Name: _____ Date: _____

BLM 7–4

Chapter 7 Unit 3 Project

Section 7.1

1. Exposure to cold weather can cause frostbite and hypothermia. Mountain climbers, sky divers, and other high-altitude enthusiasts must protect their skin because air temperature decreases as altitude increases. This rate of decrease in temperature is nearly constant, up to about 11 000 m.

An airplane taking off in the Yukon Territory recorded the following temperatures.

Altitude (m)	Temperature (°C)
0	12
4000	–13.6
8000	–39.2

a) Sketch a straight-line graph of the data.

b) What is the slope of the line expressed as a fraction in lowest terms? What does the slope represent?

c) What is the *y*-intercept? What does it represent?

d) Write an equation that describes the relationship between temperature, *T*, in degrees Celsius, and altitude, *A*, in metres.

e) Mount Logan is in Kluane National Park and Reserve, YT. At a height of 5959 m, Mount Logan is the highest mountain in Canada. It is the second highest mountain in North America. Predict the temperature a climber would experience at the peak of Mount Logan on the day that the airplane collected the data. Assume minimal wind.

f) Most people are at risk of frostbite within 10–20 min of exposure to temperatures below –20 °C. Predict the altitudes at which the temperature will be below –20 °C.

Name: _____ Date: _____

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(continued)

Section 7.3

2. Paleontologists can predict the anatomy of humans and animals based on skeletal remains.

Materials
- SI measuring tape
- grid paper
- ruler

Step 1 Work with a partner of the same gender as yourself. Measure and record the length of each other's humerus bone. It runs from the shoulder to the elbow. Measure and record each other's height without shoes.

Step 2 Collect and share your data with other students of the same gender. Record all data. Use grid paper to plot the data as coordinate pairs. Label the axes and scale used.

Step 3 Draw a straight line that represents the data. What is the equation of this line?

Step 4 Measure the humerus bone of a teacher of the same gender as you. Use your equation to predict the height of the teacher. Compare the teacher's actual height with your predicted height.