



VIRTUALLY WILD! COMMUNITIES

ACTIVITY
GUIDE FOR AIR
QUALITY



So you watched a *Virtually Wild! Communities* video with your class ([YouTube Playlist Link](#)). Now what? There's a lot to unpack but worry not. We have a few activities to get you started.

Themes from Jesse Jones Park and Nature Center:

- Air Quality
- Interrelationships between animals and their environments
- Environmental Pollutants
- Importance of conservation
- Weather and atmospheric science
- Environment and health - Allergies and Asthma

Resources:

- [Air Quality Now](#) -- National Website for Resources and Education
- [HERE in Houston Website](#)
 - Check out our page on [Air Quality](#) in the Greater Houston Area
- Learn about [Indoor Air Quality](#)

Activity Guide for Virtually Wild! Communities

Let's Clear the Air a Bit.

Activity # 1: What's in My Air?	Time Required: 35 mins
Lesson Developers: Emma Wilson, Alicia Mein-Johnson, Citizens Environmental Coalition	Materials: -glitter, rice, salt, black pepper and other small particles that float -food coloring -clean, empty recycled jars with lids
Objectives: ❖ Students learn the different air pollutants, and investigate the causes of air pollution.	Grade Level - Science and Social Studies TEKS 7 – 1-4, 8, 12A, 13 and 9, 19 8 – 1-4, 11 and 11 High School - fits multiple Science course TEKS
Procedures	
I. Motivation/Warm Up -Look up the current air quality data and pollen count on a weather app or AirNow.gov .	
II. Information - Design a jigsaw activity with various air pollutants, like ozone, pollen, PM2.5 and PM10, carbon monoxide, sulfur dioxide and nitrogen dioxide. Students dive into websites or news articles to learn about a pollutant, based on your TEKS. They especially need to know natural and cultural sources of the pollutant, and its effect on human body systems.	
III. Practice -Create a snow globe to model the collective effect of air pollution (which is often unseen but all around us). Start with a jar of water. Each student/group presents their pollutant to the class, and adds a different food coloring or floating particle (glitter, pepper, rice, etc) to the jar. -Collectively, describe the impact of air pollution, based on the known sources of common pollutants.	
IV. Application -Students brainstorm solutions to reduce air pollution. Use One Breath Partnership and Air Alliance for ideas.	
V. Modifications - Discuss environmental justice issues in Houston by watching the One Breath Partnership Video: Again, Together with the companion discussion guide .	

Activity Guide for Virtually Wild: Communities

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Activity # 2: Measuring Air Quality	Time Required: 45 mins
Lesson Developers: Emma Wilson, Alicia Mein-Johnson, Citizens Environmental Coalition	Materials: -Plume Labs Air quality monitor - AirNow - Weather.gov
Objective(s): ❖ Students monitor air quality in different areas and/or over time and compare it to weather data to find interrelationships.	Grade Level - Science and Social Studies TEKS 7 – 1-4, 8, 12A, 13 and 9, 19 8 – 1-4, 11 and 11 High School - fits multiple Science course TEKS
Activities	
I. Motivation/Warm Up - Look up the current air quality data and pollen count on a weather app or AirNow.gov . - Look up the current weather on a weather app, or go outside and make observations.	
II. Information -Compare and contrast ways to measure weather and air quality. See how technology changes over time. -Predict areas of good and poor air quality on campus (indoors and outdoors). -Predict why/how weather and air quality change over time, and the interrelationship between the two.	
III. Practice -Students use an air quality meter like the Plume Lab Flow to monitor air quality on campus over time, in different locations. Think indoors and outdoors. Do the same for weather, using appropriate technology. -Students research historic data for weather and air quality, and draw conclusions about their interrelationship between the two. Things to look for: sunshine/heat and ozone formation, windy days and good air quality, rainy days and pollen counts, etc.	
IV. Application -Students brainstorm ways to reduce air pollution, and discuss ways to mitigate health risks on days with dangerous air quality. Make recommendations to the campus to protect students from poor air quality. -Create a model for predicting poor air quality days, based on weather.	

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Activity # 3: There's a fungus among us!

Time Required: 40 mins (plus 1 week)

Lesson Developers:

Emma Wilson, Alicia Mein-Johnson,
Citizens Environmental Coalition

Materials:

-permanent marker, bread, plastic zipping baggies, refrigerator
-petri dish, petroleum jelly, white card, two-sided tape
- [Atlantic Article](#)

Objectives:

- ❖ Students learn about indoor air pollutants and how to minimize exposure to them
- ❖ Students grow their own bread mold.

Grade Level - Science and Social Studies TEKS

7 – 1-4, 8, 12A, 13 and 9, 19

8 – 1-4, 11 and 11

High School - fits multiple Science course TEKS

Activities

I. Motivation/Warm Up

-Make a list of common indoor air pollutants.

II. [Information](#)

-Set up a petri dish with petroleum jelly in various locations around the classroom. Or add two-sided tape to a white card. Leave it for an extended period of time. Using a stereoscope or hand lens, revisit the dish/card to look for “captured” pollutants - like dust and pollen.

-Investigate an air filter from an air conditioning unit with the maintenance department.

-Predict where you could find mold, and look for places on campus that are ripe for mold development.

-Discuss the relationship between mold and flooding in the Houston area, [using this article from the Atlantic.](#)

III. Practice

-Using the variables of temperature, sunlight, and moisture, put a piece of wet or dry bread in a baggie in various warm and cold, or light and dark, locations. Ex; in a refrigerator, in a cabinet, in a sunny window, on top of a refrigerator (warm). Check on them daily, looking for mold growth.

-Collect and record moth growth data over time. Suggestion: percent coverage.

-Draw the mold growth, and using a hand lens or microscope, investigate the structure of the fungi. Predict its classification: *Rhizopus stolonifer*, *penicillium*, or *cladosporium*.

IV. Application

-Draw conclusions, based on data, about mold growth in moist environments.

-Extend the experiment, and use different cleaners (bleach, PineSol) to inhibit mold growth.

Based on new data, create a mitigation plan for homes that flood to prevent mold growth.

V. Modifications

-Involve the maintenance department as much as possible - how are they stopping the spread of mold on campus? What areas are neglected? How can students help?