



# BRIDGING SCIENCE AND JOURNALISM CURRICULUM PACKET

This curriculum packet includes lesson plans for high school science teachers to help their students make the connection between science and journalism. This packet is plug and play - meaning that one can decide to use all lesson plans or just a few. The choice is up to you!

Each lesson plan includes:

- Overview of the activity
- NGSS standards the lesson matches to
- Student learning objectives
- Instructions for the activity (and relevant answer keys if needed)
- Lesson outcomes
- Assessment options

This curriculum aims to help students build their creative and critical thinking, problem solving, communication and writing skills while exploring aspects of science phenomena in San Diego while using journalistic and scientific approaches to complete each lesson.

The lesson plans included are:

- Geoscience
- Storytelling with Science
- How to Think Like a Journalist
- Engineering a Sensor
- Mapping with Science Data

This curriculum packet was created and developed by:

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**with additional contributions from Lorie Hearn, Executive Director/Editor  
*inewssource***

This project is part of the Center for Science and Media at San Diego State University in the School of Journalism and Media Studies. The Center for Science and Media is a collaboration of the School of Journalism and Media Studies with the College of Sciences in the areas of research, public service, and curriculum. The Center's mission is to educate the public about science, through the strategic and ethical use of media.

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PROFESSIONAL STUDIES AND FINE ARTS

**Additional thanks to:**



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# STORYTELLING WITH SCIENCE

Lesson Plan Created by  
Amy Schmitz Weiss, Ph.D. School of Journalism and Media Studies

## ABOUT

This lesson focuses on how to tell a story about science phenomena. You can adapt the science phenomena to your needs in the class, but for this lesson we will focus on air quality in San Diego.

## NGSS STANDARDS

**Practices:** Asking Questions and Defining Problems, Developing and Using Models, Engaging in Argument from Evidence, Obtaining and Evaluating and Communicating Information

**Disciplinary Core Ideas:** ESS3C-Human Impacts on Earth Systems, ESS2A-Earth Materials and Systems, PS4C-Information Technologies and Instrumentation

**Cross Cutting Concepts:** Patterns, Cause and Effect, Scale Proportion and Quantity, System and System Models, Energy and Matter, Structure and Function, Stability and Change, Interdependence of Science, Engineering, and Technology, Influence of Science, Engineering, and Technology on Society and the Natural World

## LEARNING OBJECTIVES

**Students will be able to:**

- Communicate what they have found in text form
- Demonstrate their creativity in how they present the information
- Critique information for accuracy and verifiability

## ACTIVITY

Students are given information about air quality in San Diego and its impact on San Diegans. Based on this information, they need to put together a story that tells the Who, What, When, Where and Why.

As part of the information they receive, they will need to verify if the information they have received is true or not by checking for its accuracy and verifiability on [inewsource.org](http://inewsource.org). Students will then use a story template to assemble the information into a coherent story. Students can be put together in pairs for this exercise or individually, based on the teacher's preference. Worksheets, answer key and original story are included at the end of this lesson plan.

### **Instructions**

1. Have the students read the air quality informational sheets (see end of this lesson plan).
2. Have the students then organize the information onto the 5Ws sheet based on which area the information fits into (who, what, when, where and why).
3. The students should then review the quotes from various sources to see how that helps to corroborate with the information they have received. They should pick a few sources (3-5) that they want to include in their story.
4. After making their selection, they will need to determine if that information from their sources is accurate or not. They can go online to search if it is true. (Some quotes will be false and inaccurate). Based on what they find, they may need to identify another source and go through the process again if they find faulty information.
5. Once they have the information verified, they can then take the information from the 5W sheet and insert it into the story template provided.
6. The story template can be provided to the teacher for review and a grade.

### **OUTCOME**

The students will be able to:

- Produce a short story in text form that communicates an aspect of science phenomena.
- Write a story that includes information, facts and quotes from verified sources to show how a story can be told.

### **ASSESSMENT**

Students can be assessed by:

- How well they were able to fit the story to the template
- How they verified the information for accuracy
- How they organized the information to who, what, when, where and why

## Informational Sheet (STUDENT VERSION)

Here is information about air quality in San Diego that can be used for your story.

- Logan Heights and Barrio Logan residents are subject to some of the worst air quality in San Diego, according to state data.
- Barrio Logan and Logan Heights, measured in the top 20 percent of California neighborhoods with high levels of pollution by a state monitoring tool - CalEnviroScreen.
- The amount of particulate matter (PM) in the air can be associated with asthmatic flare-ups and wheezing in children, according to the EPA, though the degree to which it contributes to asthma is unclear.
- Asthma hospitalization cases are almost 2.5 times the national average in Barrio Logan - [the Environmental Health Coalition](#).
- EPA says children may be more susceptible to harmful effects of air pollution than adults because they explore and play outdoors more than adults and have immune systems that are not fully developed - [the EPA](#).

### Source Information

Below are some sources with quotes that can be used in your story. Some of the information is true and others are false. In some cases, the information could be inaccurate. Check the information given by the source for verifiability by going online to [inewssource.org](http://inewssource.org) to find out.

- Mayor Falconer says that air quality in Barrio Logan and Logan Heights will be improved by 2021.
- Lynn Vogelgesang, a family nurse practitioner manages the nurses for 8 San Diego schools. Vogelgesang said there's a higher instance of asthma in Logan Heights and surrounding areas. "Because there are so many more particulates, they are seeing a higher rate of asthma. So it's clearly not just a genetic thing."
- Dave Fege of the EPA Border Air Quality Coordinator and California/Baja California Issues says that particulate matter is of top concern for the EPA. "We are aware of the issues with PM and how vulnerable children can be when exposed to high amounts of PM in the air. We are looking to initiatives and programs to help educate residents in the border region."
- Susan Laufflower, a physician at the Allergy and Asthma Medical Group in San Diego, a medical center that provides specialty care to allergy and asthma patients. Laubach says many homes in Logan Heights are old, and may have more allergens. "Their schools may have extremely high levels of mold or dust as well. Those buildings are usually less maintained than other places that have more money."
- Laubach recommends families avoid such triggers by staying indoors if the pollution index exceeds what the EPA considers safe that day or avoiding physical activity like the Santa Ana winds or animal dander.

## Informational Sheet (TEACHER VERSION - ANSWER KEY)

Here is information about air quality in San Diego that can be used for your story.

Check the story against this original article published:

<https://inewssource.org/2015/05/27/bad-air-in-barrio-logan-and-logan-heights-poses-asthma-risk-for-children/>

- Logan Heights and Barrio Logan residents are subject to some of the worst air quality in San Diego, according to state data. (CORRECT)
- Barrio Logan and Logan Heights, measured in the top 20 percent of California neighborhoods with high levels of pollution by a state monitoring tool - CalEnviroScreen. (CORRECT)
- The amount of particulate matter (PM) in the air can be associated with asthmatic flare-ups and wheezing in children, according to the EPA, though the degree to which it contributes to asthma is unclear. (CORRECT)
- Asthma hospitalization cases are almost 2.5 times the national average in Barrio Logan - [the Environmental Health Coalition](#). (CORRECT)
- EPA says children may be more susceptible to harmful effects of air pollution than adults because they explore and play outdoors more than adults and have immune systems that are not fully developed - [the EPA](#). (CORRECT)

### Source Information

Below are some sources with quotes that can be used in your story. Some of the information is true and others are false. In some cases, the information could be inaccurate. Check the information given by the source for verifiability by going online to [inewssource.org](http://inewssource.org) to find out.

- Mayor Falconer says that air quality in Barrio Logan and Logan Heights will be improved by 2021. **(FALSE - NEVER INTERVIEWED FOR STORY)**
- Lynn Vogelgesang, a family nurse practitioner manages the nurses for **8 San Diego schools (incorrect - it's 24 schools)**. Vogelgesang said there's a higher instance of asthma in Logan Heights and surrounding areas. "Because there are so many more particulates, they are seeing a higher rate of asthma. So it's clearly not just a genetic thing."
- Dave Fege of the EPA Border Air Quality Coordinator and California/Baja California Issues says that particulate matter is of top concern for the EPA. "We are aware of the issues with PM and how vulnerable children can be when exposed to high amounts of PM in the air. We are looking to initiatives and programs to help educate residents in the border region." **(FALSE - NEVER INTERVIEWED FOR STORY)**
- **Susan Laflower (incorrect last name - actually Laubach)**, a physician at the Allergy and Asthma Medical Group in San Diego, a medical center that provides specialty care to allergy and asthma patients. Laubach says many homes in Logan Heights are old, and may have more allergens. "Their schools may have **extremely high (incorrect - just said higher)** levels of mold or dust as well. Those buildings are usually less maintained than other places that have more money."
- Laubach recommends families avoid such triggers by staying indoors if the pollution index exceeds what the EPA considers safe that day or avoiding physical activity like the Santa Ana winds or animal dander.

## **Worksheet**

**Based on the information from the informational sheet, organize the content to the areas below.**

**Who?**

**What?**

**When?**

**Where?**

**Why?**

**How?**

## Story Template

**Here is the story template to use to combine your information and sources into one narrative.**

Check the story against this original article published: <https://inewssource.org/2015/05/27/bad-air-in-barrio-logan-and-logan-heights-poses-asthma-risk-for-children/>

**Headline Here** ( Example: Air Quality Data in San Diego Shows Change)

**Lead** (beginning paragraph with who, what, when and where)

**Further information** that explains what

**Quote from a source** that elaborates/corroborates the what

**Further information and facts** that explains why or how

**Quote from a source** that elaborates/corroborates the why or how

**Further information and facts** that explains what

**Quote from a source** that elaborates/corroborates the what





"Varrrio Logan" bridge underpass in Barrio Logan's Chicano Park. Photo Courtesy: Dennis Vieira

# Bad air in Barrio Logan and Logan Heights poses asthma risk for children

by inewssource staff | May 27, 2015

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By Nancy Kirk | SDSU student

### Key points:

- 1. Asthma hospitalization rates in Barrio Logan are 2.5 times the nation's average
2. There may be a correlation between asthma and air quality
3. Residents in the area who are affected by asthma need to be cautious of their

Residents in Logan Heights and Barrio Logan are subject to some of the worst air quality in San Diego, according to state data. Because children are more susceptible than adults to asthma, students at Burbank Elementary and Logan Elementary may be at greater risk of developing or suffering a worsening of the disease.

The air in Barrio Logan and Logan Heights, in the southeastern part of San Diego,

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About this project.

Get the inside details.

This special project, "What's in the Air," is a collaboration between journalism and geology students from San Diego State University along with inewssource, a nonprofit news organization. They will experiment with the concept of using electronic sensors to test air quality in San Diego in an effort to help the public be more informed about pollution and its impact on the city.

Please take this short survey and let us know what you think of our "What's in the Air" project.

The Series.

Get the whole picture.

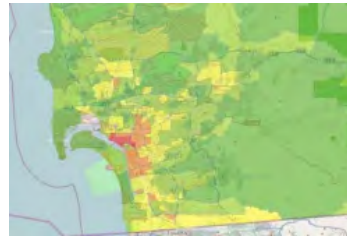
## *environment and properly monitor their asthma*

was measured in the top 20 percent of California neighborhoods with high levels of pollution by a state monitoring tool called

CalEnviroScreen. The interactive tool was created by the Office of Environmental Health Hazard Assessment to identify environmentally-disadvantaged communities throughout the state.

The amount of particulate matter in the air can be associated with asthmatic flare-ups and wheezing in children, according to the EPA, though the degree to which it contributes to asthma is unclear.

The rates of asthma hospitalization cases are almost 2.5 times the national average in Barrio Logan, according to the [Environmental Health Coalition](#).



The color-coded map shows air quality across San Diego County, Barrio Logan and Logan Heights are the only neighborhoods shaded red. Map courtesy of CalEnviroScreen 2.0, click on the image to visit the interactive map

## **Considering the Schools**

Children may be more susceptible to harmful effects of air pollution than adults because they tend to explore and play outdoors more than adults and have immune systems that are not fully developed, according to the [EPA](#).

The students in Logan Heights and Barrio Logan are exposed to a potentially harmful quality of air on a daily basis, something that the schools do their best to monitor, according to Diane Buley, a nurse at Burbank Elementary.

### ***Asthma triggers include:***

- – *Animal dander*
- – *Exercise*
- – *Pollution*
- – *Smoke*
- – *Dust*
- – *Stress*
- – *Fungus spores*

Buley said she urged parents from another elementary school where she works to supply the nurse's office with inhalers for their children with asthma in case of an emergency.

"I practically begged the parents to bring them and got supporting documentation on why their children should have their inhaler," Buley said. "In my opinion, lower income families live more for the moment and they're just trying to survive economically than to predict what could happen in the future."

*Binational experts press for air quality monitoring at border*  
March 16, 2016

*Industry, freeways create toxic brew in Chicano Park*  
May 29, 2015

*Coronado bridge traffic could add to air quality woes in Barrio Logan*  
May 29, 2015

*Barrio Logan seeks reforms after community plan defeat*  
May 29, 2015

*Students measured air quality in San Diego communities*  
May 29, 2015

*From the sensor beat*  
May 29, 2015

*Alvarez' personal story motivates his clean air efforts*  
May 29, 2015

*Bankers Hill air quality in good shape*  
May 29, 2015

*Bad air in Barrio Logan and Logan Heights poses asthma risk for children*  
May 27, 2015

*Light winds don't help air quality in Barrio Logan*  
May 27, 2015

- – *Pollen* Buley’s supervisor is Lynn Vogelgesang, a
- – *Bugs* family nurse practitioner who manages the nurses for 24 San Diego schools. She said that there is a higher instance of asthma in Logan



Heights and surrounding areas.

“Because there are so many more particulates, they are seeing a higher rate of asthma,” Vogelgesang said. “So it’s clearly not just a genetic thing.”

Other factors that can trigger asthma include the person’s exposure to allergens, like pollens, mold, or animal dander. Many homes in Logan Heights are old, and may hold more allergens, according to Susan Laubach, a physician at the Allergy and Asthma Medical Group in San Diego, a medical center that provides specialty care to allergy and asthma patients.

“Their schools may have higher levels of mold or dust as well,” said Laubach. “Those buildings are usually less maintained than other places that have more money.”

Laubach suggests that children and families make plans to avoid such triggers by staying indoors if the pollution index exceeds what the EPA considers safe that day or avoiding physical activity if a known trigger is present, like the Santa Ana winds or animal dander.

[Click here for more from “What’s in the Air”](#)

*Nancy Kirk was enrolled in San Diego State’s “What’s in the Air” sensor journalism class in Spring 2015.*

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