



**THE CREMATION OF
SAM MCGEE**
by
Robert W. Service

It is certainly possible that Sam's problem was that he was wearing clothing that was poorly insulated. Each winter, snow covers one-fourth of the earth's land surface. Animals learn how to use the snow as insulation. Sled dogs know instinctively that if they make a burrow in the snow, their own body heat will keep them warmer.

We all know how cold we are on days when we haven't listened to the weather report, and we have chosen the wrong coat to wear. We also know the idea of wearing layers of clothing to allow air to help with the insulating factors. In this activity, students should see a difference between the temperatures on the ground's surface and below the ground. They will understand why animals will stay buried in the snow on cold days.

MATERIALS: winter with snow on the ground, Jell-O™, boiling water, thermos (optional), empty film canisters, two thermometers

ACTIVITY: Make Jell-O™ and fill film canisters half full. Put the lid tightly on one canister. Before beginning the activity, choose two sites: a shady snow-covered exposed area and an area of deep snow in which a canister could be buried. Then place surface canister uncovered in the exposed area and the covered snow canister under the snow. *Be sure to mark the site of buried canister.* Place thermometers close by each site, one on top of the snow and one underneath the snow. After 10 minutes, check the surface canister for jelling. When jelling has begun, students can dig up

the buried canister and check and compare the state of the two. Which one jells first? Can you explain why? Extension: let students check the insulating capacity of their warmest winter jacket!

SOURCE: Hands-On Nature, Information and Activities for Exploring the Environment with Children, Vermont Institute of Natural Science, Woodstock, VT.

STANDARDS:

BSL: 1.1, 1.2, 1.3, 1.4, 1.7, 1.11, 3.1, 3.3, 3.4, 4.2, 4.7, 4.10, 4.11, 5.2, 11.2, 12.3

NCTM: 4d, 10a, 10b

SCS: A1, A2, C1, C3, E1, E2, E4, E5



TEACHER NOTES: The picture above captures a dogwood tree right after a winter ice storm. The buds are protected because they are covered with ice and therefore "insulated". The tree had beautiful blossoms when spring came.

If you are using this activity with older/middle school students, suggest they watch the new movie "Eight Below". It shows how sled dogs survive in an Antarctic winter.

This activity could also be used with Wild Horse Winter by Tetsuya Honda. The wild horses depicted in the story are based on the Dosanko horses found on the island of Hokkaido in Japan. Their ancestors were Nambu horses who were brought to the island more than three hundred years ago by merchants and fisherman. These people only stayed during the

warm season and left the horses to face the winter season on their own. The breed of horse that survived-the Dosanko-was shorter with longer hair and thicker hooves. If blizzard conditions occur, the horses will lie down and allow the insulating properties of the snow help to keep up their body heat.

EXTENSION: In language arts, have students learn the poem and use this as a recitation exercise.

Service, Robert. The Cremation of Sam McGee. Greenwillow Books, 1986, ISBN#0-688-06903-7.