

Name \_\_\_\_\_

## **Investigation 5: How Many Calories?**

### **Worksheet 5.1 Guess the Calories**

#### **Scenario**

The following excerpt comes from *Attacking the Obesity Epidemic: The Potential Health Benefits of Providing Nutrition Information in Restaurants* by Scot Burton, Elizabeth H. Creyer, Jeremy Kees, and Kyle Huggins. The entire article can be found at [www.ncbi.nlm.nih.gov/pmc/articles/PMC1551968](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1551968).

Sixty-four percent of American adults are either overweight or obese, and the obesity epidemic shows few signs of weakening. Although the precise number of deaths attributable to obesity is difficult to estimate, obesity is clearly a major cause of preventable death. Not surprisingly, improving the healthfulness of the American diet has become a national health priority. The increasing prevalence of obesity-related diseases has been blamed, in part, on the increased consumption of foods prepared outside the home. Restaurant expenditures have increased consistently in recent decades; consumers now spend more than \$400 billion annually.

Results: Survey results showed that levels of calories, fat, and saturated fat in less-healthy restaurant items were significantly underestimated by consumers. Actual fat and saturated fat levels were twice consumers' estimates and calories approached two times more than what consumers expected. In the subsequent experiment, for items for which levels of calories, fat, and saturated fat substantially exceeded consumers' expectations, the provision of nutrition information had a significant influence on product attitude, purchase intention, and choice.

Conclusions: Most consumers are unaware of the high levels of calories, fat, saturated fat, and sodium found in many menu items. Provision of nutrition information on restaurant menus could potentially have a positive impact on public health by reducing the consumption of less-healthy foods.

**Statistical Question:** \_\_\_\_\_

**Collect Appropriate Data**

1. Fill in the “Guess?” column with your guesses for the number of calories in each fun size candy item.
2. Fill in the “Actual” column with the actual number of calories in each fun size candy item.

Candy Item – Fun Size	Actual	Guess?			
Snickers					
Skittles					
Butterfinger					
Kit Kat					
M&M’s Plain					
M&M’s Peanut					
Reese’s Peanut Butter Cup					
Starburst					
Whoppers					
Twizzlers					
Jolly Ranchers (3 Pieces)					

## Analyze the Data

3. How might you decide who is the best guesser in the class? Justify your answer.
4. Create a scatterplot of your data on graph paper, plotting the actual calories on the x-axis and your guess on the y-axis.
5. Describe the relationship between your guesses and the actual calories in each candy item.
6. What would the scatterplot look like if someone had guessed the correct actual calories in each candy item?
7. Describe the type of guesser your scatterplot shows. Explain.
8. On your scatterplot, draw the  $y = x$  line. Then draw the vertical distances representing the “errors” on your scatterplot.
9. On the table of guesses and actual number of calories, add a third column labeled “Errors” and calculate the errors (guess minus actual) for each candy item. Find the sum of the errors.
10. On the table of guesses and actual number of calories, add a fourth column labeled “Absolute Value” and complete the column. Find the sum of the absolute values.
11. On the table of guesses and actual number of calories, add a fifth column labeled “Squares” and complete the column. Find the sum of the squares.

