

PROJECT ADVICE...

Every stage of your project is important, and decisions you make at the start can have a major impact on the overall success. Don't rush into anything; think it all through carefully.

Goals

- Think of an interesting question or an issue we care about. (It may help to think beyond the narrow world of our school.
- Create a good design, free of bias, randomized, that will produce useful data. Remember that controlling an experiment is often easier than sampling.
- Give yourself adequate time to collect and analyze the data. The due dates arrive faster than you think they will!
- Make clear summaries - graphical, numerical, and verbal.
- Produce a sophisticated statistical analysis. **You must have a confidence interval, a hypothesis test, or a regression analysis.** Most projects will probably involve more than one such analysis.
- Reach statistically justifiable conclusions about your original question(s).
- Use proper statistical terminology and methods throughout.

- Submit a complete report (a sure 4 by AP standards!) Remember, correctly using Statistics is more important than arriving at an earth-shaking result!

Some ideas. . . . (Feel free to propose something of your own. Be sure to get advice *and approval* before starting.)

- Do after school jobs or participation in sports affect grades?
- Does marijuana or alcohol use differ by grade level, gender, etc.
- Can we predict height or weight from shoe size?
- Are smokers less likely to wear seatbelts?
- Which grocery store or drugstore has the lowest prices?
- Do males get higher Math SAT or AMC scores than females?
- Are females equally likely to enroll in advanced math, science, or computer courses?
- Do ninth graders study more or less than juniors or seniors?
- How much stronger is a person's dominant hand?
- Are lefties more coordinated with their right hands than righties with their lefts?
- Do people prefer Coke or Pepsi?
- Can people tell the difference between national brands and store brands?
- Can people tell by taste whether soda comes from a plastic bottle, a glass bottle, or a can?
- Does mail arrive faster with zip codes?
- Does ESP or astrology actually work?
- Are reaction times faster for males or females? athletes/non-athletes? right/left hand?
- Are homeruns, RBI, or batting averages good predictors of baseball salaries?
- Are NFL or NHL teams more likely to be able to come from behind in home games?
- What is the trend in swimming records? in college costs? in birth rates?

The Question(s)

- Clearly stated
- Interesting

Collecting The Data

- Appropriate design
- Clearly explained
- Well executed

Data Description

- Appropriate graphs or tables
- Effective displays
- Appropriate summary stats
- Clear verbal descriptions

Inference

- Proper procedures
- Clearly explained
- Correct hypotheses
- Assumptions and conditions
- Mechanics
- Correct interpretations (in context)

Overall Conclusions

- Clear and in context
- Fully supported by the research
- Raises questions for further research?

General

- Uses proper vocabulary
- Thorough and clear class presentation
- Thorough and clear written report
- Shows sound understanding of statistics