

Choosing the Right Technique

Statistics Workshop

In order to choose which of the eight inference formulas to use, ask these three questions:

1. Do you have categorical data that can be divided into “successes” and “failures” (use proportions), or do you have numerical data that can be averaged (if so, use means)?
2. Do you have one or two samples?
3. Are you asking a yes/no question about the data (use a hypothesis test) or are you trying to estimate a number (use a confidence interval)?

For each situation below, choose which of the eight statistical inference formulas (from the interactive formula sheet) would be best to answer the question being asked. You don't need to calculate anything, just identify the correct formula.

1. A school has 2 kindergarten classes. At the end of the year, Ms. Toodle has 21 kids of whom 17 are “pre-readers”. Mrs. Grimace has 19 kids, of whom 13 are “pre-readers.” Is this a significant difference?
2. *Sports Illustrated* surveyed a random sample of 757 Division I college athletes in 36 sports. One question was: “Have you ever received preferential treatment from a professor because of your status as an athlete?” Of the athletes polled, 225 said yes. How many Division I athletes received preferential treatment from their professors?
3. You collect 16 rainwater samples from the Adirondack mountains in New York state. Estimate the average pH (acidity) of rain the Adirondacks.

4. The Multisite HIV Prevention trial was a randomized comparative experiment to compare the effects of the twice weekly small group AIDs discussion sessions (treatment) with a single one hour session (control). Compare the effect of the treatment and control on each of the following variables:

(a) Whether a subject uses condoms six months later?

(b) The number of unprotected intercourse acts by a subject between 4 and 8 months later.

5. Participants threw darts at a target. In one condition, they used their preferred hand; in the other condition, they used their other hand. All subjects performed in both conditions (the order of conditions was counterbalanced). Their scores are shown below. We want to know whether people really tend to do better with their preferred hand, and if so, by how much.

Preferred	Non-preferred
12	7
7	9
11	8
13	10
10	9