Discovery Ride
Energy Worksheet

This paper will walk you through the concepts and calculations we will use in our unit on work, energy, and simple machines. It is designed to give you an introduction to a variety of concepts through the eyes of the Discovery Ride, a bicycle journey Mr. Flint completed during the summer of 2002.

Directions
Complete all calculations using SI (metric system) units and follow all significant digit rules. Place your answers in a box.

Chemical Potential Energy

Food energy is measured in joules in the SI system. The standard energy unit used by nutritionists in the United States is the Calorie. One Calorie (with a capital "C") is also known as a kilocalorie and is equal to 1000 calories (lower case "c"). One calorie is equal to 4.184 joules.

1.) Calculate the total amount of food energy consumed by Mr. Flint over the course of the 70 day journey. The average amount of energy consumed each day was 18.3 million Joules (4380 Calories).

2.) Calculate the total amount of energy contained in the stored fat that Mr. Flint consumed over the course of the trip. He used up a total of 3.6 kg (8.0 lbs) of fat and each gram of fat has the energy equivalent of 37,700 Joules.

3.) Add the energy consumed in the daily diet (answer to problem #1) to the energy contained in fat (answer to problem #2). This is the total amount of energy available for use for the entire summer.