Name:_____ Date:_____

LAB 3B: Confound it all!
Response Sheet

Directions: Record your responses to the lab questions in the spaces provided.

Finding data in new places

Importing our data

Our new data

About the data

Cleaning your data

(1) Write and run code changing the type of variable for `gender` and `smoker` from *numeric* to *character*.

(2) For `gender`, write and run code using `recode` to change `"1"` to `"Male"` and `"0"` to `"Female"`.

(3) For `smoker`, write and run code using `recode` to change `"1"` to `"Yes"` and `"0"` to `"No"`.

Analyzing our data

(4) Write down a reason the researchers couldn't use an experiment to test the effects of smoking on children's lungs.

(5) Do you think that a person's age affects their lung capacity? Make a sketch of what you think a scatterplot of the two variables would look like and explain.

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(6) Write and run code using the `lungs` data to create an `xyplot` of `age` and `lung_cap`. Interpret the plot and describe why the relationship between the two variables makes sense.

Smoking and lung capacity

(7) Write and run code making a plot that can be used to answer the statistical investigative question: Do people who smoke tend to have lower lung capacity than those who do not smoke?

(8) Use your plot to answer the question.

(9) Were you surprised by the answer? Why?

(10) Can you suggest a possible confounding factor that might be affecting the result?

Let's compare

(11) Write and run code creating three subsets of the data:

- one that includes only 13-year-olds…
- one that includes only 15-year-olds…
- and one that includes only 17-year-olds.

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(12) Write and run code making a plot that compares the lung capacity of smokers and non-smokers for each subset.

(13) How does the relationship between smoking and lung capacity change as we increase the age from 13 to 15 to 17?

Sum it up!

(14) Does smoking affect lung capacity? If so, how?