**Mathematics Research Project** Name:

Date: Block:

This project will not only give you an opportunity to review the learning outcomes of the Statistics Unit, but will also provide you with an opportunity to connect the study and the analysis of data collection, measures of central tendency, standard deviation, and z-scores to your own life.

You will be working alone or in pairs (no groups of three).

The topics and questions are provided as examples to get you started, but you are not limited to these questions. Feel free to add extra information that you find interesting or relevant to your topic. You will need to select two sets of data that you will analyze using standard deviation. One set must include at least 30 items. The other set should include 5-12 items.

Possible topics:

* **Project 1**: Annual salaries, ages, heights, or weights, etc. of all of the professional athletes from one or two teams (it must be a set of data that has been put together for some reason other than for this project, so not “my favourite athletes,” etc.) The larger set could be the entire team. The smaller set could be all rookies, or all players in a certain position, etc. The two sets don’t even need to be related.
* **Project 2**: Area, population, or economic data, etc. about a defined set of countries, provinces, or states.
* **Project 3**: Open Topic – could include a historical event, music, theatre, sciences, pop culture, etc. Please discuss the topic of your choice and get approval from me before you proceed with your research.

**Necessary elements for your project**

1. Be sure to keep track of where you obtained the information, and use reliable sources to confirm your data. You must include a bibliography or works cited.
2. Calculate the mean and standard deviation of the data you have researched, and the z-score of at least 3 data points from your data. For each data point that you find the z-score, you must determine the percentage of data below the point.
3. Determine a 95% confidence interval for your data assuming that your sample standard deviation is the true standard deviation.
4. Is your data normally distributed?
5. Create a frequency table, a histogram, and a frequency polygon of your data.
6. Create and answer three questions that use your data.
7. Prepare a display, with or without technology, to share your research and analysis with your peers. It must be neat and well-organised.

Once you have completed the research and analysis, the final product will be a display to demonstrate your understanding to your peers. Your display may take many different forms, but some examples include: a computer slideshow presentation, a movie, a 3D display, a poster, a brochure, or a booklet.

Evaluation:

This project will be worth the same as one of your unit tests. As a class we will develop a grading rubric that will give you more information about how this project will be evaluated.

Timeline: you will be given two full classes to help in your preparation of this project

* **Friday, May 1**: Choose your partner and start thinking about which project you would like to complete.
* **Monday, May 4**: You must tell me which project you are doing and who your partner is if you choose to work with a partner. Spend this class doing research and working on the project in the computer lab. Print off anything that you might be able to work on by hand.
* **Remember**: Any day that you have finished your homework in class, you should be using any extra time to work on your project. Bring some of your project materials to class just in case!
* **Friday, May 8**: Finish working on project. Practice presenting projects and give yourself a self-evaluation on your work.
* **Monday May 11**: Due date. Your display will be put up and presented in class. You will have an opportunity to circulate and look at the projects put together by your classmates during this time.