Energy Analysis Lab

Introduction

We eat in order to use the chemical energy contained in food. We use this energy to run, play, think, and stay warm. Today, we will study the ways that you use energy every day.

Research Question

How do you use energy in your everyday life?

Vocabulary

• Chemical energy
• Motion
• Metabolism
• Growth
• Pedometer

Materials

• Pedometer
• Your body!

Pre-lab Questions

1. Where does your energy come from? What kind of energy does your body use?

2. What are some ways you use energy?
3. What does your body do with extra energy?

4. Wear a pedometer over a 24 hour period to measure how many steps you take.

**Data Analysis**

1. How many steps did you take in 24 hours?

2. Although it varies depending on your size, how fast you walk, and many other factors, we will estimate that a 6th grader uses about 1 calorie for every 33 steps. How many calories did you use by walking?

3. We also use energy to maintain homeostasis in our bodies. Remember that homeostasis is the stable environment inside of your body which enables your organs to function. We will estimate that girls use 1000 calories per day and boys use 1200 calories per day to maintain homeostasis. How much energy did you use by maintaining homeostasis?

4. How much total energy did you use by walking (question 2) and maintaining homeostasis (question 3)?
5. How much energy did you consume over a 24 hour period? How do you know? (hint-look at your previous lab report!)

6. Did you use more energy or consume more energy? How much more?

7. If you consume more energy than you use, your body uses the extra energy for growth. Six grade is time of rapid growth for many people. Did your body use energy for growth? How much?

8. How much total energy did you use? Remember to include energy used to move, maintain homeostasis, and grow.

<table>
<thead>
<tr>
<th>Type of Energy Use</th>
<th>Amount (calories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td></td>
</tr>
<tr>
<td>Maintaining homeostasis</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

9. Calculate the percentage of energy you used for each function.

   Motion (walking):

   Maintaining homeostasis:

   Growth:
10. Make a pie chart to show how you used energy throughout the day (the solid lines represent 10% and the dashed lines represent 5%):

Conclusions

1. How did you use the most energy during the day? The least?

2. What would happen to a person who consumes much more energy than they use? What about a person who consumes much less energy than they use?

3. Does everybody need the same amount of energy? Why or why not?