Name:_____ Date:_____

AP Statistics Summer Assignment

Welcome to AP Statistics! Statistics is the science of data. Data is all around us and is used in virtually every career. Almost all college majors require a stats course. This year will introduce you to the tools and processes of collecting, analyzing, and drawing conclusions from data. Statistics is a very different kind of math- if you even call it that. There is a focus on reading, writing, and communicating using statistical language. This is because statistics is truly an applied science. You pose questions, collect data, analyze the data, and make conclusions. You will never have to ask "When am I going to use this?"!

The College Board specifies four broad conceptual themes:

- Exploring Data: Describing patterns and departures from patterns
- Sampling and Experimentation: Planning and conducting a study
- Anticipating Patterns: Exploring random phenomena using probability and simulation
- Statistical Inference: Estimating population parameters and testing hypotheses

Your assignment over the summer is working with the "Sampling and Experimentation" part of this course. Before we work with data, we need to be able to collect it well (through sampling and experiments). This is a reading/writing heavy topic of the class, there is more math involved in the other topics, but the reading/writing is NOT going away!

You have received a printed copy of a chapter from a textbook. You need to:

1. **Read the chapter (seriously… read it)**
2. **Complete all of the "Check for Understandings" throughout the chapter (they are highlighted)**
3. **Define all vocabulary words in the chapter (a list is printed on the back)**

All of the problems and vocabulary words need to be written neatly **BY HAND** (it makes you remember them a lot better).

It is suggested that you also take notes for yourself so that you can have them to look back on.

This will count as 2 Quiz Grades (40% of your quarter grade)

Vocabulary List: must write out definitions BY HAND

4.1 Sampling and Surveys

1. Population
2. Census
3. Sample
4. Sample Survey
5. Convenience Sample
6. Bias
7. Voluntary Response Sample
8. Random Sampling
9. Simple Random Sample
10. Strata
11. Stratified Random Sample
12. Clusters
13. Cluster Sample
14. Inference
15. Undercoverage
16. Nonresponse
17. Response Bias
18. Wording of questions

4.2 Experiments

19. Observational Study
20. Experiment
21. Confounding
22. Treatment
23. Experimental Units
24. Subjects
25. Factors
26. Levels
27. 4 Principles of Experimental Design
28. Completely Randomized Design
29. Control group
30. Placebo effect
31. Double-blind
32. Single-blind
33. Statistically significant
34. Block
35. Randomized block design
36. Matched pairs design

4.3 Using Studies Wisely

37. Cause and Effect **
38. Institutional review board
39. Informed consent
40. Confidential

****not a bolded vocab word**