

Unit 3 – Collecting Data

~9 – 10 Class Periods
12 – 15% Exam Weight

Day	Lesson and Objectives	Assignment
1	Activity: Show Me the Money!	None
2	Notes 1 – Planning a Study <ul style="list-style-type: none"> ○ Observational Study Vocab ○ Sampling Methods 	None
3	Pumpkin Picking Activity	None
4	Notes 2 – Potential Problems with Sampling <ul style="list-style-type: none"> ○ Sources of Bias ○ Sampling vs Non-sampling Error 	HW 1 – Sampling
5	Unit 3 Quiz	None
6	Notes 3 – Selecting Random Samples and Introduction to Experiments <ul style="list-style-type: none"> ○ Table of Random Digits ○ Observational study vs Experiment 	HW 2 – Selecting Random Samples
7	Notes 4 – Experimental Design <ul style="list-style-type: none"> ○ Principles of Experimental Design ○ Experimental Terms ○ Lurking vs Confounding Variables ○ Experimental Design ○ Scope of Inference 	None
8	Continue Notes 4	HW 3 – Experimental Design
9	Activity <ul style="list-style-type: none"> • Chocolate Candy Activity: Design an Experiment or • Ethics in Experiments Lesson 	HW 4 – Scope of Inference
10	Project <ul style="list-style-type: none"> • Sample Survey or • Design an Experiment 	Work on project
11	Unit 3 Summary Lesson <ul style="list-style-type: none"> • Unit 3 Summary Slides • Students work on test review the rest of class 	Test review due the day of the test
12	Unit 3 Test	None

Prerequisite Knowledge	Extensions
Students should be familiar with creating boxplots on their own, as well as analyzing centers of data.	Complete the second project included in the curriculum

Special Notes

- Each "Day" is approximately 50 minutes
- Blank days usually involve me finishing up the notes from the day before and then giving them time to start the assignment for that day.
- My pacing is usually under the recommended days from the College Board to allow for me to insert extra days in the unit where I need them (more time on notes; another day to go over homework; extra activities, etc.)
- In my class, I have the HW due the next day in class, the Test Review due the day of the test, and the Unit project due a week from when it was assigned.
- If you have any questions on content or pedagogy, please email me at goldiesmathemporium@gmail.com

Student-friendly learning targets:

- 3A: Students will be able to identify the type of study and determine the appropriate scope of inference.
- 3B: Students will be able to identify the type of sampling method, given a description of a study.
- 3C: Students will be able to identify sources of bias in a sampling method.
- 3D: Students will be able to identify the components of a well-designed experiment.
- 3E: Students will compare experimental designs and methods and explain why a particular experimental design is appropriate
- 3F: Students will interpret the results of a well-designed experiment.

Extra Activities

Rolling Down the River Activity

- This activity is also used to talk about different types of random sampling methods. It is similar to the pumpkin picking activity.

Can You Taste a Difference Activity

- With your students, you will design a completely randomized experiment to see if you can taste the difference between regular M&M candies and the generic chocolate candies.

Ethics in Experiments Lesson

- This is an additional lesson you can use to teach what ethical considerations need to occur when conducting an experiment. The second half of the lesson discusses 5 of the most famous unethical experiments in psychology.

Sample Survey Project

- Students will design a survey to test a bias of their choosing. They will describe how they randomly select people to complete their survey and will then report their results in a visual aid.

Design an Experiment Project

- Students will design their own experiment, carry it out, and report their results in a lab report.