🔬 Math Preference Investigation

What Makes Math Lovers Different?

Name: _____ **Date:** _____

Class/Period: _____ **Team Members:** _____

Part 1: Research Question

Our Big Research Question:

"What characteristics or behaviors predict whether someone enjoys math?"

Part 2: Hypothesis Testing

Before collecting data, make predictions! Check the hypotheses you think will be TRUE:

Hypothesis 1: Gaming Connection

☐ I think this is TRUE ☐ I think this is FALSE

People who enjoy strategy games and puzzles are more likely to enjoy math.

Why do you think this?

_____

_____

Hypothesis 2: Morning vs Night

☐ I think this is TRUE ☐ I think this is FALSE

Morning people might have different math preferences than night owls.

Why do you think this?

_____

_____

Hypothesis 3: Art vs Logic

☐ I think this is TRUE ☐ I think this is FALSE

Creative activities correlate with math enjoyment differently than expected.

Why do you think this?

Hypothesis 4: Speed Matters

☐ I think this is TRUE ☐ I think this is FALSE

Fast mental math ability might predict overall math enjoyment.

Why do you think this?

💡 **Scientific Thinking:** Good scientists make predictions BEFORE collecting data. This helps avoid bias!

📋 Survey Questions - Data Collection Tool

Use this survey to collect data from at least 10 people. Try to get a mix of math lovers and math avoiders!

Section A: Math Attitude Questions

1 How much do you enjoy math?

1	2	3	4	5
Hate it	Dislike	Neutral	Like	Love it!

2 Math makes me feel: (check one)

○ Excited ○ Confident ○ Nervous ○ Bored ○ Frustrated

3 Rate your math confidence:

1	2	3	4	5
Not at all	A little	Moderate	Confident	Super!

Section B: Predictor Questions

4 Favorite type of game:

○ Strategy ○ Action ○ Creative ○ Sports ○ Don't game

5 Are you a morning or night person?

○ Definitely morning ○ More morning ○ More night ○ Definitely night

6 I enjoy puzzles:

○	○	○	○	○
1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

7 When stuck on a problem, I:

○ Keep trying ○ Ask for help ○ Take a break ○ Give up

📊 Data Collection Table

Transfer your survey responses to this table. Use initials or numbers for each person surveyed.

Person	Q1: Enjoy Math (1-5)	Q2: Math Feeling	Q3: Confidence (1-5)	Q4: Game Type	Q5: Morning/ Night	Q6: Puzzles (1-5)	Q7: When Stuck
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Data Grouping

Based on Question 1 responses, divide your participants into three groups:

Group A: Math Lovers

Ratings 4-5 on Q1

Person #s in this group:

Total count: _____

Group B: Math Neutral

Rating 3 on Q1

Person #s in this group:

Total count: _____

Group C: Math Avoiders

Ratings 1-2 on Q1

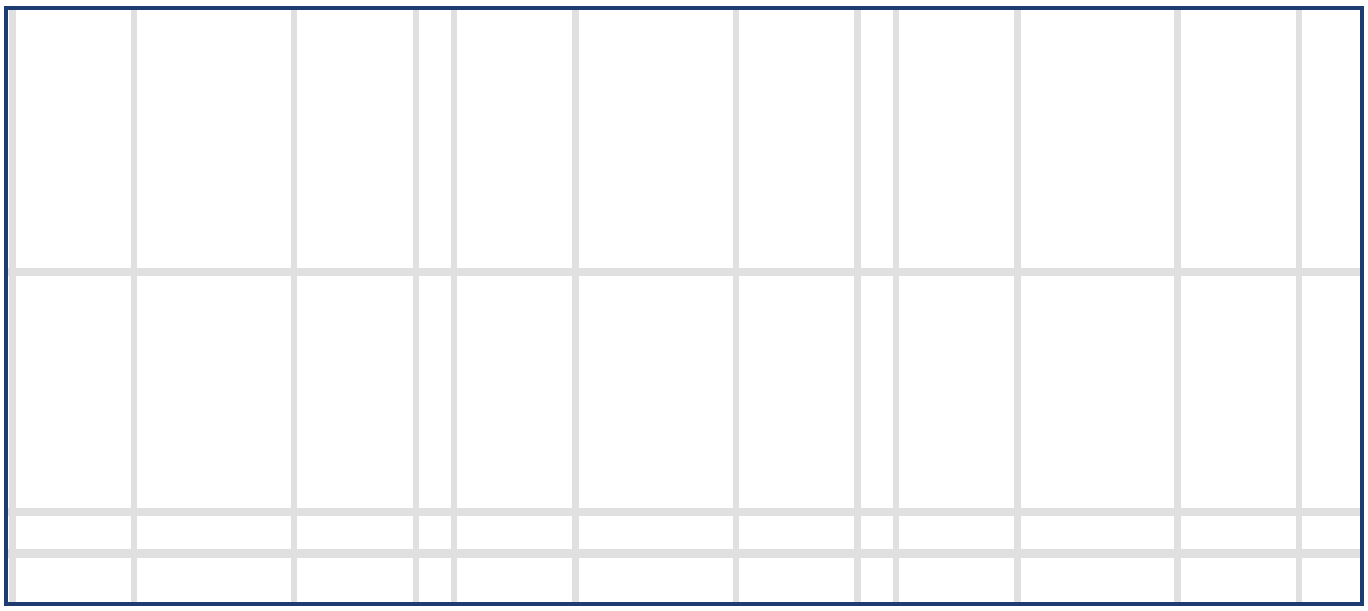
Person #s in this group:

Total count: _____

📈 Data Analysis - Finding Patterns

Graph 1: Puzzle Enjoyment vs Math Enjoyment

Create a scatter plot showing the relationship between Q6 (Puzzles) and Q1 (Math Enjoyment):



📍 **What pattern do you see?**

Math Enjoyment (1-5)

Graph 2: Game Preferences by Group

Create a bar chart showing game preferences for each math attitude group:

Game Type	Math Lovers (A)	Math Neutral (B)	Math Avoiders (C)
Strategy			
Action			
Creative			
Sports			
Don't game			

🎮 **Which game type is most popular among math lovers?**

Calculate: Problem-Solving Persistence

What percentage of each group "keeps trying" when stuck (Q7)?

Math Lovers	Math Neutral	Math Avoiders
____%	____%	____%
keep trying	keep trying	keep trying

🎯 Drawing Conclusions

Hypothesis Results

Based on your data, were your hypotheses correct?

Hypothesis	Result	Evidence from Data
H1: Gaming Connection Strategy gamers like math more	☐ Supported ☐ Not Supported	
H2: Morning vs Night Morning people differ from night owls	☐ Supported ☐ Not Supported	
H3: Art vs Logic Creative activities correlate differently	☐ Supported ☐ Not Supported	
H4: Speed Matters Fast mental math predicts enjoyment	☐ Supported ☐ Not Supported	

Key Discoveries

💡 Most Surprising Finding:

🔍 Strongest Predictor of Math Enjoyment:

Critical Thinking

What might have affected your results? (Check all that apply)

- ☐ Small sample size
- ☐ People not answering honestly
- ☐ Missing important questions
- ☐ Biased sample (all similar people)
- ☐ Confusing questions
- ☐ Hidden variables we didn't measure

If we found that puzzle lovers enjoy math more, does this mean:

- ☐ Doing puzzles CAUSES people to like math
- ☐ Liking math CAUSES people to do puzzles
- ☐ They're related, but we don't know which causes which
- ☐ Something else might cause both

Future Research

What would you investigate next?

🏆 **Data Detective Achievement Unlocked!** You've completed your first statistical investigation. Real scientists use these same methods to understand human behavior!