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Lesson 29: Drawing a Conclusion from an Experiment

Student Outcomes

* Students carry out a statistical experiment to compare two treatments.
* Given data from a statistical experiment with two treatments, students create a randomization distribution.
* Students use a randomization distribution to determine if there is a significant difference between two treatments.

Classwork

In this lesson, students will develop a comprehensive poster summarizing the experiments involving helicopter Groups A, B, and C. The poster should address the results of both Experiments 1 and 2 regarding the effects of both body width and wing length.

**MP.3**

As part of the lesson, students should be provided with an instructor customized rubric for assessing a poster. A sample rubric from the American Statistical Association (ASA) is attached at the end of the teacher notes and was taken from "Poster Judging Rubric" at the "Poster Competition and Project Competition" page of the American Statistical Association, [www.amstat.org/education/posterprojects/pdfs/PosterJudgingRubric.pdf](http://www.amstat.org/education/posterprojects/pdfs/PosterJudgingRubric.pdf). It is stated in the student lesson that the instructor will provide more specific instructions and possibly a more defined (or otherwise modified) rubric. Specifically, it also says, "Your instructor will provide guidance as to groups, amount of time to spend, the rubric to be used for evaluation, etc. Your poster should address the results of both Experiments 1 and 2 regarding the effects of both body width and wing length." Please consult this ASA rubric and modify as needed.

Read through the lesson with students. Convey to students that in addition to making their posters visually pleasing, they need to include answers to the focus questions presented in the lesson. Allow students to work with their partner or group to prepare the posters.

In this lesson, you will develop a comprehensive poster summarizing your experiments.

*Characteristics of a Good Poster*

Your instructor will provide you with specific instructions and a rubric for assessing your poster (taken from "Poster Judging Rubric" at the "Poster Competition and Project Competition" page of the American Statistical Association, www.amstat.org/education/posterprojects/pdfs/PosterJudgingRubric.pdf).

Generally speaking, the presentation of a statistical analysis and/or experiment should clearly state the question or purpose. The presentation should lead to the conclusion on a path that is easy to follow. The results of the study should be immediately obvious to the viewer. Any graphs included should be relevant to the question of interest and appropriate for the type of data collected.

Exploratory Challenge (45 minutes): Explaining the Experiment and Results

Exploratory Challenge: Explaining the Experiment and Results

Your classwork will involve developing your poster. Your instructor will provide guidance as to groups, amount of time to spend, the rubric to be used for evaluation, etc. Your poster should address the results of both Experiments 1 and 2 regarding the effects of both body width and wing length.

In addition to the general concerns of colors, fonts to use, etc., in preparation for creating your poster, consider (and answer) these classwork questions:

* What was the objective of the experiment?
* How did you collect your data?
* What summary values and graphs should you present?
* How will you develop and present a summary of the experiment in a way that it is easy to follow and effortlessly leads the viewer to the conclusion?
* How will you explain "statistical significance"?

To be Customized by the Instructor:

Note: The rubric was taken from "Poster Judging Rubric" at the "Poster Competition and Project Competition" page of the American Statistical Association, [www.amstat.org/education/posterprojects/pdfs/PosterJudgingRubric.pdf](http://www.amstat.org/education/posterprojects/pdfs/PosterJudgingRubric.pdf).

Note: There is no specific Exit Ticket or Problem Set for this lesson. The finished poster will represent these lesson components.