Project Plan for a Community Science Project:
General Information and Education

Low-cost sensors can be used to educate students and the general public. The measurements from these monitors can show whether a pollutant is present in different environments and at different times. They can be used to learn about air pollution, the scientific method, and how to operate and use air monitoring equipment.

Section 1: Title Page

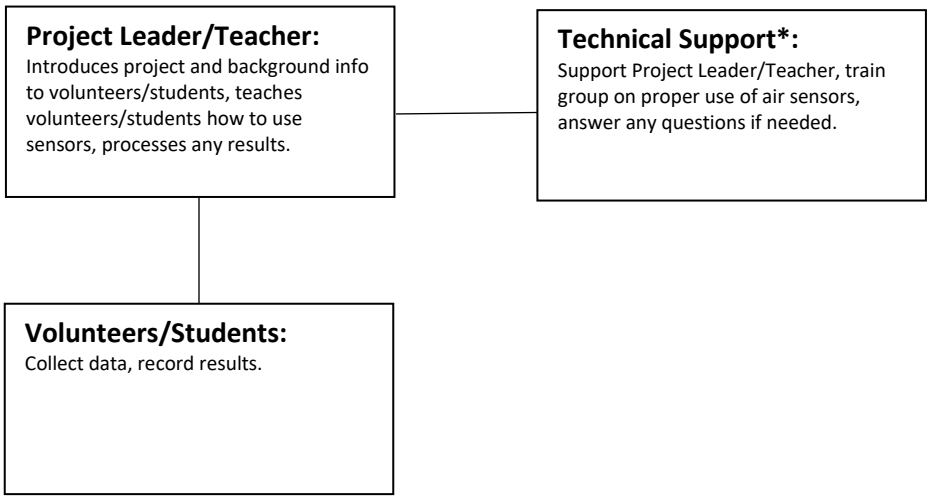
Using _____ Air Sensors to _____
(Name of sensor) *(Educational purpose)*

Author(s): _____

This is a "blank" copy of a Project Plan that can be used for a Community Science air monitoring project for general information and education. Blank lines with guiding topics in parentheses are meant for you to fill in. Guidance for filling out this document is in blue boxes, like this one, and can be deleted in your final copy. This is a template and should be altered to accommodate your specific project. We suggest that your Project Plan be reviewed by the Technical Support, Project Leader/Teacher, or other designated party before beginning any data collection.

Section 2A: Project Organization Chart

The chart below shows the lines of communication and reporting for this project along with a brief description of different roles and responsibilities. Fill in the chart and table below with the list of names and contact information for all participants in this project.



*The Technical Support team could be from government agencies such as the NJDEP Bureau of Air Monitoring or U.S. Environmental Protection Agency (USEPA); professors or experienced students from local universities; or technical professionals. **The Technical Support team advises the project but is not responsible for its outcome or success.**

Section 2B: Project Contact List

Name/Title	Contact Information
(Name) **Project Leader or Teacher**	Email: Phone:
(Name(s)) **Technical Support**	Email: Phone:
(Name(s)) **Volunteers/Students**	Email: Phone:

Section 3: Project Background, Question, and Objectives

Project Background & Question

Describe the air pollutant(s) you want to learn about and why, including any useful background information. To help you describe the educational goal, try to answer the following questions:

- What specific kind of air pollution are you interested in (e.g., criteria pollutants)?
- What health concerns related to air pollutants are you interested in?
- Once you decide on a pollutant you want to measure, at what location do you want to measure it and why?

You will want to end this section with at least 1 testable question that can be answered with the results of the project. The following below are examples of questions:

(Location) is located in *(specific area of NJ)*. We are concerned about the presence of *(pollutant)* in the area because *(reason)*. [or] We are curious if the amount of *(pollutant)* here is different than the amount in/at *(other location)*. The purpose of monitoring for *(pollutant)* is to educate ourselves of its presence in the area and how it may affect us and others in the area. We plan to collect air quality data using *(name of sensor)* to see if *(pollutant)* is present.

- We want to know if *(pollutant)* is present near our school since children play outside during recess and may be exposed to *(pollutant)*.
- Is *(pollutant)* present outside? If so, is it present in a high or low amount?
- Is there a difference in the amount of *(pollutant)* at different times of day?

Project Objectives

List your project objectives and write them as plans or steps to provide answers to your questions above. Include the tasks that will collect information to answer those questions. Below are some examples.

- Use *(name of sensor)* sensor to detect the presence of *(pollutant)*.
- Use *(name of sensor)* sensor to determine if there is a high or low amount of *(pollutant)*.
- Use *(name of sensor)* sensor to see if there is a difference in the amount of *(pollutant)* at different times of day.

Section 4: Project Location

Describe the area where the air quality data collection will occur and why. Explain if there's any significance to this area and/or time of day. Also mention here how many times a measurement will be made and the duration of the measurement.

Measurements for *(pollutant)* will be taken *(describe location)* [add map if applicable to show the measurement locations]. Measurements will be taken *(number of times)* a day for *(duration)* on these dates *(list or write out dates and times)*. We chose this location because *(reason for choice of location)* and repeated the measurement because *(explain why, likely for comparison at different times/days)*.

Section 5: Data Collection Sheet

An example of a field data table can be found in the appendix and can be printed out for your use. If the data is being collected and recorded electronically, provide an example of the format of the data, in a spreadsheet or text table.

Section 6: Training

Describe any training that is needed by an individual involved with the project. Also include any refresher training that will be conducted during the project. An example is below.

Training on how to properly use *(type of air sensor)* will be given to the Project Leader/Teacher by *(individual or group that provided training)*. In addition, the Project Leader/Teacher will be given the air sensor instructions. The Project Leader/Teacher will then demonstrate to the Volunteers/Students how the sensor works, along with proper measuring techniques.

Appendix 1: Data Collection Sheet

Using __*(name of sensor)*_ to __*(educational purpose)*__				
Group:				Sensor Serial Number:
Date	Monitoring Location	Start Time	Stop Time	Additional Observations (i.e. area description, weather, what's nearby, anything physically sensed like smell or visible smog)

Appendix 2: USEPA Low-Medium-High Scale Tables

You may use these tables from USEPA below to assist in interpreting your $PM_{2.5}$ and O_3 results from your low-cost sensor project (if they are quantitative). Also use any of the references in the "Evaluating and Comparing Air Sensors Results" section of the Helpful Links.

Pilot version **1-minute particle pollution ($PM_{2.5}$) readings** ***Not for regulatory purposes***	
Low **0-29 µg/m3**	Enjoy your outdoor activities.
Medium **30-69 µg/m3**	If medium readings continue (for an hour or more), use the Air Quality Index to plan outdoor activities.
High **70 - 499 µg/m3**	You may be near a source of particle pollution like dust, smoke or exhaust. Check the Air Quality Index to plan outdoor activities.
Very High **≥500 µg/m3**	You may be near a source of particle pollution like dust, smoke or exhaust. Check the Air Quality Index to find out if you should adjust outdoor activities. Very high readings may mean the sensor is not working properly.
🔧	Sensor may be offline. Check the Air Quality Index.

Figure 1. Above is the low-medium-high table for 1-minute particle pollution ($PM_{2.5}$) readings from an air sensor. This can be used to help guide you in determining what your sensor readings mean.

Pilot version **1-Minute Ozone Readings** ***Not for regulatory purposes***	
Low **0-59 ppb**	Enjoy your outdoor activities.
Medium **60-89 ppb**	If medium readings continue, use the Air Quality Index to plan outdoor activities
High **90-149 ppb**	If high readings continue, consider adjusting outdoor activities, especially if you are sensitive to ozone. Check the Air Quality Index to find out.
Very High **≥150 ppb**	If high readings continue, consider adjusting outdoor activities. Check the Air Quality Index to find out. Very high readings may mean the sensor is not working properly.
🔧	Sensor may be offline. Check the Air Quality Index.

Figure 2. Above is the low-medium-high table for 1-minute ozone (O_3) readings from an air sensor. This can be used to help guide you in determining what your sensor readings mean