**Student Worksheet: Fungal Solutions**

**Waste Not, Want Not**

Discuss the following question with the class: What is “waste?” After the discussion, answer the questions below.

1. What types of waste do you produce daily and why?

2. What do you think is the most common type of everyday waste? Why?

3. What do you think are the least common types of everyday waste? Why?

4. What are the most common methods for disposing of waste?

5. Identify at least two ways to measure the amount of waste you produce. Include metric units.

6. Scientists like to have as large a sample size as possible when conducting research investigations because that increases confidence in their results. With a small sample size, each individual data point has a large influence on the overall results. Individual data points may cluster out of coincidence, in a way that does not reflect the entire population. Having a larger sample size increases the likelihood that results reflect the population. If you were researching the amount of waste produced by students at your school, how could you achieve a large sample size?

**Shaping a Study**

You will be conducting a research study as a class to determine how much waste you produce. As part of this research study, you will be responsible for categorizing and measuring the amount of waste you produce every day. To do this, discuss each question on your worksheet with the rest of your class and write down each answer.

1. What is the scientific question for your research study? What is your hypothesis?

2. What is the duration of the study? How long will you measure the amount of waste you produce?

3. What is your independent variable(s)? What categories of waste are you measuring?

4. What is your dependent variable(s)? How are you measuring the amount of waste you produce? This can include exact or approximate measurements. Include units.

5. How do you plan to record your data? Create a data table to record your data on a separate sheet of paper. You will use this table to record your data during the study.

6. How can you graph the class data once it has been collected? Include information about any calculations needed prior to graphing the data.

7. How could you scale your class results to know how much waste your class would produce in a year? Explain any uncertainties that may exist in your data.

**Sharing Samples**

Record your data in the data table(s) you created during the Shaping a Study section of the activity. Once you have finished collecting your data, you will need to use the process you described in your response to question 6 to combine your data with the rest of the class. Use your combined class data to create a graph on a separate sheet of graph paper.

**Fungal Solutions**

Read the *Science News* article “[A fluffy, orange fungus could transform food waste into tasty dishes](https://www.sciencenews.org/article/fungus-transform-food-waste-tasty).” Once you are done reading the article, you will join a group and be assigned a type of waste. Find a solution that reduces the amount of your specific waste type that enters the landfill. You can research solutions online or come up with your own solution. Once you find a solution, answer the questions on your worksheet to prepare a short presentation for your class.

1. What type of waste are you trying to reduce?

2. What is the solution? As part of your description, identify the source where you found your solution or that you came up with your solution yourself.

3. Does your solution reduce all of your type of waste, or does it only reduce specific waste items? If it only reduces specific waste items, what waste items does it reduce?

4. How effective is your solution at reducing waste in your category?