

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

## Accuracy and Precision in the Food Industry

**Objective:** Students will analyze lunch-sized bags of chips to determine the accuracy and precision of the food industry.

**Procedure:**

- In this lab, define accuracy as the net weight  $\pm 0.10$  grams
- Define precision as having a variance  $\leq 0.20$  grams
- All measurements need to be to two decimal places and must include units
- Each student in the group should have the same type of chip and same size bag to proceed

**Step 1:** Label your bag of chips with numbers before you start to weigh them.

**Step 2:** Weigh each unopened bag individually. This is the gross weight.

**Step 3:** Open each bag and dump the contents onto a paper towel. Weigh each empty bag individually. This is the tare weight. You may eat the contents.

**Step 4:** Calculate the net weight for each bag by subtracting the tare weight from the gross weight.

**Step 5:** Determine if each bag's content is accurate. Prove your answer on the next page.

**Step 6:** Determine if all of the bags together are precise. Prove your answer on the next page.

**Step 7:** What inferences can be made about the manufacturer and the accuracy of their products' weight?

**Data Table:**

Type of Chips: \_\_\_\_\_

The NET WEIGHT (in grams) printed on the bag of chips: \_\_\_\_\_

Bag #	Gross Weight	Tare Weight	Net Weight
1			
2			
3			
4			
5			

Determine if the bags are precise.

Largest net weight = \_\_\_\_\_

Smallest net weight = \_\_\_\_\_

Variance = \_\_\_\_\_

Do you consider the weights on the bags of chips to be precise? Why?

Prove if each bag is or is not accurate.

	Bag 1	Bag 2	Bag 3	Bag 4	Bag 5
Net Weight					
Bag's Printed Net Weight					
Variance					
Accurate?					