

Earth Systems I/Unit 6 Study Guide

ESIU6SG (Northwoods Ecoregion)

Study Objectives (things to learn)

1. Identify specific behavioral and physical adaptations animals and plants have to the winter ecological challenges of this region.
 - a. Resist
 - i. Cold/Snow Load
 - ii. Food/Water
 - iii. Navigation/
 - b. Hibernate
 - c. Migrate
2. Discuss the characteristics of the snow pack.
 - a. New Snow
 - b. Old Snow
 - c. Major Crystal Shapes
3. Explain the construction of a Quin-zhee and what characteristics about snow allow it to be an effective shelter.
 - a. Redeeming qualities of snow
 - b. Snow for Shelter
4. Evaluate the effectiveness of historic human travel and camping methods.
 - a. Old vs New fabrics
 - b. Toboggans and Snowshoes
5. Describe the two most important cold emergencies and the methods for prevention and care.
 - a. Frost Bite
 - b. Hypothermia
 - c. 3-layer clothing system

Terms to be familiar with

hibernation migration hypothermia cuticle biome ecoregion convection conduction
thermoregulation radiation evaporation snowshoe float sublimation

To Do:

- Notebook: **10pts**
 - ❑ Article Guide: "The Northwoods"
 - ❑ Case Study: "Left Out in the Cold - a case in thermoregulation"
 - ❑ Notes on Study Objectives 1-5
 - ❑ "To Build a Fire" - Lessons learned
 - ❑ Unit Concept Map
- Wolf Track Lab (using mathematical analysis) **10pts**
- Northwoods Quiz1 (SO# 1, 2, and 3) **10pts**
- Northwoods Quiz2 (SO# 4 and 5) **10pts**
- Exam **20pts**
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Winter Field Study Team

Wednesday, January 12, 2011 will be the beginning of the Esko Winter Research Project. This project will utilize our outdoor classroom located along the St. Louis River near Carlton, MN. 7 students and I will trek into the woods to establish a day camp that will serve as our base for data collection. Research starts with a question and investigates ways to answer that question. Our research question will be, "Can we see evidence of climate change in the trees of Carlton County?" After establishing base camp, the research team will be responsible for collecting the following data: digging snow pits, location/elevation of pit (gps), collect snow pit data. Students will also learn about ice safety and animal/plant adaptations to winter. Each year a new research team will spend a full day in the winter woods adding to our data and knowledge of our environment.