Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_

CTE Science Laboratory Investigation

GRAPHING FOR FUN AND PROFIT

**Background Information**

All too often the graph is relegated to an end product; something that is to be admired and carefully filed away as proof of a job well done. But graphs are so much more than something pretty at which we can look! They can be useful tools that can help predict the future and manage the present.

In addition, the data behind the graph can illuminate trends and be very helpful in predicting how prices might change in the future. So it’s an important part of running any business to be able to accurately record and worth with large amounts of data.

**Purpose**

The purpose of this investigation is to allow you to understand how Excel can be helpful for analyzing current data to find trends and predict future behavior

**Materials**

Computer Sample Data

**Procedure**

PART I – EXCEL AT EXCEL

In this section, you’ll learn how to cheat and make the computer do your work for you. Whether it’s making a graph or finding an average, don’t be a chump and do all the work yourself! You’ll also learn about some very useful formulae that can help you analyze data quickly.

1. Go to www.mistersyracuse.com and located the “Criminal Justice” page under “Integrated Science”

2. Download and open the file called “Excel at Excel.” It’s a large data set about teen pregnancy rates from various countries for several hundred years.

3. You’re going to work with this data set to get some information out of it. Here are some useful formulae that will help you with your task.

Useful Excel formulae:

* Average: =average(*range*)
* Count if: =countif(*range, criteria*)
* Sum: = sum(*range*)
* Maximum value: = max(*range*)
* Minimum value: =min(*range*)
* Left characters: =left(*range, number of characters*)
* Reference a cell on another sheet: =(*sheet name, !cell number*)
* Look up a particular value: =vlookup(*“what value to look for in the first column, range of the entre data set, what column number to look in for your answer, true/false*).

4. You’ll need to do the following things:

* Find the average number of births for each year
* Make a graph that compares the average number of births to the number of births for a particular country
* Find the total number of births for all countries in a particular year
* Find the country with the most number of births and least number of births in a given year.

PART II – ANALYZE CRIME DATA

In this section you’ll use Excel to help you analyze some crime statistics.

1. Go to www.mistersyracuse.com and locate the “Criminal Justice” page under “Integrated Science.”
2. Take a look at the various options available to you for finding crime statistics. You might want to consider trying to correlate two bits of data (that is, does the average daily temperature have an effect on a particular type of crime?), or just finding out if two sets of data are really different or not (by using a t-test).
3. Select your data, download it to Excel, and manipulate and analyze it using the formulae above.