Where is the energy?

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period: \_\_\_\_\_\_\_ Seat: \_\_\_\_\_\_\_\_

**Purpose**: Living things need a constant supply of both materials and energy. All of life’s every day functions for an organism require energy. From a full out sprint to a sneeze, energy is required. Without energy, cellular process would stop, and the organism would die!

**Pre-lab Questions:**

1. What is the main source of energy for all life on earth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. How do scientist show energy being passed from one organism to the next? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What do all food chains start with? Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Each level of a food chain is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Does water provide energy for living things? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question:** What happens to the amount of energy as it is passed from one trophic level to the next?

Hypothesis: I think the amount of energy will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from one trophic level to the next because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Experimental Procedure:

1. Get into teams of 6.

2. Gather material in bin

3. Head out side and claim a “lane” with your team

4. Listen for directions

5. Record data in data table

Data:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # of Trophic Levels | Trial 1 Starting Volume | Trial 1 Ending Volume | Efficiency of Transfer | Trial 2 Starting Volume | Trial 2 Ending Volume | Efficiency of Transfer | Average Efficiency of Transfer |
| 1 |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |

Graph: Average Efficiency of Energy Transferred by Trophic Level

Questions to reflect on before writing your conclusion:

1. What happens to the amount of energy as it moves from on trophic level to the next?

2. Where do you think the energy is going?

3. Which trophic level has the most energy?

4. Which trophic level has the least energy?

5. Which level of consumer is it hardest to be when it comes to obtaining energy?

6. Do you think it would be possible to have a 6th trophic level? Explain.

**Conclusion**:

 My hypothesis was \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.