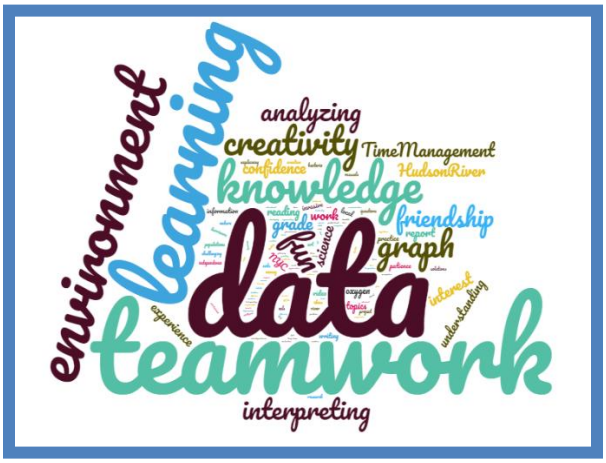
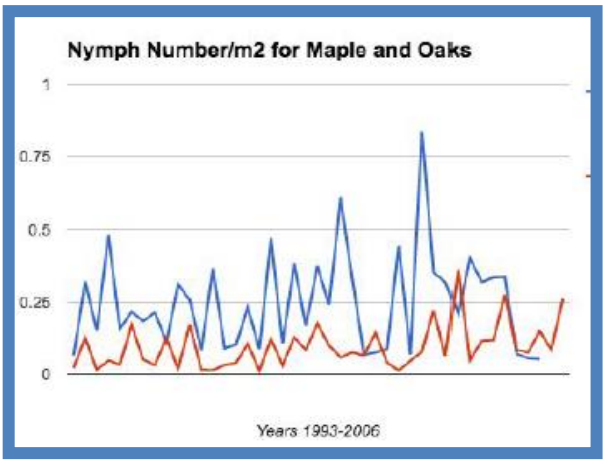
Making Data "Sing" Through Creative Expression

2019 Competition Guidebook





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Project Overview

Welcome to the Hudson Data Jam Competition!

The Hudson River Valley has been intensely studied by scientists for decades. Yet despite the tremendous discoveries made about the Hudson, many of the river's science stories are not well known by the people who call the Hudson Valley home. We believe that the skills of understanding, interpreting, and presenting data are essential in a world where our ability to collect data outpaces our ability to make it understandable for a public audience.

That's why we began the Hudson Data Jam Competition in 2014. We're looking for new, creative ways to share the science of the Hudson River and its watershed. This year, Data Jammers will immerse themselves in authentic, local datasets that have been collected by professional scientists, including Cary Institute ecologists. Whether students create a graphic, song, video, sculpture, computer game, puppet show, or children's book, their imagination is the limit!

Projects will be judged using the criteria detailed on page 5-6. As you will see, the Hudson Data Jam Competition emphasizes creativity in presenting data. These are the very skills that will continue to be necessary as we strive to make local science understandable to the general public.

We can't wait to see what your students create!

Sincerely,
Ashley Inserillo & Shelly Forster
Data Jam Coordinators

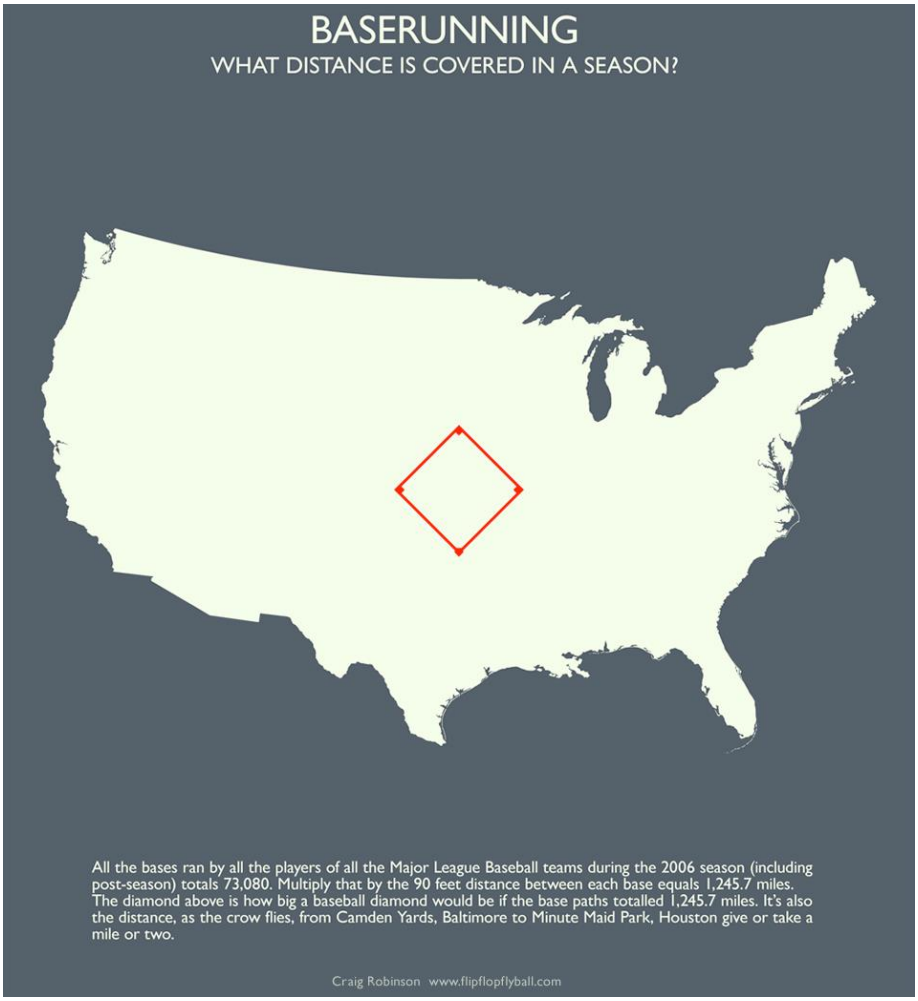
For more information:

CONTACT: caryeducation@caryinstitute.org or (845) - 677-7600
DATA JAM on the WEB: http://www.caryinstitute.org/students/hudson-data-jam-competition
FACEBOOK: @HudsonDataJam

Important Dates			
Early registration: **February 1**	**Final Registration + Forms due:** **April 24**	**Projects due online:** **May 8**	**Expo + Awards Ceremony:** **May 31**

Exploring Data Through Art

(adapted from Stephanie Bestelmeyer, Asombro Institute for Science Education)



Anyone who follows major league sports, and especially baseball, knows the incredible amount of data collected during each game. Craig Robinson is a self-proclaimed baseball fanatic who has turned some of these data into fun graphics in his book Flip Flop Fly Ball: An Infographic Baseball Adventure and on his website http://www.flipflopflyin.com/flipflopflyball/. The sample infographic above shows how Mr. Robinson took data available to everyone, but found a way to present it in an innovative way. "Infographics" like those created by Mr. Robinson are becoming increasingly popular.

Keep in mind that graphical presentations are not the only option for presenting science to non-scientists. For example, students attaining a PhD in science can create a dance explaining their research and enter it in the Dance Your PhD Contest (http://gonzolabs.org/dance/). In last year's Hudson Data Jam, students created songs, videos, murals, computer games and more.

Now it's your turn! How can your students present ecological data from the Hudson Valley to nonscientists? Students can use any artistic media they like, just as long as their creative product illustrates interesting trends or comparisons in the data.

Competition Essentials

Prizes

Prizes will be awarded separately for middle and high school students. Each age group will include:

- Best overall project ($500)
- Level 1 winner ($200)
- Level 2 winner ($200)
- Level 3 winner ($200)
- People's Choice Award chosen at the Data Jam Expo ($100)
- Honorable Mentions and various other special prizes, such as "Best Use of Visual Art" and "Best Use of Riverkeeper Sweep Data". Watch our DJ Facebook page for more special award announcements throughout the contest period.

All Data Jam participants are invited and encouraged to share their project at the sixth annual **Data Jam Expo & Awards Ceremony**. Students do not have to attend the Expo to win the top prizes, but must be present for the People's Choice Award.

Teams

Students can work on projects on their own or in groups as small as two students or as large as a whole class. Prizes are awarded for a project, so winnings must be split between team members.

Registration

Pre-registration for the Hudson Data Jam Competition is required. All registrations are due by **April 24, 2019.** Registration is non-binding, but is extremely useful for us so we can estimate the number of judges we will need.

Projects registered by February 1 will be eligible for a free classroom visit by a Cary Institute educator to introduce Data Jam or assist with student projects.

To register:

a. Fill out the registration form on the Hudson Data Jam website: http://www.caryinstitute.org/students/hudson-data-jam-competition/teachers/data-jam-project-registration. Only one registration form is necessary per advisor.
b. You will receive a confirmation by email. If you have not received a confirmation within 24 hours of submitting your registration, please call or email Shelly Forster (845-677-7600 x 303; caryeducation@caryinstitute.org).
c. All students participating in the competition must complete the student consent form. ***Team projects with missing consent forms cannot be judged***.

Which data should we use?

Data Jam teams must use the datasets made available on the Hudson Data Jam website (http://www.caryinstitute.org/students/hudson-data-jam-competition/data-jam-data-sets). We offer more than 40 datasets on a variety of environmental topics. We also highly encourage participants in the Day in the Life of the Hudson River to use their data in this contest.

Each dataset includes a short paragraph called "metadata." Here, you will find information on the dataset, including who collected the data, and when and how the data were collected. Most of the datasets also link to a PDF with additional background information.

If you are interested in a particular topic that we do not yet have a dataset for, please let us know!

Parts of the Project

Each submission to the Hudson Data Jam Competition will include two parts – a scientific report and an interpretive creative component.

- **Report.** Each team must submit a report that summarizes their project for judges and others to review. The report is worth 55% of the total project score.

- **Interpretive Creative Component.** Communicate your findings! The creative piece should **clearly** explain the data to someone without the scientific knowledge to interpret datasets or graphs on their own. Skits, videos, songs, puppet shows, poems, photographs, exhibits, sculptures, interactive displays and more are encouraged. *The projects will be judged online,* so live performances must be submitted as electronic audio or a YouTube video. Recordings must be 5 minutes or less. The creative project is worth 45% of the total project score.

Data Jam Report

The Data Jam report should be completed using the document titled: *Hudson_DJ_Report_Form* found in the "Important Documents" tab of the website. Students should complete all components of the document, as outlined in the table below. Students are required to include information and citations from **two sources** beyond the Metadata file. These sources could come from scientific publications, newspaper articles or reputable online sources.

Report Components **(these are the same as the Rubric, but this chart gives more detail)**	
1. Title	Include the title, name(s), grade(s), and school name(s) of all students who participated in the project.
2. Introduction (1 paragraph)	Start your report by describing your topic to someone unfamiliar with it. Include the scientific question you investigated and a brief claim about what the dataset showed. Give an overview of the project but do not go into specific detail in your introduction.

3. Dataset Description (1 paragraph)	Introduce the experiment to the reader. If given, specify the location(s) (ex: town, city, boat launch, etc.). Include as much information as you can about how the data were collected, when they were collected, how often they were collected, researchers involved in the project, the data source (ex: Vassar College, NOAA, Snapshot Day, Cary Institute), and any other relevant information. *Explain why a scientist might study these variables.*
4. Data Representations (Graphs)	Your team will need to *create* at least one graph or chart of the data. Hand-drawn graphs are acceptable if they are neat and legible. Remember to label your axes. If you selected a large dataset, your representation only needs to include the variables that are relevant to your investigation.
5. Data Trends or Comparisons (1-2 paragraphs)	Describe the trend(s) or comparison(s) in the dataset(s) you used for your project. In other words, *What does the graph look like?* Make sure to use basic descriptive statistics (ex: mean, range, standard deviation). Describe and address variability if applicable. Examples: ➢ The average annual blue crab population increased over time from 158 to 2,703 crabs/m2. ➢ Despite the overall increase in pearly mussels from 1995-2010, the mussel population sharply dropped in 2003. ➢ The precipitation in Poughkeepsie was variable from 1997-2012. ➢ Fish populations were higher in Beacon than at Norrie Point in 2008. ➢ There appeared to be no clear correlation between phosphorous and salinity levels from 1990-2000. If you used two datasets for a comparison, how were the data similar? How were they different?
6. Data Interpretation (Explanation) (1-3 paragraphs)	Use reasoning and what you know about the topic to explain the trend(s) or comparison(s) you discovered. In other words: ***Why*** *do you think the graph looks the way it does?* Why is your finding interesting and important? Are your results expected or surprising? What environmental processes might be causing what you discovered? Make sure to support your explanation with evidence and be consistent with current scientific ideas.
7. New Questions and Hypotheses (1 paragraph)	Remember -- for your creative piece, your job is just to describe the data. However, when you look at data closely, you will inevitably start asking more questions that you can't answer without more research, such as 'Why did the numbers go down in

	2003?' Or, 'What's happening in Beacon to make the site so different from others?' The report is your place to ask 'Why?' and 'What's up with that?' Then brainstorm some hypotheses. Hypotheses are the explanations your brain comes up with when you ask that 'Why?' question. You start thinking 'Maybe...' That 'maybe' is your hypothesis. Be sure to give at least two new ideas (hypotheses and/or questions) about future scientific research that could be done on this topic.
8. Written Explanation of Creative Project (2-5 sentences)	Explain why you chose your creative method and what message you hope audience members will take away from your project. For example, "We believe the best way to help a general audience relate to and understand our findings is to create a fun, engaging, educational video. We hope that people who watch our video will realize that salt levels in the Hudson River strongly affect where different fish species can live." If you create an abstract visual art piece like a sculpture you may need a longer description here.
9. Brief Reflection on Data Jam (2-5 sentences)	Let us know what you thought about your Data Jam experience. You might consider the following questions: Was Data Jam challenging or easy? What was the hardest part? What was the most fun part? What did you learn from Data Jam? How would you change Data Jam if you had the chance? Do you think there is a way to share your project with an audience outside of Data Jam?
10. Reference List	Include **at least two references** from outside of the Metadata document (e.g., data source, graph or table source, and anything used to explain the data interpretation). You can use any standard citation form (APA, MLA, etc.)
11. Link to Creative Project (if applicable)	If you upload your creative project to YouTube, make sure you include a link for judges!

Submitting Your Project

All projects will be submitted on Google Drive. Teams will submit their information via a Google Form and then upload projects to the Drive folder. Each school will have their own folder. All project materials must be submitted electronically by May 8. Visual and written files must be uploaded as PDFs and videos must be uploaded onto YouTube. All video links must be included in the report.

How Projects will be Judged

Judging will take place **online** between May 8 and May 24.

A panel of judges, including scientists, artists, and teachers will evaluate each project based on

the following criteria:

- Completeness, Overall Content and Organization – 5 points
- Scientific Merit – 50 points
- Creativity in Communicating Data – 45 points

Please refer to the judging rubric (available in the Important Documents page) for details on how projects will be scored.

Announcing Winners

We will announce the winning teams at the Hudson Data Jam Expo at Cary Institute on Friday, May 31 from 5:00-7:00. Students do not need to be present at the Expo to win. We will also post the winners on the Hudson Data Jam Facebook page shortly after the competition.

If students choose to present their project at the Data Jam event, we ask that they prepare a tri-fold poster board (no larger than 36" tall by 48" wide) neatly displaying the components from their report. Students should bring this poster and any physical materials, electronic media (videos, songs, etc.), and other necessary equipment to display their project (laptops, power cords, etc.). Table space and a limited number of extension cords will be provided.

Helpful Resources:

- **Data Jam Facebook** page frequently gives competition updates and posts exemplary creative data analysis projects: https://www.facebook.com/HudsonDataJam/
- **Cary Institute Teaching website** has data-rich ecology lessons that can help develop your students' content knowledge while they work on their projects: http://www.caryinstitute.org/educators
- **Data Jam Workshops** will be scheduled later this winter. Check this website for updates: http://www.caryinstitute.org/educators/professional-development or subscribe to the **Cary Institute Ecology Teaching newsletter** on the Cary website.
- **Hudson Data Jam YouTube channel** includes the 2014-2018 winners and a selection of other strong projects: http://bit.ly/2gI3hUy.

Rules & Regulations

Eligibility

The Hudson Data Jam Competition is open to all current middle and high school students (grades 4-12). Only eligible participants may submit projects and receive prizes.

Previous Entrants

Previous entrants are encouraged to compete again in the Hudson Data Jam Competition, as long as they meet the above student eligibility requirements. Students are welcome to use the same

dataset(s) they used in previous years, however, they must create a new project for the competition. Previously entered projects are ineligible.

Team Advisors
Participation in the Hudson Data Jam Competition requires coordination by a responsible adult who agrees to facilitate and validate student participation. Middle and high school (grades 4-12) teachers of all subject areas are encouraged to get their students involved. Adult advisors can be teachers, parents, guardians, or other mentors.

Registration Period
Registration for the Hudson Data Jam Competition is required, and due no later than April 24, 2019.

Project Entry Period
Project entries for the Hudson Data Jam Competition are due online by 11:59 PM EST on May 8, 2019.

Student Privacy
Student privacy is important to us. All adult team advisors will receive parental/guardian consent forms for permission of student participation and the release of limited personally identifiable student information (i.e., student name, grade level and gender, school name, hometown, photographs, video or audio files of the student, and project entry). **These consent forms should be completed and signed for <u>each</u> participating student and returned to the student's team advisor.**

Team advisors are asked to handle the distribution and collection of parental/guardian consent forms for their student participants. To ensure receipt of materials, please submit all team members' parental/guardian consent forms together. Completed forms must be received by Cary Institute no later than *April 24, 2019*. These forms may be scanned or photographed and e-mailed to caryeducation@caryinstitute.org or mailed to the following address:

Shelly Forster
2801 Sharon Turnpike
Millbrook, NY 12545

Publicity & Rights
By entering a project into the Hudson Data Jam Competition, the project creator(s), parent(s)/guardian(s), and the team advisor grant to the Cary Institute of Ecosystem Studies world-wide, royalty-free, non-exclusive license to use all materials submitted by the student teams into the Hudson Data Jam Competition for publicity purposes.

The Cary Institute of Ecosystem Studies may post information about the Hudson Data Jam Competition in the Cary newsletter, on the Cary website, in the Cary annual report, in the local newspapers, and on the Cary and Hudson Data Jam Competition Facebook pages. Project entries may be published without compensation through any or all of the above sources in whole or in part. Submitting a project entry does not guarantee it will be publicized. We will not publicize any student information without prior parental/guardian consent.

Plagiarism

Project entries cannot include plagiarized work. Plagiarism is considered the deliberate copying of someone else's thoughts, ideas, expressions, words, artistic expressions, or scientific work without formally acknowledging its source. Plagiarism includes project entries that are comprised substantially of someone else's work, copying words or ideas from someone else without giving credit, the failure to put quotation marks around unmodified content that was copied from an outside source, and the use of photos, graphs, charts, or other images without acknowledging their source. Project entries that include plagiarized content will be eliminated from the competition. We recommend teams working together to help each other avoid plagiarism. The best way to ensure your work is original is to be creative!

This competition requires students to use information that is not their own, and thus merits increased diligence to proper source acknowledgement. Students will use data (scientific work) collected by a group of researchers. Students are also welcome to use any of the images provided on the "Datasets" page in their project entries. In order to avoid plagiarism, students should be sure to properly cite all sources of information for content that isn't their own original work. This includes noting the data source and the sources of any images copied or modified.

Citations

All project entries must have a complete reference list of all resources used. Any standard citation form is permissible (APA, MLA, etc.), but the same form should be used for all citations for a given project entry.

Additional Disclaimers

1. It is the responsibility of each participant and team advisor to obtain and read these rules and regulations for the Hudson Data Jam Competition.
2. The Cary Institute of Ecosystem Studies will not be responsible for any claims, costs, liabilities, damages, expenses, or losses arising from 1) The Cary Institute of Ecosystem Studies' use of project entries, 2) the participants' involvement in the competition, 3) technical failures of any kind, including, but not limited to, computer viruses or equipment malfunctions, 4) travel to and from the teacher workshops, Data Jam Expo, and other related activities, 5) the use of prizes, and 6) any events outside the Cary Institute of Ecosystems Studies' reasonable control.
3. The Cary Institute of Ecosystem Studies reserves the right to reject any project entry for any reason and at any time, at its own discretion.
4. The Cary Institute of Ecosystem Studies may refuse to award a prize if a winning participant does not follow proper registration and project entry procedures, or these rules and regulations.
5. The Cary Institute of Ecosystem Studies is not responsible for any technical failures that may affect participation in the Hudson Data Jam Competition.

Frequently Asked Questions

General

Are Cary Institute educators available to help?
Yes. Cary Institute educators are delighted to answer any questions you have via e-mail or phone. Depending on our availability, we may also be able to visit your classroom to help with projects. To increase your chances of securing a classroom visit, please register by February 1.

Can I register and participate independently of my teacher or class?
Yes. Any middle or high school student or student team is eligible to participate. You do not have to register through your teacher, but do need to have an adult represent your team as an advisor. This can be a parent or another trusted adult.

What do the different dataset levels mean?
The simple answer is this:

Level 1= Easy,
Level 2= Moderate
Level 3=Challenging

Dataset levels are derived by looking at the number of factors in the dataset and by the sheer amount of data collected. Most middle schoolers will be successful with a Level 1 or 2 dataset, and the appropriate level for your high schoolers depends on their data experience and determination. Drop us a line if you need help selecting an appropriate dataset for your students.

Registration/Forms

I need to submit my parental consent forms. How can I send it in?
You can send us your parental consent forms by e-mail (caryeducation@caryinstitute.org) or snail mail (Shelly Forster, Cary Institute, P.O. Box AB, Millbrook, NY, 12545).

Submission

How do I submit projects?
Projects are submitted to the "Hudson Data Jam 2019 Submissions" Google Drive folder. You will directly upload projects to your school's folder. All written or visual files must be submitted as a PDF, and all videos must be submitted as a YouTube link. See the website for specific instructions.

Why do projects need to be submitted online?
All projects must be submitted online because judging for merit prizes takes place online. This means that all of the files you submit online must clearly show your project in its entirety because that is how the judges will see it. If you create a 3-D object, send us lots of photos so we can see it from all angles!

How should my students present their creative data display digitally for online submission?
It's up to them to determine the best way to view their project online. Most students choose to either photograph or video record their work. Students took photographs of their comic strips, dioramas, sculptures, and paintings. Students recorded YouTube videos of their interactive displays, choreographed dances, puppet shows, movies, original songs, and stop-motion videos.

Remember, the judges will be determining prize winners based on what you upload online, so be sure that they include a narrative description of pieces as needed. Take a look at our 2014-2018 Winning Projects for ideas about how to display their work digitally.

Expo

Are my students required to attend the Data Jam Expo?
No. Students are still eligible to receive merit prizes regardless of their attendance at the Data Jam Expo. However, the door prizes and the People's Choice Awards will only be given to students present at the Data Jam Expo. We will announce all prizewinners at the Expo and on the Data Jam Facebook page shortly after the event.

I live far away from the Expo. Are there any scholarships available to help fund my travel to the Data Jam Expo?
Travel scholarships will be available for students who live over 40 miles away and demonstrate financial need. Send us an e-mail at caryeducation@caryinstitute.org for more information about travel scholarships.

What should students bring to the Data Jam Expo?
We ask that they create a tri-fold poster board display (no larger than 36" tall by 48" wide) that contains all of the components of the report. This should look very similar to a science fair poster display and make it easy for visitors to see the information in the report. In addition, students should bring all of the materials they need to present their creative data display. If they submitted a YouTube video, they might want to bring a laptop computer and a pair of headphones for visitors to watch and listen to the video. Be sure to bring any computer chargers or electrical equipment needed. We will have tables and electric outlets available.

Students are also encouraged to bring their family and friends to the event. This is their chance to show off their work and see the work of other students in the competition.

Workshops

When is the next Data Jam workshop for teachers?
Visit our "Professional Development" page to check our workshop schedule or sign up to receive email updates through our Ecosystem Teaching Newsletter. These workshops are optional, but highly recommended for new Data Jam teachers.

Contact

Please contact the Cary Institute Education Office if you have any questions about the project or competition. 845-677-7600 – caryeducation@caryinstitute.org – www.caryinstitute.org

BEST OF LUCK AND HAVE FUN!!!