Desert Data Jam 2018

Asombro Institute
FOR SCIENCE EDUCATION

Bringing ecological data to life for non-scientist audiences

Guidelines for the Spring 2018 Competition
Middle School Division

Project Overview

Welcome to the Desert Data Jam!

For more than 100 years, scientists with the Jornada Experimental Range, a US Department of Agriculture facility, have been conducting desert ecology research in Southern New Mexico. Additionally, the Jornada Basin Long-Term Ecological Research Program (LTER) site has contributed to our understanding of desert ecosystems for more than 25 years.

These organizations have gathered a wealth of long-term data. Currently, there is an increasing need for public understanding of these data. Scientists, now more than ever, are looking to find new, creative ways to summarize and present data to non-scientist audiences.

The Desert Data Jam has been designed to let your students combine their creativity and skills to find interesting ways to present data. Students will use one of three datasets that have been collected in and around the Las Cruces region and design unique ways to present trends to non-scientist audiences.

Asombro staff will visit your class at least 4 times to work with your students on Desert Data Jam. Upon completion of Desert Data Jam projects in your class, please select the top 3 projects to be entered into our final competition at NMSU in Spring 2018.

Projects will be judged using the criteria detailed on page 6. A rubric is available with more details.

Funding for the Desert Data Jam has been generously provided by a grant from the National Science Foundation to the Jornada Basin LTER and from the Las Cruces Public School District.

For more information, please contact:

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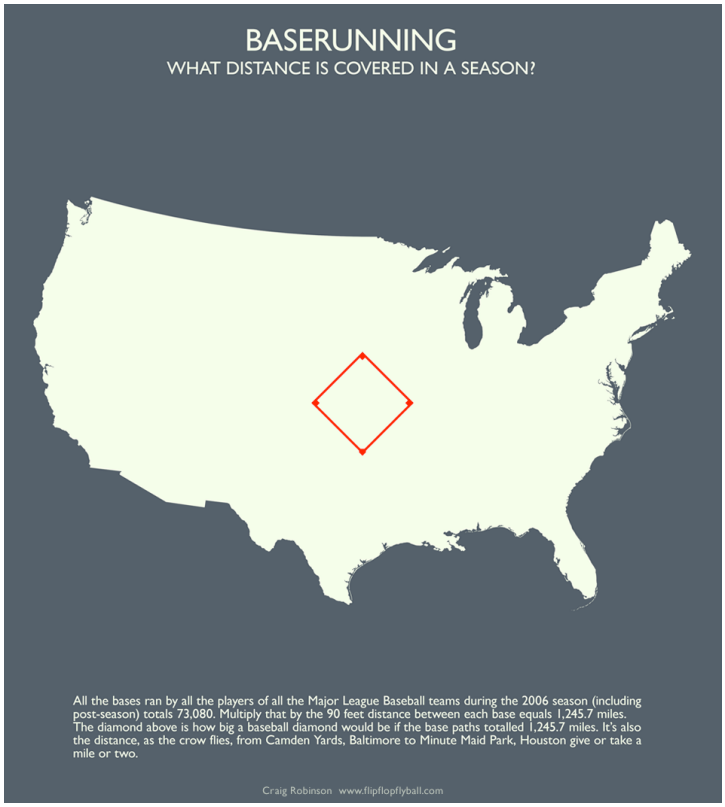
Asombro Institute for Science Education
575-524-3334

Dates to remember:

Final Competition Selections due **Thurs. April 12, 2018.**
Projects must be delivered to NMSU on **Tues. April 24, 2018.**
Awards ceremony will take place on **Thurs. April 26, 2018.**

Data Presentation Examples

Anyone who follows major league sports, and especially baseball, knows the incredible amount of data that is collected during each and every game. Craig Robinson is a self-proclaimed baseball fanatic who has turned some of these data into fun and fascinating graphics in his book Flip Flop Fly Ball: An Infographic Baseball Adventure and on his website www.flipflopflyball.com. Here is one example of his work that makes the statistics accessible and understandable for the general audience:



Note that Mr. Robinson took data available to everyone, but found a way to summarize and present it in a way that few others would.

"Infographics" like those created by Mr. Robinson are becoming increasingly popular, and there are a number of tools available to help you create these masterpieces (for examples, see: http://edudemic.com /2012/08/diy-infographics).

Yet graphical presentations need not be the only option for presenting science to non-scientists. For example, students attaining a Ph.D. in science can create a dance explaining their research and enter it in the Dance Your Ph.D. Contest (http://gonzolabs.org/dance/). In previous Desert Data Jam competitions, students have created children's books, rap songs, poems, games, physical models, and much more.

Now it is time for your students to try! How can trends in regional ecological data be explained and presented to nonscientists? We do not wish to be limiting - students can create a graphic, story, play, song, or other product. We only require that it illustrates a trend in the data.

We can't wait to see what is created!

Rules and Procedures

Teams
Students can work on projects on their own or in groups of no more than three students. Prizes ($300 for 1st place; $200 for 2nd place; and $100 for 3rd place) are awarded for a project, so it must be split between team members if a team consists of more than one student.

Registration
Due to space limitations, only the top 3 projects from each class can be entered into the final competition. Register the top projects from your class by **Thurs. April 12, 2018.** The project registration form must include:

1) Your name and school
2) Student names and project titles
3) Brief description of creative project
4) Description of project creative project display needs (outlet, easel, etc.)

You may send in your registration via email.
Email: libby@asombro.org

You will receive a confirmation email with more details about project drop off and the final competition by **Wed. April 18, 2018.** If you do not receive a confirmation email, please call our office at 575-524-3334.

Data to Use for the Project
Students will have a choice between three regional datasets: dust emissions, litter decomposition, or mammal abundance. Each includes locally collected data that students can apply to their understanding of desert ecology. Once they choose the dataset, students will be guided through interpreting their data, identifying a trend, and developing a creative project.

Parts of the Project
The final product students will create includes: (1) a **presentation board** that will be on display during the judging and awards ceremony and (2) the **creative project** (infographic, physical model, game, video, etc.). Presentation boards must be no larger than 48" wide and 36" tall. Use a standard, folding science fair display board. Please see the "Presentation Board Requirements" on page 7 for necessary components of student presentation boards.

Project Supplies
Students are responsible for supplying all necessary materials for their data jam project. This includes their presentation board and any materials for their creative project (art supplies, technology, etc.). Asombro will provide tables and easels for presentation board display and outlets for student technology.

Technology
Although not required, it is common for students to use technology as a component of their creative project (e.g. video clip, recorded song, video game). If projects entered into the final competition require technology (iPad, laptop, MP3 player, etc.), it is students' responsibility to obtain technology from their school or use their own. Asombro can provide an outlet for charging and table space for display, but we cannot provide any technology.

If technology that students use for their projects is password protected, it is necessary that the students remove the password protection or provide login information on their presentation board.

All technology in the final competition will be stored in a locked room overnight.

Submitting Student Projects
The poster and associated materials for student projects must be delivered to Wooton Hall (corner of Knox St. and Frenger St.) on the New Mexico State University campus on Tuesday, April 24 between 3:00 PM and 7:00 PM.

Deadlines
Thurs. April 12, 2018 - Each teacher needs to submit their project registration.

Tues. April 24, 2018 - Projects and posters are due by 7:00 PM at Wooton Hall (see Submitting Student Projects above).

How Projects Will Be Judged

A panel of judges, including scientists and nonscientists, will evaluate each project using the judging rubric in this packet. Criteria include:

1) Scientific Practices - Does the board include background and question sections explaining the topic? Are the independent and dependent variables identified? Is the data collection procedure explained? Is there a graph accurately representing the data trend used for the creative project? Does the data trend section accurately describe the data trend used for the creative project? Is there a possible explanation for the observed data trend that is supported by evidence? (50 points)
2) Presentation Board - Does the poster contain all ten components listed on page 7? Is it a standard tri-fold board, no larger than 48" wide x 36"tall? Is the poster visually appealing? Are proper grammar and spelling used throughout the text? Is the creative project prominently displayed on or near the board? Is there a reflection? (25 points)
3) Creative Project - Is the project creative? Is the data presentation easily understandable to non-scientist audiences? Does the project accurately portray the trend of the data and include specific references to the data? (25 points)

Prizes

Prizes will be awarded for 1st, 2nd, and 3rd place projects. Honorable mentions will also be awarded.

1st prize - $300 **2nd prize - $200** **3rd prize - $100**

Judging will take place on Wednesday April 25, 2018. An awards ceremony will be held at 6:30 PM on Thursday April 26 in Wooton Hall. All projects must be picked up at the end of the awards ceremony.

Questions

Please feel free to contact the Asombro Institute for Science Education if you have any questions about the project or competition.

Asombro Institute for Science Education
575-524-3334
libby@asombro.org www.asombro.org/desertdatajam

Desert Data Jam Presentation Board Requirements
The board must be a standard, folding science fair display board, no larger than 36" x 48." It must have the following ten components:

1. Title of project should be descriptive and succinct.

2. Background: In your own words, describe your science topic (e.g. decomposition, airborne dust, habitat change) to someone unfamiliar with it. Explain why these topics are important in our area.

3. Question: Clearly state what question researchers were trying to answer in collecting the data. For example, does a country's average precipitation or gross domestic product help explain that country's per capita water withdrawals?

4. Procedures: **In your own words**, describe the methods used in the research project. Include details such as who collected data, how data was collected, where data was collected, frequency of data collection, etc.

5. Variables: Clearly identify the independent variable(s) and the dependent variable(s) in the research. Remember that independent variables do not change due to any of the other variables in the project. Dependent variables are generally what you are measuring in your project; they usually depend on one or more other variables. For example, in a study measuring the effects of fertilizer and the amount of water on plant growth, plant growth is the dependent variable and fertilizer and water are the independent variables.

6. Graph: Create a graph of the data used for your creative project. For example, if you were only comparing the water use and average annual precipitation of Botswana and the United States, then you would only graph the data from these two countries. If, however, you were including the relationship of gross domestic product and water use, you would need to graph gross domestic product as well. Computer-generated or hand-drawn graphs are allowed. Graph must be **student made.**

7. Data trend: What trend do you want to highlight with your creative project?

8. Possible explanation: Can you think of a possible explanation for why we found the data trend you identified in #7? Make sure your explanation is supported by evidence and is consistent with scientific ideas.

9. Creative project: This is the heart of your Desert Data Jam project. Prominently display your creative project (e.g. video, infographic, poem) on or near your board. Make sure that it focuses on the data trend you identified in #7.

10. Brief reflection (1-2 paragraphs) on the Desert Data Jam. Which part was the most fun? What challenges did you have? What did you learn? What other questions do you now have?