**Subject area/course**: Mathematics/Statistics

**Grade level/band**: 11-12

**Task source**: Summit Public Schools

**Data Collection**

**STUDENT INSTRUCTIONS**

1. **Task context**:

Compelling arguments rely on compelling data. Data collection lies at the heart of the scientific method, and learning the skills involved in valid and reliable data collection will strengthen experiments in any area of expertise.

How do we design a study so that our data collection is valid, and how do we confidently analyze the data afterwards to draw unbiased conclusions? Further, what are the types of biases that we should avoid through each step of this process?

In this project we will explore the question: How are valid studies conducted at each stage of the process, from (1) designing the study to (2) executing the experiment to (3) analyzing the results of the study?

1. **Final product**:

A statistical analysis paper for the general public that analyzes data collected through a sample of your community.

Your final paper must include the following sections:

* Abstract
* Introduction
* Methods
* Results
* Discussion
* Acknowledgements
* Appendices

**Additional Information**

1. **Knowledge and skills you will need to demonstrate on this task:**
* Ability to collect and record data accurately.
* Ability to consider and adjust for bias.
* Ability to analyze data using statistics.
* Ability to reason from data.
1. **Materials needed:**
* Item A. River Farm Sampling Document [Step 1]
* Item B. Introduction and Methods Overview [Step 2]
* Item C. Support Document 1 – Introduction [Step 2]
* Item D. Support Document 2 – Population Sample [Step 2]
* Item E. Support Document 3 – Methods Section [Step 2]
* Item F. Making Revisions to Limit Bias [Step 3]
* Item G. Support Document 4 – Analyzing Data [Step 5]
* Item H. Support Document 5 – Discussion Section [Step 5]
* Item I. Support Document 6 – Acknowledgements, Abstract, Appendix [Step 5]
* Item J. Data Collection Peer Review Checklist [Step 5]
1. **Time requirements:**

This task will take approximately 2-3 weeks. Your teacher may choose to make changes to the task or adjustments to the timeline.

1. **Scoring:**

Your work will be scored using the Summit Public Schools Data Collection Rubric. You should make sure you are familiar with the language that describes the expectations for proficient performance.