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|  | **Introduction** | **Methods** | **Results** | **Discussion** | **Conclusion** |
| **E** | Provides robust description of data, collection methods, and context.  Well-articulated research questions correctly phrased for a one-way ANOVA. | Outlines variables considered for analysis, including all relevant details regarding how they were collected and their associated units / levels.  Creates data visualizations requested; axis labels allow visualization to be interpreted independent of additional information.  Provides robust description of relationships seen in visualization, clearly connects what is seen in the visualizations to the statistical methods chosen for analysis. | Correctly fits one-way ANOVA models and obtains p-values for ANOVA models, using the methods stated in the *Methods* section. | Provides well written conclusion regarding the hypotheses tested in both one-way ANOVAs, with few if any errors that do not bring into question understanding of the underlying concepts.  Proposes plausible explanation for why these results were obtained, connecting explanation with existing research.  Evaluates conditions of each one-way ANOVA model with few if any errors that do not bring into question understanding of the underlying concepts. | Provides well-articulated description of how each ANOVA connects to what was seen in visualization, reaches a conclusion for the research questions stated in the *Introduction*.  Clearly states who the analysis can be inferred to, connecting to sampling methodology used.  Clearly states what relationships can be inferred between the variables, connecting to the design of the study. |
| **S** | Provides satisfactory description of data with small elements omitted.  Research questions articulated but contain instances of incorrect language for a one-way ANOVA. | Outlines variables considered for analysis, omitting some details regarding their collection, but includes units.  Creates data visualizations requested; some additional information is needed to supplement axis labels.  Provides description of relationships seen in visualization, but connections to the statistical methods chosen for analysis are at times unclear. | Fits one-way ANOVA models and obtains p-values for ANOVA models, using the methods stated in the *Methods* section. | Provides well written conclusion regarding the hypotheses tested in the both one-way ANOVAs, with some errors that bring into question understanding of underlying concepts.  Proposes plausible explanation for why these results were obtained but does not connect explanation with existing research.  Evaluates conditions of one-way ANOVA model with some errors that bring into question understanding of underlying concepts. | Description of connection between one-way ANOVA models and visualization are mostly clear, but connections to the research questions stated in the *Introduction* are at times unclear.  Statement regarding who the analysis can be inferred to is mostly clear, but some connections to the sampling methodology are incorrect.  Statement regarding what relationships can be inferred between the variables is mostly clear, but some connections to the design of the study are incorrect. |
| **P** | Provides poor description of data with multiple elements omitted.  Research questions poorly articulated, with little to no general connection to a one-way ANOVA. | Outlines variables considered for analysis, with very few details regarding their collection, but includes units.  Creates data visualizations requested; axis labels require additional information to understand the context.  Provides poor description of relationships seen in visualization, connections to the statistical methods chosen for analysis are quite unclear. | Fits one-way ANOVA models and obtains p-value for ANOVA models but does not use the method(s) stated in the Methods section. | Provides written conclusion regarding the hypotheses tested in both one-way ANOVAs, with many errors that bring into question understanding of underlying concepts.  Does not propose plausible explanation for why these results were obtained.  Evaluates conditions of one-way ANOVA model with many errors that bring into question understanding of underlying concepts. | Description of connection between one-way ANOVA models and visualizations is unclear with little to no connection to the research question stated in the *Introduction*.  Statement regarding who the analysis can be inferred to is mostly unclear, with few if any connections to the sampling methodology used.  Statement regarding what relationships can be inferred between the variables is mostly unclear, with few if any connections to the design of the study. |
| **N** | Provides little to no description of data.  Research question(s) not articulated. | Outlines variables considered for analysis, with no details regarding their associated units / levels.  Creates data visualizations requested, axis labels are not changed.  Provides little to no description of relationships seen in visualization, with no connections to the statistical method chosen for analysis. | Does not fit one-way ANOVA models stated in Methods section. | Interpretations of one-way ANOVA contain multiple errors that demonstrate little to no understanding of the underlying concepts.  Does not propose plausible explanation for why these results were obtained.  Does not evaluate the conditions of each one-way ANOVA model. | Little to no description of connection between one-way ANOVA models and visualization, no connection to the research questions stated in the Introduction.  Statement regarding who the analysis can be inferred to is mostly unclear, with no connections to the sampling methodology used.  Statement regarding what relationships can be inferred between the variables is mostly unclear, with no connections to the design of the study. |