Radiation: The body is like a furnace, continuously giving off heat. To hold in the body's heat wear clothing that traps the warm air like a wool sweater or an insulated jacket. Don't forget to wear a hat!

Evaporation: Your body is more adept at removing heat than producing it. As you become physically active your body generates heat and begins to perspire. Wetness due to perspiration, immersion or condensation cools the body rapidly. To avoid overheating, monitor your body constantly by adjusting your physical activity and clothing. Stay dry!

Conduction: Heat loss through conduction is the result of contact between our warmer body and a colder surface or body. To prevent heat loss, place a barrier between you and the colder object.

Respiration: As you breathe, you lose heat in two ways: you lose the warm air while breathing out and expend energy warming the "new" air you're breathing in. To prevent excessive heat loss through respiration, use a scarf, neck gaiter or handkerchief to cover the mouth and nose.

Directions: Draw a picture that illustrates any warm object, person, animal, etc. giving off or maintaining heat. Label convection, radiation, evaporation, conduction, respiration, or as many as you can in your drawing.

Examples:

A hot, steaming muffin on cold park bench.

- *Convection* occurring on the muffin top
- *Radiation* occurring where the paper muffin holder is holding in the heat
- *Conduction* occurring where the bottom of the muffin meets the cold park bench

A sweating cat cross country skiing wearing hat, gloves, and scarf

- *Convection* occurring on the cat's exposed areas
- *Radiation* occurring on the cat's head, hands, and neck
- *Evaporation* occurring on the cat's sweaty forehead
- *Conduction* occurring from the cat's contact with cold metal ski poles
- *Respiration* when the cat breathes



DIRECTIONS: Read the following real-life survival scenarios and give each scenario a letter grade based on how well the characters did. Use the following questions to help assess the scenario:

- How did this person use what items he or she had with them and were they prepared?
 - What skills and attitudes did the person possess?
 - What could he or she have done better in the situation?
 - What did he or she do well?
 - How well did they use the rule of 3's?
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Story #1

The scenario...

Oct. 15, 1992, Jim Tennison, his 18-year-old son, Jamie, and a friend went grouse hunting near Savannah Portage State Park in Aitkin County. The three started out before midday. Jim Tennison and his friend decided to hunt in one direction, while Jamie Tennison took off on his own. They agreed to meet back at the truck by 4 p.m.

Jamie Tennison was an experienced woodsman. He'd spent several nights in the woods by himself, and knew how to survive alone. He usually carried a compass, and he knew how to use it. But on this day, with temperatures in the 50s, he was dressed lightly for a long walk in the woods with his 12-gauge shotgun but no compass or survival gear.

By 4 PM the weather had started to turn colder. The two older men waited at the truck until dark, but Jamie Tennison never appeared. Jim Tennison notified the county sheriff and gathered friends and family to search. The temperature continued to drop, and rain began to fall. Later that night the rain turned to snow. By morning snow covered the ground, and it was 25 degrees.

Survival grade received _____

Story #2

The scenario...

Oct. 22, 2001, Jason Rasmussen backpacked into the Boundary Waters along the Pow Wow Trail. Before he left, he gave his mother a detailed description of where he planned to camp each night and when he would be home. And on this point he was firm: If he didn't come home by a certain day and time, she should call the Lake County sheriff's office.

Rasmussen had maps and a compass and was well-versed in their use. However, this part of the trail was wide and easy to follow, so he didn't think he'd need to consult a map. After a few hours of hiking, Rasmussen took a wrong turn. What he thought was the path petered out into dense brush. After bushwhacking for a few hours, he knew he was lost.

He found a comfortable place to camp by a lake, pitched his tent, had dinner, and fell asleep. In the morning a cold rain kept him inside, where he spent a couple of hours poring over his map, trying to find the long, narrow lake beside which he'd camped. He found it, or thought he did, farther west than his actual location.

He reckoned he'd recover the trail if he followed the lake on the map to its southern end and walked a mile beyond it. Because bushwhacking with his pack was so grueling, he decided to first locate the trail, then return for his things.

He walked to the end of the lake, struck off into the woods, hiked for about a mile, walked around, and couldn't find the trail. He started back to camp. But when walking around he had managed to move over a little to the west, so he walked north right past the lake.

Then he fell into a bog and was soaking wet. When the sun set, it started getting cold and he had no hat, gloves, matches, and very little food. He found a giant fallen, hollow tree, and lined it with evergreen boughs he cut with a pocketknife. This served as Rasmussen's shelter for the next seven days.

Survival grade received _____

Story #3

The scenario...

March 20, 1995, Travis Hatzenbuehler and two companions set out on a midday hike in Gooseberry Falls State Park along the North Shore of Lake Superior. Judging from what the three carried with them-little more than a lighter-they didn't plan to spend the night.

After a couple of hours hiking, they were in deep woods. They made several strikes on trails they thought would return them to the road. After more hiking, and as dusk fell, they realized they were lost.

The first night they huddled around a fire. The next day they disagreed about which way to hike. Hatzenbuehler struck out on his own and found his way to safety. He went straight to the state park manager, who immediately initiated a massive ground and air search.

Survival grade received _____

Story #4

The scenario...

Joe Spring was cross-country skiing near Steamboat Springs, Colorado, and was going downhill in a meadow. He wasn't moving fast, but moving quickly enough to make turning tricky, especially in snow that was rotting under the April sun.

His right ski punched through the crust and locked. There was no audible sound. It just felt like hitting your funny bone. But he pulled up his pant leg and saw the lower bones in his right shin twisted beneath the skin.

Joe took a moment to think. It was Sunday. He had told his neighbor where he would be skiing but not when to expect him back. Joe had matches, a magnesium bar, a lighter, a whistle, some nuts and dried fruit, two energy bars and some chocolate, a half-full CamelBak, two knives, a hat, four layers of wool clothing and a non-waterproof shell with a hood.

He put on all his clothes, then wrapped a knee pad around his broken shin and used his backpack as a splint. Joe wanted to get off the snow, and there was dry ground back in the meadow, but there would be a better chance of snow-mobile traffic along the road.

From a sitting position, Joe worked out a crawl using his left leg and right elbow, and about 20 minutes after the fall, Joe started to move. Two hours and 500 feet later, he saw a deep tree well just off the road. It would soon be dark, and he needed shelter. Joe crawled in and spread some branches on the ground. He drank all his water, then built a fire, which lasted through most of the night. Joe got cold, but surviving that first night gave him confidence.

Then the pain came. His leg muscles cramped and the bones ground together whenever he moved. Joe tried to build another fire, but he was out of matches, and the plastic lighter melted when he held it down too long trying to light wet leaves. Joe still had the magnesium bar, but the shavings scattered because he was shivering so badly. He discarded what he had heard about not eating snow, because he needed water. Over the next few days, Joe crawled more than half a mile, crawling for 13 hours in one day and convincing himself not to give up by thinking of the anguish others would feel if he died.

Survival grade received _____

Story #5

The scenario...

Ralston had been hiking and rock climbing alone through the canyon, 40 miles from the nearest paved road and on a trail rarely used by others. A boulder had crashed down on his right arm, pinning him in a 3-ft.-wide space. Ralston fought hard, but the rock wouldn't budge. By Day 3, his water had run out. As Day 5 dawned, Ralston was badly dehydrated and knew he must free himself by any means. So he reached for his pocketknife and began cutting off his arm. He severed it just before the elbow.

At some point, the 6-ft. 2-in. climber fashioned a tourniquet to stanch the blood. After the amputation, he used his remaining arm to rappel 50 to 75 ft. to the canyon floor. He had to hike another seven miles to find help.

Survival grade received _____



Below are the real-life endings to the survival scenarios. Think about the following questions as you read the ending:

- Do you think the grade you gave each situation was accurate?
 - What was the biggest mistake or accomplishment made in each situation?
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Story #1...

How it ended...

For the next several days, a large search and rescue effort, including DNR conservation officers on the ground and in the air, produced no sign of Jamie Tennison. He had simply walked into the woods and disappeared. He has never been seen again.

Story#2

How it ended...

As it happened, a whistle saved Rasmussen's life. On the seventh day of his exposure, a search plane took another pass. His hollow tree was too concealed to be seen from the air, but he'd made a practice of blowing his whistle after each plane passed. He did it again, and a quarter-mile away one person in the five-person search party heard it.

Story #3

How it ended...

His lost friends kept looking for a way out, and finally separated. After three days, a snowmobile sled carried out one of Hatzenbuehler's companions, barely breathing. He survived. The third man did not. Later that day he was found face down in the snow, having succumbed to hypothermia.

Story #4

How it ended...

The snowmobiles passed him twice. Joe was only five feet off the road, but was in a tree well, where he'd taken shelter under a blanket of branches. Snow from a blizzard the night before camouflaged his tracks. He had been stranded for eight days. His core temperature had fallen to 88 degrees, he was dehydrated, and he'd lost 35 pounds and had no strength to yell. His neighbor came home Sunday night and called search and rescue.

When Joe heard the engines stop the next morning, he blew his whistle three times. Joe saw someone and waved from beneath the tree. He said, "Are you Charles Horton?" Joe said, "If I'm not, are you gonna leave me here?"

Story #5

How it ended...

Bandaged and bleeding profusely, Ralston was walking with two other hikers who had encountered him when Sergeant Mitch Vetere of the Emery County Sheriff's Department spotted the group from a helicopter. Once aboard, Ralston asked for water but was remarkably stoic. "He was drained but coherent," says Vetere. "He seemed pretty calm for a guy who had just cut his own arm off." Authorities tried to retrieve the arm later that day, but they had no more luck moving the boulder than Ralston; the rock is said to be big enough to fill the bed of a pickup. Ralston, now hospitalized in serious condition in Grand Junction, Colo., hasn't spoken publicly of his ordeal. His family has issued a statement attributing his survival to Ralston's "strong physical and mental condition."