Name:_____ Date:_____

LAB 2A: All About Distributions
Response Sheet

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

In the beginning ...

How to talk about data

Let's begin!

(1) Write down the `names` of the 4 variables that contain the point-totals, or *scores*, for each personality color.

(2) Write down the `names` of the variables that tell us an observation's introvert/extrovert designation and whether they are involved in *sports*.

(3) How many variables are in the dataset?

(4) How many observations are in the dataset?

Estimating centers

(5) Write and run code creating a `dotPlot` of the scores for your *predominant color*.

(6) Which values came up the most frequently? About how many people in your class had a score similar to yours?

(7) What, would you say, was a *typical* score for a person in your class for your predominant color? How does your own score for this color compare?

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Means and medians

(8) Fill in the blank to calculate the `mean` value of your predominant color score:

```
mean(~_____, data = colors)
```

(9) Write and run a similar line of code to calculate the `median` value of *your* predominant color.

(10) Are the `mean` and `median` roughly the same? If not, use the `dotPlot` you made in the last slide to describe why.

Estimating Spread

(11) Write and run code re-creating a `dotPlot` of the scores for your *predominant* color and then run the code below filling in the blank with the name of your predominant color.

```
add_line(vline = mean(~_____, data = colors))
```

(12) Look at the spread of the scores from the mean score then complete the sentence below:

Data points in my plot usually fall within _____ units of the center.

Mean Absolute Deviation

(13) Write and run code calculating the MAD of your *predominant color* by filling in the blank:

```
MAD(~_____, data = colors)
```

(14) How close was your estimate of the spread for your predominant color (from the previous slide) to the actual value?

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Comparing introverts/extroverts

(15) Write and run code making a `dotPlot` of your *predominant color* again; but this time, facet the plot by the introvert/extrovert variable. Include the `layout` option to stack the plots as well as the `nint` and `cex` options.

(16) Describe the shape of the distribution of scores for the extroverts. Do the same for the introverts.

(17) Using similar syntax to how you facet plots, write and run code *calculating* either the `mean` or `median` to describe the *center* of your predominant color for introverts and extroverts.

(18) Do introverts and extroverts differ in their typical scores for your predominant color?

(19) Based on the MAD, which group (introverts or extroverts) has more variability for your predominant color's scores?

On your own

Perform an analysis that produces *numerical summaries* and *graphs*.

(20) Then, write a few sentences that address this statistical investigative question and considers the *shape*, *center* and *spread* of the distributions of the graphs you create.