

Appendix A

Mislabeled Variables Task For Students

Part I.

Answer the questions on the Personal Information Survey [on next page]. Be sure to record your responses in the requested measurement units.

Part II.

Your teacher compiled the responses to the survey in a spreadsheet and then randomized the order of the columns that contained the data for questions. Thus, the columns A, B, C, ... N, O, P did not match the order of the questions 1-16 on the survey. Unfortunately, he/she did this before giving each column a name for the variable that describes the measurement taken from that question.

	A	B	C	D	E	F	G
1	16	10	7	7	2	0	0
2	11	2	1	3	10	0	25
3	12	4	0	6	1	0	10
4	14	2	0	5	2	1	5
5	10	5	1	7	1	0	2
6	9	2	0	11	2	0	5
7	12	4	0	12	1	0	3
8	13	6	0	8	1	1	16
9	13	2	1	8	0	0	5
10	14	2	1	7	2	1	25
11	12	1	1	9	4	0	35
12	12	3	1	6	0	0	5
13	10	3	1	5	2	0	2

We need to investigate this data

and help the teacher label data with appropriate variable names, rather than using A, B, C..., N, O, P as variable names. In other words, which question on the survey could a set of data have come from?

Your Assignment:

You have been assigned to investigate data for two variables. Open the file containing the mislabeled survey data. For each letter variable name you are asked to investigate, think about what type of data variable is represented and use graphs to display the data. What possible questions on the survey could produce this type of data? You can use any analysis tools available to you in the software and explore any of the data from variables A-P.

For each letter variable name you were assigned, answer the following questions. Be prepared to share your answers and evidence with the class.

- 1 Which survey question(s) could your data match?
- 2 How do you know? Provide an explanation to convince another classmate.
- 3 How confident are you in your choice? Explain.
- 4 In investigating the data for this variable, did you find evidence to support a match of another variable name to any other questions? Which ones? Support your claim.

Mislabeled Variables Task For Teachers

Part I

Have students complete the personal information survey on paper or using an online survey. Students should complete the survey a couple days prior to completing the task in class. We suggest doing the survey on a school day where the response to item 2 would reflect their typical pattern for sleep habits in preparation for school the next day. Place the survey results into a spreadsheet software and rearrange the data so it is no longer in numerical order by question number on the survey. Import the data into your favorite technology tool and name the variables with the letters A – P.

Part II

Students should work in pairs to investigate the data for two letter variables. Choose enough variables for students to explore so at least two groups are investigating the data for the same letter. This allows for different approaches and claims to emerge in the class. If a pair of students finishes early, challenge students to investigate additional data for another letter variable.

After all pairs present their finding for each letter, the class needs to come to consensus about if they are convinced by the evidence provided.

Their task is *not to necessarily get the right answer*, but to make a claim about the data and provide evidence to support their claim. Issues of variable types and measurements will naturally be brought to the fore as students consider the context for each question to make sense for possible values in the data.

Personal Information Survey for Students

1. How many pets do you have in your family? _____
2. What time did you go to bed last night? _____
3. How many hours of sleep did you get last night?
(Round to nearest half hour, record with decimals such as 8.5) _____
4. How many letters are in your first and last name combined? _____
5. How many books have you read total this school year? _____
6. What is your gender? Answer 1 = Male and 0 = Female _____
7. How many siblings do you have? (include half and step) _____
8. How many movies did you watch in the theater last month? _____
9. How many times did you buy your lunch at school last week? _____
10. What time did you wake up on last Saturday morning? _____
11. How many glasses of milk do you drink daily? _____
12. Do you wear glasses? Answer 1 for Yes and 0 for No. _____
13. On what day of the month were you born? _____
14. How many letters are in your first name? _____
15. In what month were you born?
(Answer as a number, January = 1 and December = 12) _____
16. What is your shoe size?
(Use whole or half shoe sizes such as 6.5) _____