Name: _____

LOOK OUT BELOW!

In "Surviving the Snow" (p. 14), you learned that avalanches can occur after layers of snow build up on a mountain. Certain types of mountain slopes are more prone to avalanches than others. Try this hands-on activity to see how a mountain's slope and the friction on its surface affect avalanche formation.

PREDICT:

Will an avalanche occur more easily on a steep slope or a gentle slope? Will an avalanche occur more easily on a smooth surface or a bumpy surface?

MATERIALS:

newspaper • three pieces of sturdy cardboard, 22 x 28 cm (8.5 x 11 in.) • 1 sheet of waxed paper, 22 x 28 cm (8.5 x 11 in.) • tape • 2 cups of sugar • 8 cups of flour • 2 cups of mashed-potato flakes • ruler • protractor • 1 piece of felt, 22 x 28 cm (8.5 x 11 in.) • 10 small pebbles • glue

PROCEDURE:

1. Cover the floor with a sheet of newspaper.
2. Cover one piece of cardboard with waxed paper and tape it down. This surface represents an ice-covered mountain.
3. Lay the board flat and create four layers of "snow" on top of the waxed paper. First, cover the entire board with a 2-mm (1/16-in.) layer of sugar. This represents a light snowfall. Next, add a 5-mm (1/8-in.) layer of flour. Pack it down to represent a heavy snowfall. For the third layer, cover the board with dry mashed-potato flakes. This represents another light snowfall. Finally, add and pack down another 5-mm (1/8-in.) layer of flour. This represents a final, heavy layer of snow.
4. Have a partner line up the protractor with the long edge of the cardboard to record the incline at which the snowpack begins to slide.
5. Take one of the short ends of the board and slowly tilt it upward until the layers collapse and slide. Record the angle of incline at which the layers started sliding.
6. Cover the second piece of cardboard with felt. This surface represents a grassy mountain. Repeat steps 3-5.
7. Glue the pebbles onto the third piece of cardboard so that they are scattered over the entire area. This surface represents a rocky mountain. Repeat steps 3-5 once more.

CONCLUSIONS:

1. Which surface had the lowest angle of incline before the layers slid?

2. Which surface had the most *friction*, or resistance to movement?

3. Ski resort owners sometimes plant trees and build low fences on ski slopes. Based on your results, why do you think they do this?