**Activity Description: Simple Linear Regression Worksheet**

**Introduction:**

In this worksheet, you will explore a dataset containing information about the 2018 and 2019 Canadian finishers of the Lake Placid Ironman. Specifically, you will analyze bike times to predict run times for the participants. Simple linear regression is a powerful statistical technique used to understand and model the relationship between two continuous variables. Through this activity, you will gain practical experience in performing linear regression analysis, interpreting the results, and making predictions based on the model.

**Learning Objectives:**

By the end of this activity, you will be able to:

1. Understand the concept of simple linear regression and its application in statistical analysis.

2. Identify the predictor (independent) and response (dependent) variables in a regression analysis.

3. Perform simple linear regression analysis using appropriate statistical software or tools.

4. Interpret the regression output, including the coefficient estimates and R-squared value.

5. Make predictions based on the regression model and evaluate the accuracy of the predictions.

**Methods:**

Before diving into this worksheet, it is important to have a foundational understanding of certain statistical concepts and techniques. The following prior knowledge will be helpful in completing this activity successfully:

1. Variables: Understanding the difference between predictor (independent) and response (dependent) variables is essential in the context of regression analysis. In this dataset, the predictor variable would be bike times, while the response variable would be run times.

2. Simple Linear Regression: Knowledge of simple linear regression as a statistical technique for modeling the relationship between two continuous variables is essential. You should understand the concept of a regression line, how it is estimated, and how it can be used to make predictions.

3. Prediction and Evaluation: Knowledge of how to make predictions based on the regression model and evaluate their accuracy using appropriate metrics such as mean squared error or R-squared will be beneficial.