Background:

Today you will be given the opportunity to explore the species richness of a community. You will be taking a sample in the same way that an ecologist would. You will do three trials and then asked to give an estimate for the species that are found in your community.

Materials:

You will be given the following –

1. A brown bag with your ecosystem labeled on it.
2. A worksheet

Directions

1. Do not look in your bag until the activity is over!
2. Look at the data table for trial #1.
   1. Select your first organism from the bag. Record the type of organism and place a tally mark next to it in the space maker quantity in Table #1.
   2. Release your organism back into the wild by placing it in the bag.
   3. Repeat steps A and B four more times for a total of five trials. Make sure to record all data.
   4. Finish your data table and give an estimate for species richness in the data section of this packet.
3. Look at the data table for trial #2
   1. You are to repeat the same steps for this trial but you are going to increase the sample size. Instead of picking 5 organisms you are going to pick 20 organisms. Record all of the information into Data Table #2
   2. Finish your data table and give an estimate for species richness in the data section of this packet.
4. Look at the data table for trial #3
   1. With this sample you will be “tagging” or marking organisms that you catch. These will be counted then returned back to the ecosystem. To tag an organism put a small pencil mark in on the corner of the card.
   2. Tagged organisms can be collected and counted again if they are drawn again. This will allow for a greater understanding of the amount of organisms that are being drawn
   3. Make sure to take 20 samples and record all data in table #3
   4. Finish your data table and give an estimate for species richness in the data section of this packet.
5. Now you may dump out your bag and quantify the number and type of organisms that are in your ecosystem. Record the number in the Data section below.

Data:

Data Table #1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organism |  |  |  |  |  |
| Quantity |  |  |  |  |  |

Estimated Number of Organisms After Sample #1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organism |  |  |  |  |  |
| Quantity |  |  |  |  |  |

Data Table #2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organism |  |  |  |  |  |
| Quantity |  |  |  |  |  |

Estimated Number of Organisms After Sample #2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organism |  |  |  |  |  |
| Quantity |  |  |  |  |  |

Data Table #3

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Organism |  | |  | |  | |  | |  | |
| Tag | No Tag | Tag | No Tag | Tag | No Tag | Tag | No Tag | Tag | No Tag | Tag |
| Quantity |  |  |  |  |  |  |  |  |  |  |

Estimated Number of Organisms After Sample #3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organism |  |  |  |  |  |
| Quantity |  |  |  |  |  |

Actual Number of Organisms

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Organism |  |  |  |  |  |
| Quantity |  |  |  |  |  |

Conclusion Questions:

1. What is species richness?
2. Did your environment have a high species richness or a low species richness? Why?
3. What sampling method was the most effective? How can you prove that?
4. What sampling method was the least effective? How can you prove that?