



Name: _____ Date: _____ Group: _____

Food Web Math

Energy flow in an ecosystem flows from producers (plants) to consumers (animals). Plants capture energy from the sun and combine it with water and carbon dioxide to form $C_6H_{12}O_6$ (glucose) that is required for reproduction and growth of organisms. As the sun's energy is transferred to plants and to animals, it is returned to the environment in the form of dissipated heat and waste.

Plants use approximately 1% of the total solar energy that strikes the earth to create living matter. Animals convert approximately 10% of the energy available to them as food into living matter. The remaining 90% is spent in the form of dissipated heat and waste.

Use this information to answer the questions that follow.

1. Construct a food web with its levels (producers, primary/secondary/tertiary consumers) using the following information. You will use this food web to answer questions on the next page.

The Hawk and the Fox are tertiary consumers.

The Fox eats both Robins and Alligator lizards, the Hawk only eats Robins.

The Robin and the Alligator lizard both eat Crickets, Pillbugs, Millipedes and Earthworms.

Crickets eat Maple tree leaves.

Tertiary Consumers	
Secondary Consumers	
Primary Consumers	
Producers	



2. The sun produces $\frac{b+2}{64} = 1$ billion units of energy. How much energy does the maple tree use to create living matter?

3. The sun produces $[14h + j$ when $h = 18$ and $j = 3]$ billion units of energy. How much energy does the maple tree use to create living matter?

4. The sun produces $\frac{k}{9} + 68 = 86$ billion units of energy. How many units of energy are used by a secondary consumer?

5. The fox consumed 65 units of energy from the alligator lizard. How many units of energy was available from the alligator lizard? How many units of energy was available from the pill bugs?

6. The robin received $8p^3(4p + 4)$, $p = 23$ units of energy from the cricket. Use this information to answer the following questions.
 - a) How much energy did the cricket receive from the maple tree?

 - b) How much energy did the maple tree receive from the sun?

 - c) How much energy did the hawk receive from the robin?

7. What percentage of the energy from the sun does the alligator lizard receive?