**Activity Pyramids: Numbers and Biomass**

**Introduction:** We have discussed Energy Pyramids. In this activity, you will create a numbers and a biomass pyramid.

The four levels we will use are:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Materials:**

* 1 bag of 4 kinds of beans (Corn Kernels, Split Peas (Greenish), Black Beans, White Beans)
* Triple Beam Balance

**Directions:**

1. Take your bag of beans and separate the four types into four piles.
2. Using the balance, find the mass of each of the types of beans in your bag.
3. Fill in the appropriate column in the data table.
4. Find the mass of one of each type of bean.
5. Fill in the appropriate column in the data table.
6. Use the mass of all of one type of bean and the mass of one bean to calculate the number of “organisms” at each level. Or, count the number of “organisms” each type of bean represents. If you do the calculation, show your work here:
7. Fill in the appropriate column in the data table.

**Data Collection:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of Bean** | **Mass (g) all the “organisms”** | **Mass (g) of one “organism”** | **Number of “Organisms”** | **Trophic Level** | **Example** |
| Corn Kernels |  |  |  |  |  |
| Split Peas (Greenish) |  |  |  |  |  |
| Black Beans |  |  |  |  |  |
| White Beans |  |  |  |  |  |

***\*Note: “g” = grams***

1. What is an example of a producer? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is an example of a Primary Consumer (1o) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is an example of a Secondary Consumer (2o) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is an example of a Tertiary Consumer (3o) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Write these as the examples in the table above!

**Analysis: BIOMASS PYRAMID**

1. Fill in the Biomass Pyramid in the spaces to the right of the pyramid using the data you collected. Use the terms Producer, Primary Consumer, Secondary Consumer and Tertiary Consumer within the pyramid.

**Mass of each trophic level:**

1. Which trophic level contains the greatest biomass?
2. Which trophic level contains the least biomass?
3. What happens to the biomass as you move up the pyramid?
4. What are the units for a biomass pyramid?

**Analysis: NUMBERS PYRAMID**

1. Fill in the Numbers Pyramid in the spaces to the right of the pyramid using the data you collected. Use the terms Producer, Primary Consumer, Secondary Consumer and Tertiary Consumer within the pyramid.

**Number of organisms at each trophic level**:

1. Which trophic level contains the most organisms?
2. Which trophic level contains the least organisms?
3. What happens to the number of organisms as you move up the pyramid?
4. How do biomass and numbers pyramids differ?