**Scatter Plot Project**

**What will you do? Analyzing the time of day and calories with scatter plots**

**Objective of the project: To explore the use of scatter plots in a real-world context: We will determine if a correlation exists between the time of Day and Number of Calories Consumed.**

### Student Exploration (artifact possibility)

We know that there is a correlation between fast food and the number of calories we eat, but is there correlation between the time of day and the number of calories we eat? How can you use scatter plots to investigate this?

 Do you love escaping to the kitchen late at night for a midnight snack? Have you ever wanted breakfast for dinner? Have you ever wondered if your eating habits change over the course of a day? One way you could investigate this is in a scatter plot!

1. In order to do so record the food you eat over the course of several days. Be sure to record the time of day and the number of calories in each meal. You can use this website to determine the number of calories in each meal.

(Use this site to track your calories <https://www.choosemyplate.gov/SuperTracker/foodapedia.aspx>)

1. Then create a scatter plot graph for the time of day vs. the number calories that you eat.

Q: Is there a correlation between the time of day and the number of calories that you eat? How does the scatter plot help you to find IF there is a correlation?

SPECIFIC INSTRUCTIONS ON HOW TO CONDUCT YOUR STUDY AND ANALYZE YOUR DATA:

1. For 3-5 days record all of the food that you eat, how much, the time of day that you eat, and the number of calories (if available on the packaging). Record your data in a table like that below.

Example of table for recording data:

|  |  |  |  |
| --- | --- | --- | --- |
| Kind of food | Quantity (how much) | Time of day | calories |

2. After recording your food data, convert the time into military time (so that you will be able to graph your data more easily). Military time is on a 24-hour clock where the hours before noon rum as usual and after 12 noon the time continues, oppose to returning to 1pm. For example, 1pm in military time is 13:00 (as it is an hour after noon) and 5:15pm in military time is 17:15 (as it is five hours and 15 minutes past noon). Military time link: <http://en.wikipedia.org/wiki/24-hour_clock>

3. Next find the calories for all the food that you ate over the 5-day period. For all the foods that you do not know the caloric information about use the website below to determine the number of calories: <https://www.choosemyplate.gov/SuperTracker/foodapedia.aspx>

4. Then put all of the time and caloric information into one table for the 3-5 days, like the example below. At this point you need to add up all the calories that you ate in a single meal, so that at the time of the meal you record the total number of calories you consumed at that meal.

|  |  |
| --- | --- |
| Time of Day (in military time) | Number of Calories |

5. Create a scatter plot graph for the time of day vs. number of calories.

6. After you graph this data, examine it! What type of correlation is there between the time of day and the number of calories that you eat? Does it have a positive, negative or no correlation? If there is a positive or negative correlation – is it strong or weak? How does your scatter plot show this? Explain.

7. What conclusions can you draw from your scatter plot graph and the correlation between the time of day and number of calories you consume? Explain.

8. Calculate the mean, median, and mode for your data.