

Experimental Data & Hypothesis Analysis

Part 1: Worked Example (5 minutes)

Hypothesis: Plants grow faster with music than without music.

Experimental Setup:

- Group A: 5 plants, exposed to classical music 4 hrs/day
- Group B: 5 plants, no music
- All plants received same light, water, and soil

Data Collected (over 3 weeks):

Group A: 9.2 cm average height increase

Group B: 7.8 cm average height increase

Possible Conclusions:

- A. Music causes plants to grow much faster.
- B. There is a slight increase in growth when music is played, but more trials are needed.
- C. Music has no effect on plant growth.

Best Match: B

Why? Group A grew more, but the difference is small and only tested on a few plants. We can't make a strong general claim yet.

Part 2: Guided Matching (7 minutes)

Hypothesis: Students perform better on tests when chewing gum.

Experimental Setup:

- Group A: Chewed gum during study and test
- Group B: No gum at any time
- Same test, same study time

Data Collected:

Group A: Average Test Score = 86

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Group B: Average Test Score = 79

Possible Conclusions:

1. Chewing gum causes a significant improvement in test performance.
2. Chewing gum may be linked to better test scores, but more controlled tests are needed.
3. Chewing gum is distracting and lowers scores.

Your Task:

Which conclusion is best supported by the data? Circle one and explain your reasoning.

Answer: _____

Why? _____

Part 3: Independent Practice (8 minutes)

Hypothesis: Energy drinks improve reaction time.

Experimental Setup:

- 10 participants: 5 had an energy drink, 5 had a placebo
- Reaction time measured in milliseconds using a light-signal test

Data Collected:

Participant | Energy Drink (ms) | Placebo (ms)

1	210	238
2	198	233
3	207	236
4	215	240
5	205	237

Possible Conclusions:

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- A. Energy drinks clearly improve reaction time and should be used by athletes.
- B. Energy drinks may reduce reaction time, but further testing with more people is needed.
- C. Energy drinks slow reaction time and are not helpful.

Your Task:

Match the data to the best conclusion. Then, explain your choice.

Answer: _____

Why? _____
