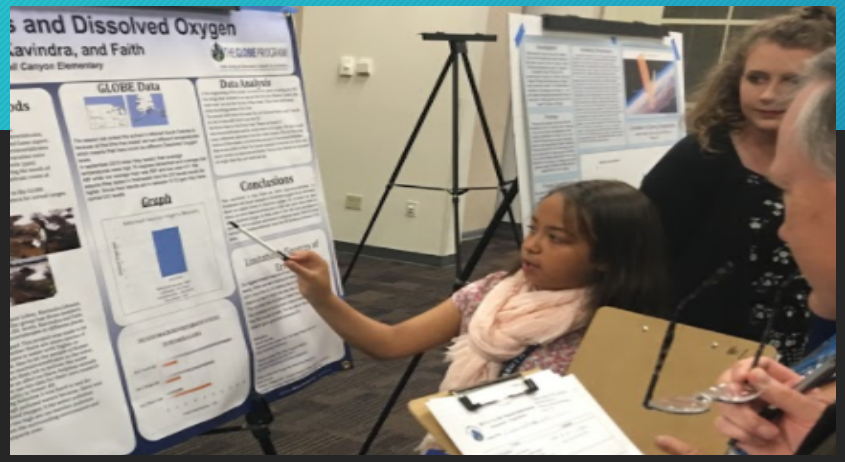
Creating a Science Poster

February 13, 2018



To ask your questions: click ‘Raise Hand’ or use the chat window

Student Research Symposia
Open Office Hours/Webinar

2018 SRS Locations

Region	Location	Dates
Southeast	University of North Carolina, Charlotte, NC	April 19-20
Southwest	Metropolitan State University, Denver, CO	May 4-5
Northeast/Mid-Atlantic	Adam's Mark, Buffalo, NY	May 4-5
Pacific	NASA Ames, Mountain View, CA	May 18-19
Midwest	Wayne State University, Detroit, MI	May 18-19
Northwest	Montana State University, Bozeman, MT	June 1-2

Facilitating Student Research
Webinars and Open Office Hours (7- 8pm EST)

Recorded webinars from this and previous years, along with many other related resources, are available from the Teacher Resources section of the SRS website.

<u>Upcoming Webinar:</u>

Monday, March 5 – 7p Eastern - Giving a Poster Presentation
Register ahead: tinyurl.com/y9ljadvg

Resources for Teachers

Teacher Hotline:

Fill out a short google form and you will be connected with an experienced GLOBE teacher who can discuss your question over a brief phone call.

SRS Teacher Listserv:

- Stay updated on SRS information and deadlines.
- Find out about webinars and events.
- Direct links to new and exciting teaching resources for student research.

Sign-up link on the SRS webpage.

U.S. Regional SRS Webpage:

https://www.globe.gov/web/united-states-of-america/home/student-research-symposia

Open for Q&A

Please use the “raise hand” or chat window to ask your questions.

Putting it all Together – The Science Poster

Student Research Symposium

Tracy Ostrom
GLOBE Partner, UC Berkeley

Components of a Science Poster

- Formatting
- Presenting your story
- Examples

The GLOBE Science Poster

- Title (15 words)
- Abstract (200 words)
- Research Question
- Introduction (claim)
- Research Methods
- Results (evidence)
- Discussion of Results
- Conclusions (reasoning)
- Bibliography

Concise Title of Less Than 15 Words That Summarizes the Study

School Logo

Collaboration Team Names

School Name

THE GLOBE PROGRAM
Global Learning and Observations to Benefit the Environment

Abstract

Concise (less than 300 words)
Context of research
Research questions
Objectives set
Brief methods description
Results
Conclusions
Recommendations for a way forward
Key words that emphasize key ideas in the paper (3-5 words)

Research Questions

Include why they are important and are of scientific interest
Concern some aspect of Earth's environment (local or global issue)
Include a well-written description of background information
Provide significant insight into both the topic of investigation and the research process
Answering them requires an advanced understanding of the subject matter
Require a thoughtful research plan
Are answerable through scientific research appropriate to the scope of the report.

Introduction

Description of the problem
State of the science
Importance
Community relevance

The review of the literature can be a separate document
Thorough (250–500 words)
*Citations in text (*at least 3-5 references, including at least one primary source in a peer-reviewed journal. Do not include wikis or Q&A sites such as answers.com. *Look at The Purdue "OWL" for guidance and resources: owl.english.purdue.edu)*

Research Methods

There is a direct link provided between the datasets and research question(s)
Study site: A map and description of the study site. It should mention area of study, climatic characteristics and basic aspects of land cover
Data collection: A description of GLOBE protocols used to answer the research question as well as where and how data was gathered in the field (sampling method: Where, how many samples were measured)
Print screen of data entry in the Web page of GLOBE.
Data analysis: Mention what kind of mathematical calculation was applied to analyze the data
The data presented are sufficient to answer the research question(s)

Field Photos *(requires release forms)*

Site map

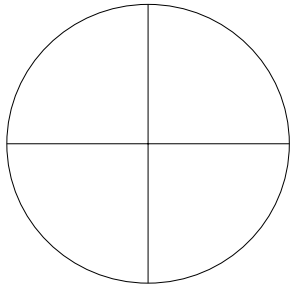
GLOBE BADGES Possible for students to earn up to 3 out of 6 additional badges. Students describe how each badge was earned in their report document

- **Collaboration** All team members are listed, along with clearly defined roles, how these roles support one another, and descriptions of each student's contribution. The descriptions clearly indicate the advantages of the collaboration.
- **Community Impact** The report clearly describes how a local issue led to the research questions and makes connections between local and global impacts.
- **Connecting to a STEM Professional** The report clearly describes collaboration with a STEM professional that enhanced the research methods, contributed to improved precision, and supported more sophisticated analyses and interpretations of results.
- **Interscholastic Connection** The report describes a carefully planned interscholastic or international collaboration that describes rationales for data collection in different regions and the advantages of comparing results.
- **Engineering Solution** The report includes all of the components for level 3, and: Describes the relative priority of the criteria for solving the problem, and Describes tradeoffs considered in designing the solution.
- **Exploring STEM Careers** The report describes how the project is related to a STEM career or profession, including the ways the data gathered, skills gained, and results might be used .

Results

Tables and graphics applying statistical analysis of data to show mean, dispersion or grouping data.
Data support the conclusions
Print screen of GLOBE visualization page

Figure #1



Discussion

interpretation of results
possible sources of error
comparison with similar studies
discuss whether results support the hypothesis or not, and why

Conclusions

Gives a thorough and insightful explanation as to how the conclusion was reached
Put findings in context, why it's important/relevant, impact, with regard to the science
What improvements in methods
What follow-on research/actions to be taken, future protocols that could be added
Impact of working with a project mentor

Bibliography

Materials correctly cited
GLOBE materials used
Sources beyond those provided by GLOBE

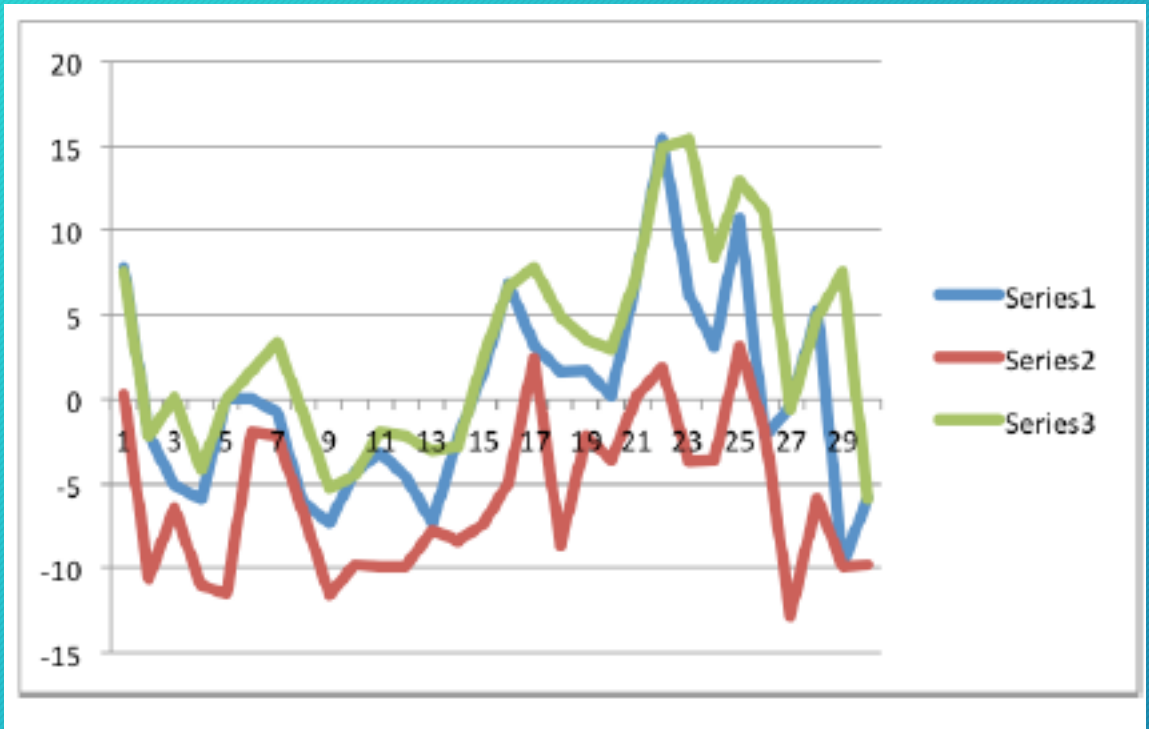
Fonts, Colors and Sizes

- Font – Use Sans Serif fonts (no “wings”)
- Avoid Fancy Graphics (shadows, outlines)
- Color: dark on light or light on dark (no reds)
- Use consistent large fonts
  - ✓Title 80
  - ✓Headings 40-60
  - ✓Text 36

Results/Data

- Graphs guide your audience to your conclusions
- Label EACH axis
- Include a legend
- Include a title for tables and figures
- Evaluate your data and decide the best representation of your data: pie chart, plot line, bar graph
- (Tables are ok – but can be hard to follow)

Which Graph Makes Sense?



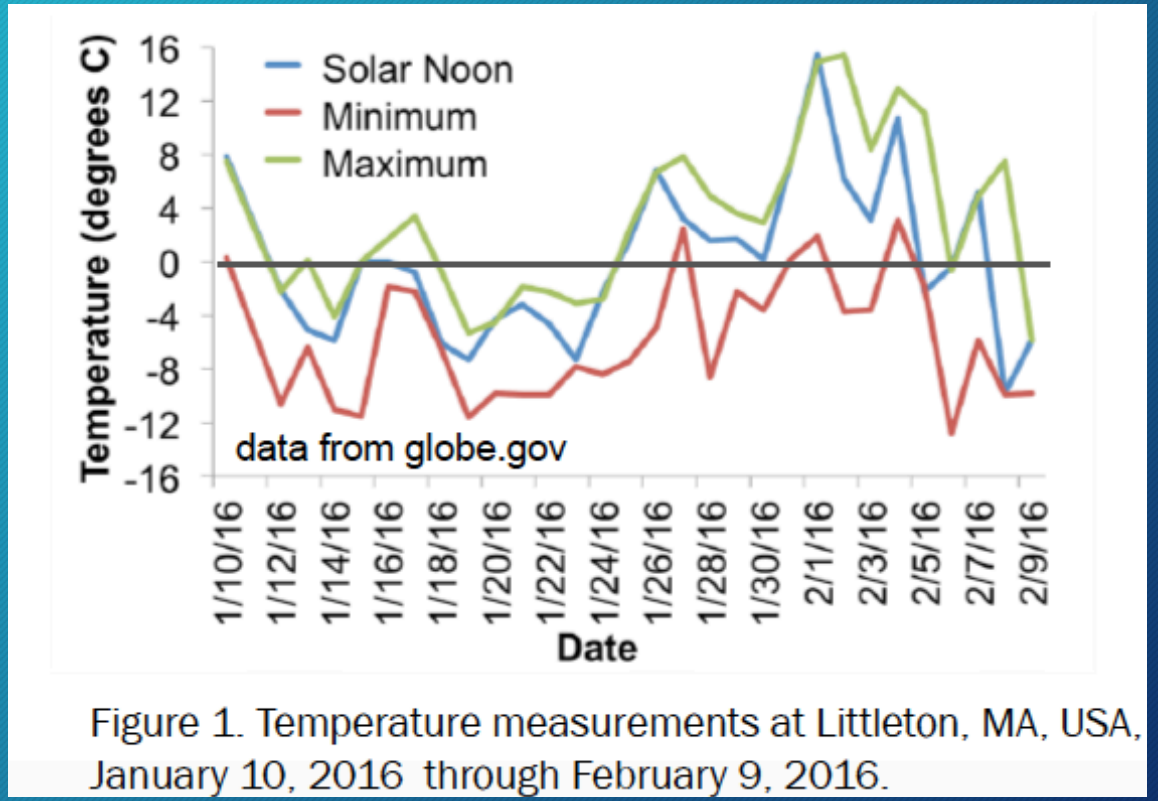


Figure 1. Temperature measurements at Littleton, MA, USA, January 10, 2016 through February 9, 2016.

Which Table Makes Sense?

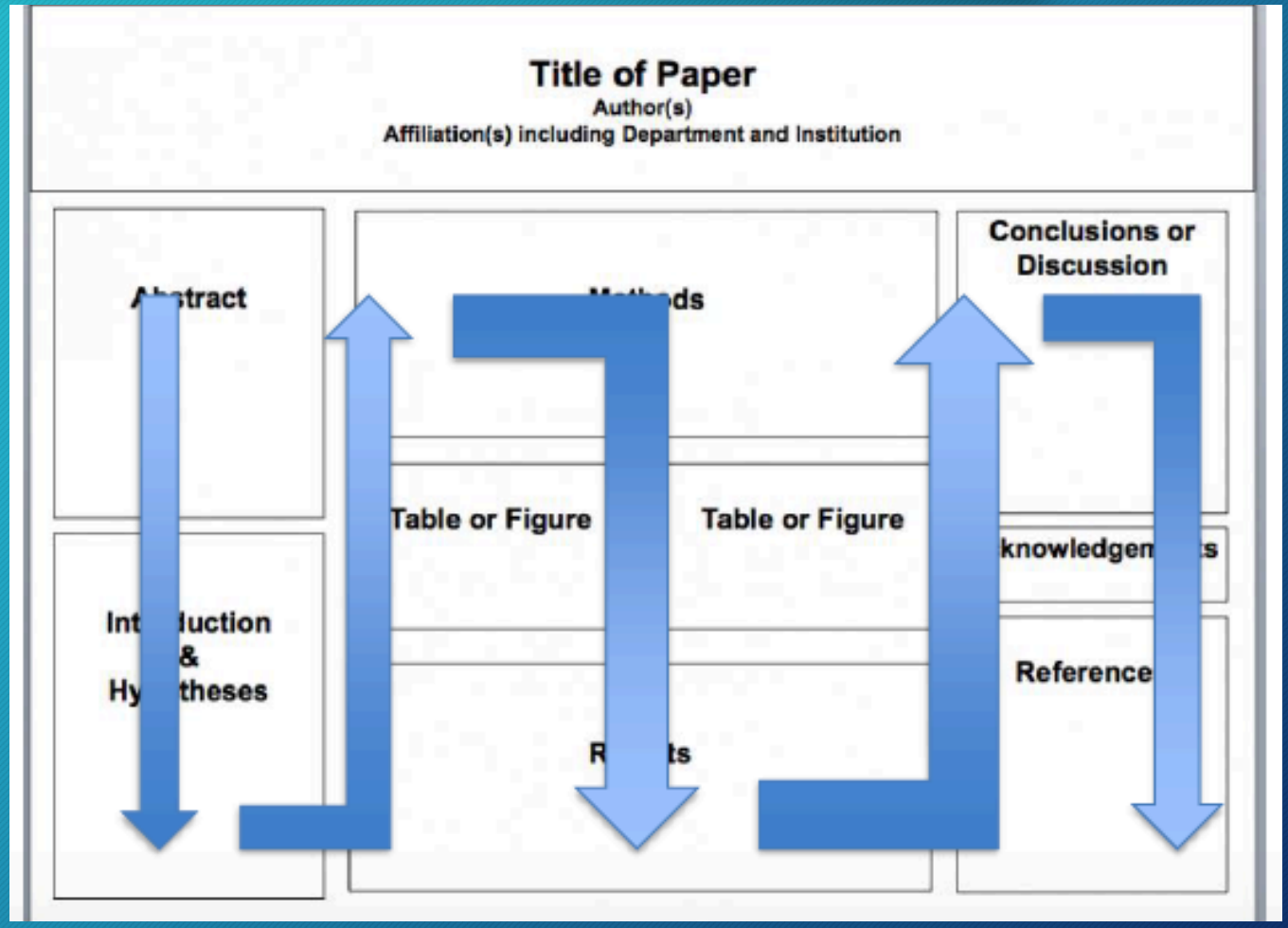
	Rain	Snow	Temperature
1	1.2	4	-28.345
2	2	2.24	-4
3	3.36	3.1	1.2

Table 1. Total rain, snow, and average daily temperature in January 2016.

Classroom	Rain (mm)	Snow (cm)	Temperature (°C)
Barrow, AK	1.2	4.00	-28.3
Littleton, MA	2.0	2.24	-4.0
Portland, OR	3.4	3.10	1.2

Presenting Your Story

- Your poster should tell your story.



Passive Solar Still Phase II

Bruno Gallegos, Victoria Gomez, Paola Rubi

Jayme Margolin-Sneider, Monica Martinez

Westview Middle School, Longmont Colorado

THE GLOBE PROGRAM
Global Learning and Observations to Benefit the Environment

Abstract

Research Question

Hypothesis

Investigation Plan

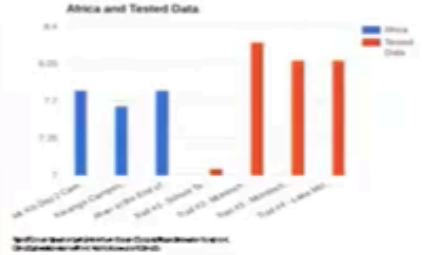
Research Methods

Field Photos

Additional Research Information

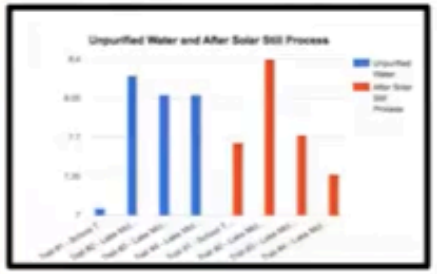
GLOBE BADGES

GLOBE Data



Data Summary

Results

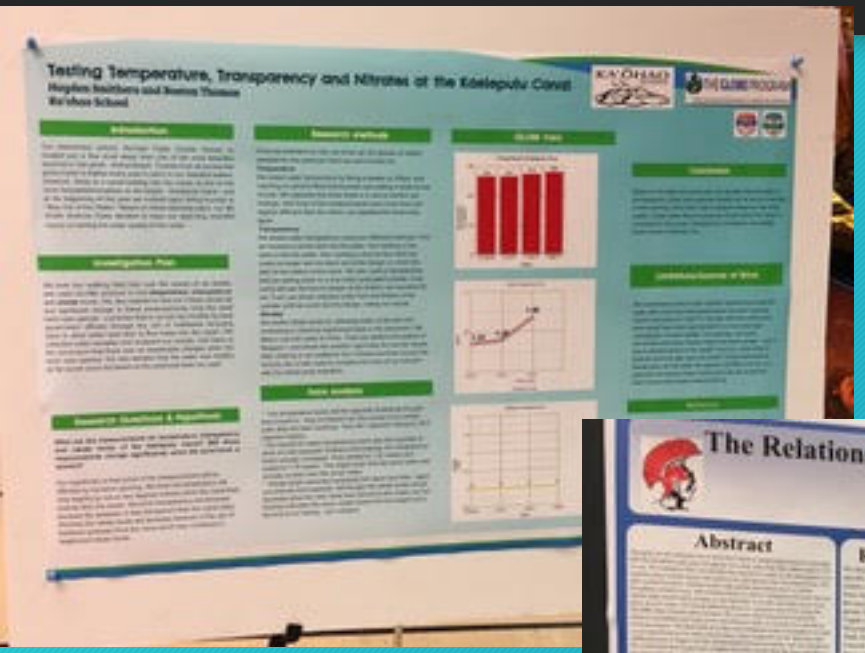


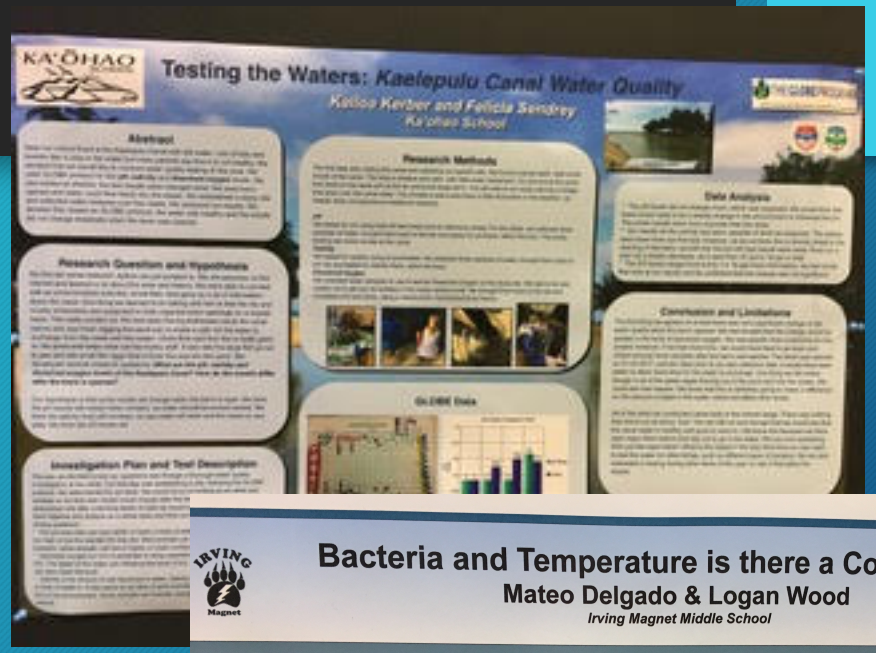
Data Analysis

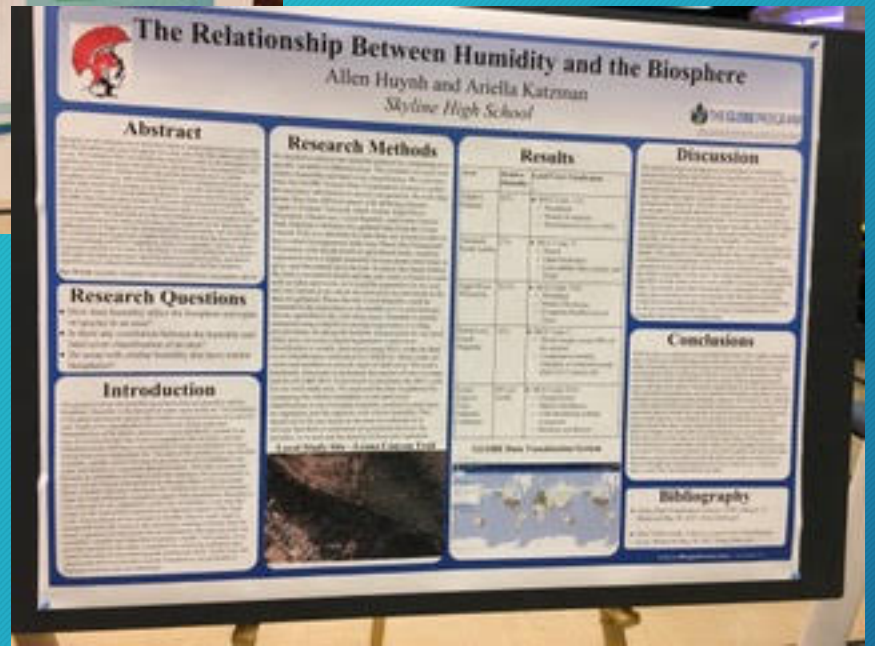
Conclusions

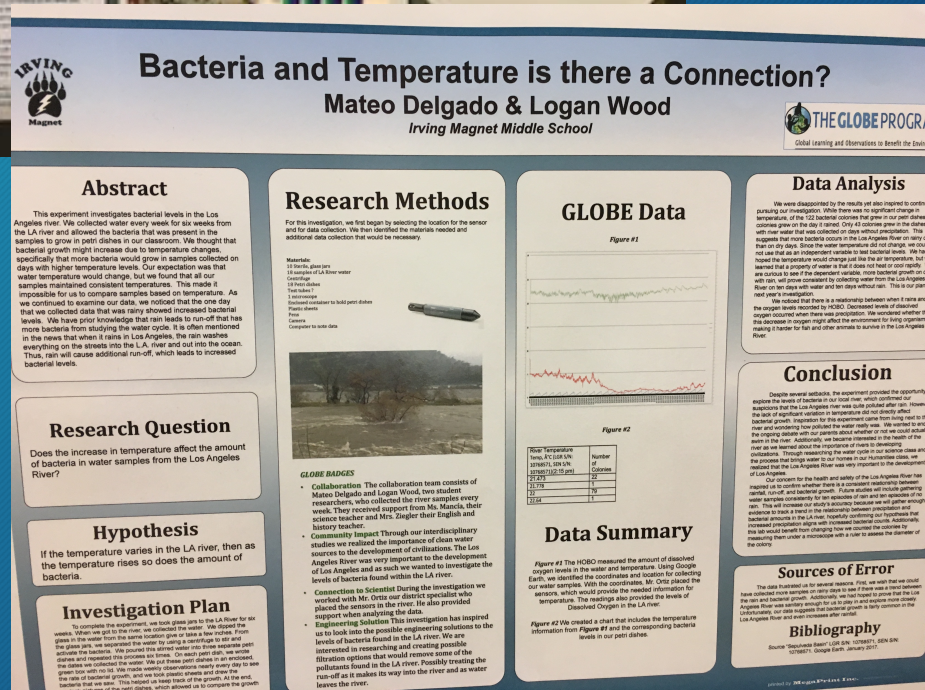
Limitations/ Sources of Error

Poster Samples from Pacific SRS









THANK YOU

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