

CHAPTER 12 **Project Recording Sheet**
12 **Functions and Coordinate Geometry**

Counting on Calories

Your job as a sports physiologist is to make it possible for endurance athletes of any size and ability to calculate the number of calories they need to complete their activities successfully. Without enough calories every hour they will experience the dreaded “bonk” and may experience dizziness, crankiness, fatigue, irritation, impaired judgment, and/or complete exhaustion.

To calculate calorie use:

weight × calorie expenditure of the sport at a given speed

Complete the chart below to find out how many calories you burn with an hour of cycling, running, walking.

Speed (m/s)	Speed (mi/h)	Energy Use (calories/h/lb)			Calories Burned		
		Cycling	Walking	Running	Cycling	Walking	Running
1	2.2	0.95	1.09				
2	4.5	1.04	1.91				
3	6.7	1.23	3.82	3.82			
4	9.0	1.34		4.91			
5	11.2	1.77		6.55			
6	13.4	2.73					
7	15.7	3.82					
8	17.9	5.45					
9	20.1	6.82					

Many runners, walkers, and cyclists want to know their speed in miles per hour. Find the speed in miles per hour of a cyclist that is traveling at a rate of 5 m/s.

- How many seconds in an hour? _____
- How many meters in a kilometer? _____
- How many miles do you travel in a kilometer? _____
- What is the speed of the cyclist in miles per hour? _____

Imagine that you are a cyclist. Create a graph that shows your energy use as you increase your speed. Is the curve always linear? _____

If not, what happens? _____

What do you account for the change? _____