



**Western Upper Peninsula Center  
for Science, Mathematics and Environmental Education  
*A partnership of***

**Copper Country & Gogebic-Ontonagon Intermediate School Districts and Michigan Technological University  
Serving schools and communities in Houghton, Baraga, Gogebic, Ontonagon and Keweenaw Counties**

**Winter Survival**

Grade 6th

Duration: 2 hours

Summary: Students will practice team building and survival skills as they work together to decide from a list of items which would be most useful: whistle, compass, tarp or tin can? We will explore the concept of “wind chill” and learn techniques for building a winter shelter.

Resources

Winter Survival lesson plan developed by Beth Squires in Jan. 2011.

Lesson Objectives

*At the end of this lesson, students will be able to:*

- Explain the *Rule of 3s* and the *Sacred Order*
- Describe what they would do if in a winter survival situation---how to be preventive and how to protect themselves.
- Create a simple survival shelter using natural materials found outdoors
- Select good locations for creating a survival shelter
- Work cooperatively to make decisions.

Lesson Outline

- I. Inside Activities
  - a. Survival Improvisation
  - b. Survival scenario team-building activity
- II. Outside Activities
  - a. Snowshoe hike and survival scavenger hunt
  - b. Simple survival shelter building

Inside Activity

Materials:

Garbage bag

Winter Survival Scenario

Pencils

Dry erase board, markers

Optional Activity: shirt, tin can, rope, bungy cord, umbrella, milk jug, tarp, plastic bag

Clipboards and paper labeled with each survival item listed above

## Markers

### Introduction - Garbage bag demo

- Ask students how a garbage bag could be used in a survival situation. Brainstorm
- Explain that people are usually not prepared for survival situations. Remind them that the best tool in a survival situation is a positive attitude and their knowledge/resourceful creative mind. People have survived many difficult situations because they remained calm and used their brains.
- Describe the following ways that a garbage bag can be used in a survival situation.

*Remind students during this activity about the dangers of suffocation.*

*The garbage bag should NEVER be put on the head/face.*

- Raincoat
- Shelter –can be used like a tarp
- Ground cover
- 'back pack'
- Food storage (keep insects out, bear bag-hang from tree)
- Blanket –stuff with debris if possible
- Mattress –stuff with debris if possible
- Keep feet dry
- Collect rain water
- Cooler (add rocks and put in stream or add cool water, tie off and place food items on top)
- SOS marker
- Cordage

### Winter Survival Scenario

Each student will receive a copy of the Winter Survival Scenario Worksheet.

- Read the scenario as a group and go over the instructions.
- Students should take a couple of minutes to think –individually- about what items are most and least important to take.
- Then have students discuss in their groups and come up with a final group list.
- Record answers on a dry erase board and discuss.
  - Teamwork –was it easy/difficult to decide as a group?
  - How could this affect a survival situation? Etc.

### II. Outside Activities

- What do humans need to survive?
  - Shelter, water, food
- Is it more difficult to survive in the summer or winter where we live?
  - Winter
- What makes it more difficult to survive in the winter?
  - because of cold temps and wind = exposure can lead to hypothermia and frostbite
  - Wind chill is an example of the cooling effects of air convection: accelerated heat loss due to moving air versus the same heat loss in still air.

- It measures the effect of temperature and wind speed on human comfort.

- *Convection*: process of conduction where one of the objects is in motion. Molecules against the surface are heated, move away, and are replaced by new molecules, which are also heated. The rate of convective heat loss depends on the density of the moving substance (water convection occurs more quickly than air convection) and the velocity of the moving substance.

- Today we are going to learn about some basic survival rules and tools.
- What is the most important thing you have to help you in a survival situation?
  - The most important thing you have to help you in a survival situation is a positive attitude and your knowledge.

## Survival Shelter

Materials:

Any material found naturally in the woods

Clipboards

Pencils

Scavenger hunt sheet

Shelter building discussion:

- Rule of 3s:
  - can die in as little as
  - 3 hours without shelter (it is possible for people to freeze to death at 50 degrees F)
  - 3 days without water,
  - 3 weeks without food
- Sacred order:
  - shelter, water, \*fire, food (fire may go after/with shelter –especially in a winter survival situation).
- What comes first in the sacred order? *SHELTER*
- What do the rules of 3 say about shelter? *can die in as little as 3 hours without shelter*
- So now they know that shelter is very important!
- Ask students to describe the characteristics of a squirrel nest and how it helps to keep it warm.
- Discuss things to think about before starting to build a shelter.
  1. Location –a good shelter in a bad location is a poor shelter
    - a. away from dangers such as falling rocks, water, snowy branches, snags
    - b. out of the wind
      - i. in the middle of a field = warmth from sun, however, there are no natural windbreaks or buffers to bad weather.
      - ii. Middle of a forest is not the best location either –little sun = always damp
      - iii. Also keep sun movement and wind direction in mind when designing the door.

## 2. Materials

- a. Remind students that if they are in a survival situation and have great need collecting materials is done out of necessity.
- b. If students are practicing –*they should be mindful of how they take materials from the landscape.*
3. keep it small with lots of dead air space (best insulation) –pile those branches on!
4. Remind students that these are not permanent shelters. They should be used to get out of the weather for a short amount of time.
5. Fire –in really cold temperatures it can be difficult to build a quick shelter that will keep you warm enough. You do not have to have a fire in your shelter in order to have your shelter heated by a fire.
  - a. Safety –fire in a small shelter made of dead wood, carbon monoxide poisoning
  - b. Fires can be made a safe distance outside of the shelter with a reflective wall made of rock or snow.
  - c. Candle in a tin can can provide a lot of warmth

*You are lost in the woods. The sun is setting. It is beginning to snow. What should you do?*  
*Shelter is #1 –staying put and waiting for help is the best thing to do.*

Assist students with designing and building a survival shelter. Let the students come up with a plan and build the shelter –you are there to assist.

### SHELTER EXAMPLE



## III.

### Group Activity (optional)

Show students the various materials that could be used in a survival situation (shirt, tin can, etc- list above) Divide students into equal groups so that there is a group by each object/paper. Each group will have ~ 2 minutes to brainstorm and create a list of ways that the item may be used in a survival situation. They must list at least one way to use the item but can list as many as they can during the allowed time. After ~2 minutes the groups rotate. The next group must add at least one new way to use the item to the list. Rotate, etc.

\*Some examples of items and uses are listed below –any item can be used and the list of uses can be much greater. Let the students come up with the ideas.

- Coat or shirt(carry items –tumpline)
  - A tumpline is a strap attached at both ends to a backpack or other luggage and used to carry the object by placing the



strap over the top of the head. This utilizes the spine rather than the shoulders as standard backpack straps do. Tumplines should not be worn over the forehead, but rather the top of the head just back from the hairline, pulling straight down in alignment with the spine. The person then leans forward, allowing the back to help support the load.<sup>[1]</sup>

- Milk jug (carry water, cut and use as shovel to scoop snow)
- Tarp (shelter, collect water, SOS marker)
- Umbrella (keep dry, collect water, if brightly colored could be used as SOS marker)
- Tin can (collect water, scoop snow, dig, with candle = warmth)
- Plastic grocery bag (cordage, to carry)
- Rope (use to help build shelter, hang food, etc.)
- Bungy cord (shelter)