

<b>CHAPTER 1</b>	<b>Thought Lab 1.1: Analyzing Energy Transfers</b>	<b>BLM 1.2.11</b>
HANDOUT		
<b>Purpose:</b> To analyze data on energy transfers from producers to consumers		

### Procedure

1. Recall that only a very small fraction of the Sun's radiant energy is absorbed by and incorporated into plant material. For ease of calculation, assume that the amount of energy captured by plants and contained in their tissues is two percent of the total energy available from sunlight. Also assume that 10 percent of the energy at one trophic level is transferred to the next level. (Remember, though, that the 10 percent value is an oversimplification.) Based on this information, answer the Analysis questions.

### Analysis

1. The three food chains shown on the following page represent typical food chains for people with different diets. Study the food chains and determine the percentage of the Sun's energy available to humans at the end of each chain.
2. About 80 percent of the world's population eat mostly grain-based foods. Why do you think this is the case?
3. How might diet influence the number of humans that Earth can ultimately support?

<b>CHAPTER 1</b>	<b>Thought Lab 1.1: Analyzing Energy Transfers (cont'd)</b>	<b>BLM 1.2.11</b>
<b>HANDOUT</b>		

4. One square metre of land that is planted with rice produces about 5200 kJ of energy per year. A chicken farm produces about 800 kJ/m<sup>2</sup> of potential food energy per year. Assume that a human must consume 2400 kJ per day to survive. Although it is an oversimplification to imply that a person could survive by eating only one type of food, calculate the total area of land needed to support the student population of your school for year on a diet of (a) rice and (b) chicken.

