I: Data Analysis

- Answer the key questions:
  - Who: 50 polio patients who reported pain.
  - What: Treatment Group (active/inactive) and Pain Rating (0 to 10)
  - Why: To see if magnets reduce pain suffered by polio patients.
  - When, etc.: Data was collected on recruited patients by doctors and scientists.
I: Data Analysis

- Construct separate dotplots:

  - Active Pain scores show more variability. However, it appears the typical Inactive pain score may be somewhat higher.
I: Data Analysis

- Calculate and compare the mean pain ratings...

  - Mean Active Rating = 4.379
  - Mean Inactive Rating = 8.429
  - Difference = 4.05
II: Producing Data

a. These ratings are new data...

b. They came from an experiment in which a treatment was imposed on patients.

c. Chance assignment of treatments helps the researchers avoid bias.

d. Yes. If the patients knew which treatment they received, their responses may be influenced by an expectation of pain-reduction. Also, the doctors may influence the patients rating if they know which treatment they are receiving.
III: Probability

a. The graph is roughly symmetric around 0, so we expect the difference to be positive 50% of the time.

b. It is very unlikely we'd see a difference of 4.05 or more if active magnets do not relieve pain.
IV: Inference

a. We'd estimate the true difference to be about 4.05 (what we observed).

b. I would reject the claim. If active magnets did not relieve pain, we shouldn't have observed much of a difference. We saw an unlikely difference, so we conclude they may help.