

Talking Air

Talking Air presents a 5-piece sampler of Abeles' projects including Smog Collectors, Wind Catchers, Drunk Socks, Sky Patch, and Shared Skies.

The hands-on activities are presented small in scale for the workshop, and with a goal to move through the skills needed to accomplish each project.

The projects can be customized for various grade levels and through group projects. We will close off the workshop with a conversation about how the art can be used to generate dialogue about air pollution, the environment, and our connection to it.

A workshop and presentation by Kim Abeles at the Skirball Cultural Center February 11, 2017

Presented for the teacher development program, Teaching Our World Through the Arts

Strand 2: Visual Art and Photography

The Skirball is an official LAUSD Arts Community Network partner



Abeles' 1992 autorretrato llamado *La Cazadora de Smog* (*Treinta días de Smog*) II.

Abeles' 1992 self-portrait in The Smog Catcher (Thirty Days of Smog) II. The dirty air that we breath is called smog. It's caused by cars, trucks, and industry (and people). The weird thing about smog is that it always looks like it's far away, in somebody else's neighborhood, (and they think it looks like it's in your backyard). The *Smog Collector* will show it to you.

El aire sucio que respiramos se llama "smog". Este, es causado por las personas, las emisiones de carros, de camiones y las industrias. Lo raro del "smog" es que todos creen que está muy lejos, en otro lugar, y, los del "otro lugar" también piensan lo mismo: que está en "otro lugar". El Recolector de Smog te lo demostrará.

¿Qué es materia en partículas? El smog contiene polvo y/o partículas que dificultan nuestra respiración. Estas partículas

vienen de los carros, camiones y fábricas. Las llantas de los

vehículos, al ir rodando, sueltan pequeños pedazos de goma al aire. La tierra seca sin plantas también suelta polvo

y tierra al aire.

¿Qué vas a dibujar?

Dibuja algo que cause contaminación atmosférica o alguna solución a: ¿cómo podemos reducir el "smog"? O, traza líneas sobre la palma de tu mano como un símbolo personal.

What is particulate matter?

Smog contains bits of dirt or particles that makes it hard to breath. These particles come from the exhaust from cars, trucks, and factories. Tires, as they roll along the road, send small bits of rubber flying into

the air. Dry land without plants sends dirt and dust into the air.

What are you going to draw?

Draw something that causes air pollution. Or, draw a solution: How can we reduce smog? Or, trace around your open hand as a symbol of yourself.



¿Qué es un Recolector de Smog?

El Recolector de Smog se hace poniendo un patrón cortado sobre vidrio o plástico (acrílico transparente). Luego se coloca al aire libre por dos o tres semanas. La materia en partículas que existe en el aire contaminado cae en el vidrio o acrílico. Finalmente levantas el patrón y verás la imagen creada por el smog.

The word "smog" was first used in 1905. The word "smog" is made up of two words.

What are they?

La palabra "smog" fue usada por primera vez en 1905. La palabra está compuesta por dos palabras en inglés. ¿Cuáles son?



What's a Smog Collector?

Smog Collectors are made by putting a stencil cut-out on plastic or glass, then placing this outdoors for two to four weeks. The particulate matter in the polluted air falls upon it. When the stencil is removed, the image is made from the smog in the air.



The cut stencils on a plastic lid or plate are placed outdoors and exposed to the smog. The particulate matter in smog is heavy, and falls on the stencil.

Los patrones cortados se ponen al aire libre en un plástico o un plato. Allí estarán expuestos al smog. La materia en partículas del smog es pesada y cae en el patrón.

Escultura de Abeles', La silla alta de Zoë (Cuarenta días de smog), una "comida" para niños hecha con smog en la silla de su hija, ésta ahora con chimeneas industriales.

Abeles' sculpture, Zoē's Highchair (Forty Days of Smog), shows a kid's "meal" made of smog on her daughter's chair, now with smokestacks.



Como hacer un Recolector de Smog

Vas a necesitar

- Un pedazo de plástico rígido/duro como una tapadera o un plato usado
- Papel de patrón con pegadura (papel contact) de un color claro o sólido.
- · Pluma o marcador
- · Tijeras o exacto

Directions

- Cut a piece of contact paper to the size of the lid or plate.
- · Draw with a pen directly onto the contact paper.
- Cut out your drawing using your cutting tool. Keep in mind that the pieces that are cut out will be exposed to the polluted air, so these shapes will be made of smog. The sections where the contact paper remains will be clear after the stencil is removed.

If you use a scissors, cut out the drawing, remove backing of the contact paper, & lay it on the lid or plate.

If you use an exacto knife, remove the backing of the contact paper and slowly "roll" it onto the plate. If air bubbles occur, the contact paper can be lifted off and smoothed on again. Cut out and remove the shapes of your drawing that will be made of smog.

Instrucciones

- Corta un pedazo de papel como patrón, del tamaño de la tapa o plato.
- Dibuja con tu pluma o marcador directamente en el papel del patrón.
- Corta tu dibujo usando la tjiera o el exacto. Recuerda que los pedazos que cortes serán expuestos al aire contaminado. Estas formas se rellenarán con smog y las partes que cubren el plástico se mantendrán intactas cuando despegues el papel.

Si usas una tijera, recorta tu dibujo, despégale el papel no adhesivo y pégale la parte adhesiva a la plato.

Si usas un exacto, quítale el papel no adhesivo y pega la parte adhesiva a la plato. Si se forman burbujas de aire, levanta de nuevo el papel y/o aplana. Por último, corta y remueve las formas que serán rellenadas por el smog.

Making your Smog Collector

You will need

- Rigid plastic, like a plastic lid or an old dinnerplate
- Contact paper (a solid or light color)
- · Pen or marker
- · Scissors or exacto knife



Draw on the contact paper with a pen or marker. Cut out the image with an exacto knife, or use a scissors before putting the contact paper on the lid or old plate.

Dibuja el patrón en el papel contact con una pluma o marcador. Corta la imagen con un exacto o una tijera antes de poner el papel de contacto en la tapa o plato.

Exponiendo tu Recolector de Smog

- Pon tu Recolector de Smog al aire libre. No lo dejes expuesto en lugares muy calientes ni a pleno sol. Asegúralo para que nos se lo lleve el viento.
- Un Recolector de Smog en ciudades contaminadas dejará una imagen hecha de smog en unos cuantos días. Más o menos déjalo afuera de 20 a 30 días. Una lluvia ligera dejará huella. Una lluvia pesada o nieve borrará todo lo recogido por el Recolector de Smog.

Exposing your Smog Collector

- Place your Smog Collector outdoors. Keep it out of extreme heat and sunlight. Secure it down if you think the wind will send it flying.
- · A Smog Collector in polluted cities or towns will show an image made of smog in several days. Typically, keep it outdoors for 20 to 30 days. A light rain will leave a pattern; a heavy rain or snow will wipe the Smog Collector clean.

Componiendo Su Recolector de Smog

 Despues de que su Recolector de Smog haya estado afuera por varias semanas, quedra rociarlo con un liquido no toxico, hecho con Methyl Cellulose (disponible en varias tiendas de materiales 🖫 de arte y para hacer papel hecho a mano). Antes de remover el patron picado, mezcle una cucharada de Methyl Cellulose con media taza de agua hirviente, depositandola en un frasco con tapadera, hasta que el polvo se desuelva. Despues se le anade una Respuesta de la companya del companya de la companya del companya de la companya del la companya de la co taza de agua enhielada, se le meneea y se agita. Se refrigera el

liquido por la noche. Se vacia despues en una botella para rociar y agreguele poco de agua si el liquido es demasiado espezo para rociar. Con el patron picado ahun pegado al Recolector de Smog, rocielo de lado. Se seca claro y transparente.

• Cuando Kim Abeles desarollo su Recolector de Smog, ella protegia los objetos de arte con marcos protectivos, sin molestar la superficie con smog colectado. Al rociar su Recolector de Smog, uno puede tocar la terminada imagen de smog sin borrar los finos particulos.

Utilize una aguja de coser para facilmente levantar el patron picado en las orillas de cada seccion.

• Ahora que ya sabes lo que es un Recolector de Smog. Conversa con tus amigos sobre como solucionar el problema de la contaminación del ambiente.

Fixing your Smog Collector

 After the Smog Collector has been outdoors for a couple weeks, and before removing the stencil, you will want to spray it with a nontoxic spray made with Methyl Cellulose (found in art stores and usually used for making handmade paper). Mix 1 Tablespoon of Methyl Cellulose with 1/2 cup of boiling water, place it in a glass jar and stir until the powder dissolves. Add 1 cup of ice water and shake it. Refigerate the mixture

overnight. Pour it into a hand sprayer bottle, and add small amounts of water if it's too thick to spray. With the stencil still on the Smog Collector, spray

it lightly at an angle. It will dry clear.

 When Kim Abeles first developed the Smog Collector process, she protected the artworks in frames without disturbing the fine particles. But if you want to be able to handle the artwork, spray it with the mixture before removing the stencil.

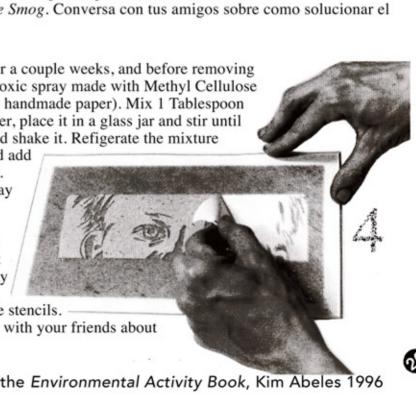
A sewing needle can help lift the corners of the stencils.

 You now have a Smog Collector. Use it to talk with your friends about solutions for a cleaner environment.



Después de haber cortado el patrón, pon tu Recolector de Smog al aire libre por veinte o treinta días. No lo pongas directamente al sol.

After the stencil has been cut, place your Smog Collector outdoors for 20-30 days. Keep it out of direct sunlight.



Here are supply sources for the Smog Collectors

TIP

Recycled porcelain tiles or used dinnerplates found in thrift stores work well in the making of *Smog Collectors*.

Consider making a collaborative *Smog Collector* with youth. Try using an old door as a base for the project.

ORACAL 631 Removable Adhesive Indoor/ Outdoor Vinyl is a good material for the stencils. It is sold through vendors for sign painting supplies.

You can also use contact paper -- especially leftover scraps! Ask parents and friends for remnants.



A mixture of Methyl Cellulose powder and water can be used as a spray to lock in the particulate matter on the Smog Collector. This is a non-toxic substance used for papermaking and as an archival adhesive. You can buy the powder at art supply stores. One supplier can be seen at talasonline.com

















Sky Patch Journal

Diario de Parches del Cielo

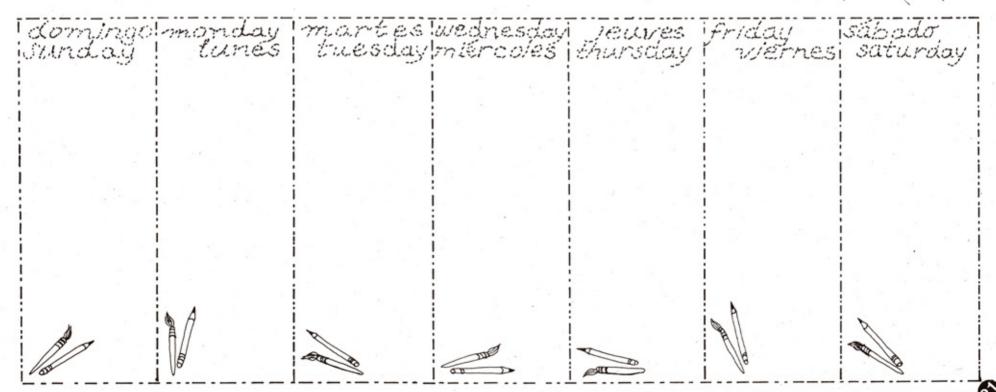
•Cut a square out of a piece of cardboard.

Tape it to a window or place it outdoors where you can see the sky through the hole. For one week, at the same time of day, look at the sky framed by your card. Write about the colors you see or mix the colors with paint each day.

Corta un cuadrado en un pedazo de cartón.

Pega el marco resultante a una ventana o al aire libre donde puedas ver a través del hueco al cielo. Por una semana, siempre a la misma hora, mira por allí. Escribe sobre los colores que ves y/o mezcla pinturas hasta obtener el color que observas.



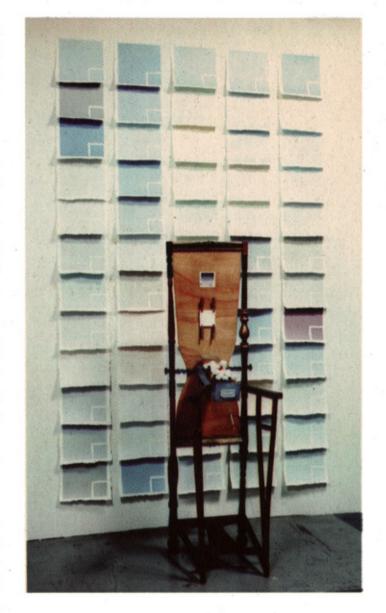


Sixty Days of Los Angeles Sky Patch (View to the East) begins with a sculptural contraption used to monitor the coloration of the polluted skies. I used the "viewfinder" of the contraption to isolate the same point in the sky, a view toward Riverside, California where Los Angeles' pollution is frequently pushed by winds. Each day, beginning on January 8, 1993, I fixated my gaze on the framed spot of the sky, and began mixing colors with the palette on the sculpture's mid-section, painting a small square of paper with the resulting mixture.

My strained perceptions confirm french investigations about the contemporary human conflict between our memory and actual experience of nature. I stare at the dusty sky, yet begin by mixing shades of blue. The power of my desire to see the blue skies that I had seen as a child, later reaffirmed in the color splendor of scenic travel books and heresay, is so profound as to cause perceptual delusion. I compare the sky with my patch of color and inevitably, I pitch the paint mixture with its touches of cobalt or ultramarine or cerulean. I begin again with yellow or green or red pigments, predominant colors of the earth not the sky, but it is the sky before me.

Sesenta Días de Parches del Cielo de Los Angeles (Hacia el Este), comencé con un escultural dispositivo que utilicé como monitor para observar el color del -contaminadocielo. Usé el "visor" del dispositivo para tomar un mismo punto en el cielo para mirar hacia el Condado de Riverside, California, lugar en Los Angeles en que la contaminación frecuentemente se concentra. Cada día, desde el 8 de enero de 1993, fijé mi vista en el "visor" para mirar el cielo. Mientras veía mezclaba pinturas en la paleta de la escultura y pintaba en pequeños pedazos de papel.

Mis percepciones confirmaron las investigaciones francesas sobre el contemporáneo conflicto humano entre nuestra memoria y la experiencia real con la naturaleza. Examiné atentamente el cielo arenoso y sin embargo mezclé varios tipos de azul. Era tan grande el poder de mi deseo de ver cielos azules como aquel que había visto en mi infancia -un cielo de color esplendoroso igual al de las fotografías de los libros turísticos-, como para producir trucos de percepción. Comparo mis parches con el color del cielo e inevitablemente, mezclo colores con toques de cobalto, ultramarino y ceruléano. Continuo con amarillo, verde o rojo, colores predominantes de la tierra y no del cielo, pero lo que creo es el cielo que está delante de mí.



Installation Sixty Days of Los Angeles Sky Patch (View to the East), 1995 Instalación Sesenta Días de Parches del Cielo (Hacia el Este), 1995



Shared Skies

Shared Skies began as a permanent public artwork that I am created for the Anderson-Munger YMCA in Los Angeles' Koreatown.

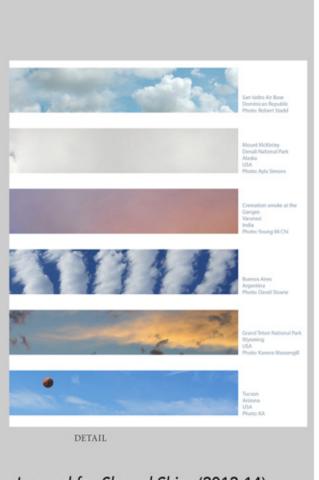
From the Salt Flats of Bolivia to Grand Forks in the U.S., and Maasai Mara, Kenya to Pine Ridge, Oglala Sioux Tribe, our skies portray the connected parts of our place on this earth.

This project goes hand-in-hand with the Sky Patch project. The conversation can focus on assumptions we have about the sky, and who owns the sky, and the relationship between geographical demarcations and the concept of a seamless sky. Also, pollution in the air travels from one place to another by way of the wind.

What you will need:

A camera - This can be a shared camera. Since some students might not have access to a camera at home, even a phone camera, consider ways to create this project that do not exclude anyone.





Legend for Shared Skies (2012-14)
Each person who submitted a sky is credited and ideantified on the print along with the location. Each participant received a print that contains their sky and twelve others.

Directions:

Here are some variations for a *Shared Skies* project. In general, this is intended to compared skies and make observations. Though the outcomes can be printed on paper, you can also consider this to be a digital project for a website or as shared jpgs through a dropbox.

Once a week, have participants photograph the sky.

Photograph the sky every day for a period of time, one month for example.

Ask a class in a school across the city, across the country, or across the globe to photograph their sky (taking into account the time zones, decide on the time of day).

Drunk Socks - An art/science project about ozone

What you will need:

Rubber bands - these need to be from an unopenned bag of rubber bands Scraps of wood or recycled 3/16" dense foamboard (a common building material) cut to $6" \times 6"$ or larger

Wire nails or tacks (1/2"-1")

Tack hammers (if using the foamcore, any tool that helps apply pressure to insert the nails will work fine)

Pencils and markers or grease pencils/china markers

Directions:

Draw onto the small piece of wood or foamcore. Use a pencil to work out an image, or jump in with the marker or grease pencil.

Nail along the outline of the image, or make a pattern using the nails.

Attach the rubber bands to stretch between two or more nails. Add more nails if desired.

Have each participant decide on a location to store the the artwork. Consider locations that are exposed to traffic, in sun and out of the sun, and locations that "protect" the artwork such as a refrigerator.

Each day, check on the artwork. Have any rubber bands broken? **Note the date** when they become limp or broken.

When participants begin reporting back about changes in the rubber bands, bring them all into the classroom for a discussion about the results.



I designed this project in 1999 for the HeART Project (now called artworxLA) at Angelus Plaza Continuation Education.

The students worked on Smog Collectors and this project about ground-level ozone. On the following pages from an EPA publication, you can read more about the difference between the ozone that we often speak of when we talk about dangerous holes in the ozone, and this "bad" ozone, "an air pollutant that is harmful to breathe and it damages crops, trees and other vegetation. It is a main ingredient of urban smog".

What is Ozone?

Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Ozone can be "good" or "bad" for your health and the environment, depending on its location in the atmosphere.

How Can Ozone Be Both Good and Bad?

Ozone occurs in two layers of the atmosphere. The layer closest to the Earth's surface is the troposphere. Here, ground-level or "bad" ozone is an air pollutant that is harmful to breathe and it damages crops, trees and other vegetation. It is a main ingredient of urban smog. The troposphere generally extends to a level about 6 miles up, where it meets the second layer, the stratosphere. The stratosphere or "good" ozone layer extends upward from about 6 to 30 miles and protects life on Earth from the sun's harmful ultraviolet (UV) rays.

Too little there... Many popular consumer products like air conditioners and refrigerators involve CFCs or halons during either manufacture or use. Over time, these chemicals damage the earth's protective ozone layer.

What is Happening to the "Good" Ozone Layer?

Ozone is produced naturally in the stratosphere. But this "good" ozone is gradually being destroyed by man-made chemicals referred to as ozone-depleting substances (ODS), including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform. These substances were formerly used and sometimes still are used in coolants, foaming agents, fire extinguishers, solvents, pesticides, and aerosol propellants. Once released into the air these ozone-depleting substances degrade very slowly. In fact, they can remain intact for years as they move through the troposphere until they reach the stratosphere. There they are broken down by the intensity of the sun's UV rays and release chlorine and bromine molecules, which destroy the "good" ozone. Scientists estimate that one chlorine atom can destroy 100,000 "good" ozone molecules.

Even though we have reduced or eliminated the use of many ODSs, their use in the past can still affect the protective ozone layer. Research indicates that depletion of the "good" ozone layer is being reduced worldwide. Thinning of the protective ozone layer can be observed using satellite measurements, particularly over the Polar Regions.

How Does the Depletion of "Good" Ozone Affect Human Health and the Environment?

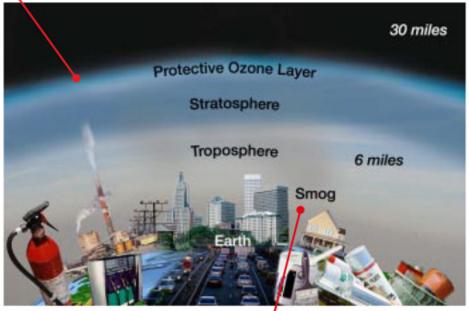
Ozone depletion can cause increased amounts of UV radiation to reach the Earth which can lead to more cases of skin cancer, cataracts, and impaired immune systems. Overexposure to UV is believed to be contributing to the increase in melanoma, the most fatal of all skin cancers. Since 1990, the risk of developing melanoma has more than doubled.

UV can also damage sensitive crops, such as soybeans, and reduce crop yields. Some scientists suggest that marine phytoplankton, which are the base of the ocean food chain, are already under stress from UV radiation. This stress could have adverse consequences for human food supplies from the oceans.

What is Being Done About the Depletion of "Good" Ozone?

The United States, along with over 180 other countries, recognized the threats posed by ozone depletion and in 1987 adopted a treaty called the Montreal Protocol to phase out the production and use of ozone-depleting substances.

EPA has established regulations to phase out ozone-depleting chemicals in the United States. Warning labels must be placed on all products containing CFCs or similar substances and nonessential uses of ozone-depleting products are prohibited. Releases into the air of refrigerants used in car and home air conditioning units and appliances are also prohibited. Some substitutes to ozone-depleting products have been produced and others are being developed. If the United States and other countries stop producing ozone-depleting substances, natural ozone production should return the ozone layer to normal levels by about 2050.



Too much here... Cars, trucks, power plants and factories all emit air pollution that forms groundlevel ozone, a primary component of smog.

What Causes "Bad" Ozone?

Ground-level or "bad" ozone is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOC.

At ground level, ozone is a harmful pollutant. Ozone pollution is a concern during the summer months because strong sunlight and hot weather result in harmful ozone concentrations in the air we breathe. Many urban and suburban areas throughout the United States have high levels of "bad" ozone. But many rural areas of the country are also subject to high ozone levels as winds carry emissions hundreds of miles away from their original sources.

How Does "Bad" Ozone Affect Human Health and the Environment?

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. "Bad" ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue.

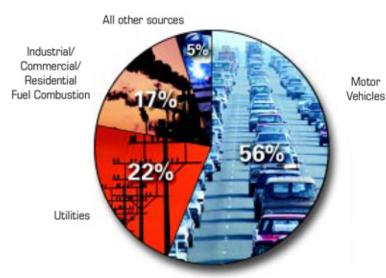
Healthy people also experience difficulty breathing when exposed to ozone pollution. Because ozone forms in hot weather, anyone who spends time outdoors in the summer may be affected, particularly children, outdoor workers and people exercising. Millions of Americans live in areas where the national ozone health standards are exceeded.

Ground-level or "bad" ozone also damages vegetation and ecosystems. It leads to reduced agricultural crop and commercial forest yields, reduced growth and survivability of tree seedlings, and increased susceptibility to diseases, pests and other stresses such as harsh weather. In the United States alone, ground-level ozone is responsible for an estimated \$500 million in reduced crop production each year. Ground-level ozone also damages the foliage of trees and other plants, affecting the landscape of cities, national parks and forests, and recreation areas.

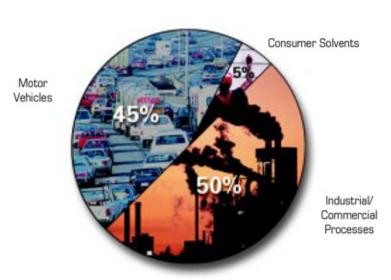
What is Being Done About "Bad" Ozone?

Under the Clean Air Act, EPA has set protective health-based standards for ozone in the air we breathe. EPA, states, and cities have instituted a variety of multi-faceted programs to meet these health-based standards. Throughout the country, additional programs are being put into place to cut NOx and VOC emissions from vehicles, industrial facilities, and electric utilities. Programs are also aimed at reducing pollution by reformulating fuels and consumer/commercial products, such as paints and chemical solvents, that contain VOC. Voluntary programs also encourage communities to adopt practices, such as carpooling, to reduce harmful emissions.

We live with ozone every day. It can protect life on earth or harm it, but we have the power to influence ozone's impact by the way we live.



Sources of NOx

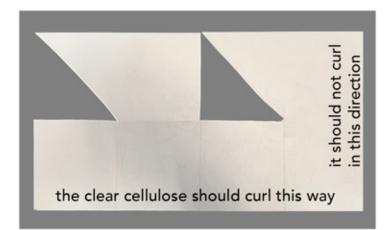


Sources of VOC

Make a drawing of you (me) You and me becomes we	What does your dreamhouse look like?	ANCESTORS what country would you like to visit?	UNIVERSE If you can name a planet, what will it be?
What goes around comes around • What goes around comes	around • What goes around comes around • What goes aroun	d comes around • What goes around comes around • What go	es around comes around • What goes around comes around
	TO ALA (III)		Square Control of the

What goes around comes around

Participants draw and trace onto transparent cellulose to make a wind-catcher. It creates a visualization about the connection between the self, the idea of home, communities, and the universe.



Directions:

Cut this shape from a roll of cellulose. Make note of the natural curl of the cellulose as it comes of the roll.

This will help the wind catcher to take its shape when you assemble it.

For the example shown here, a 25" wide roll of cellulose was used. In this case the dimensions of the suares you see are 6". You can modify these dimensions.

What you will need:

China markers and crayons
Clear cellulose in a roll, .005 weight
Stapler, or 1/8" paper punch and yarn, or
needle and thread
Ribbon or cord for hanging the wind catcher

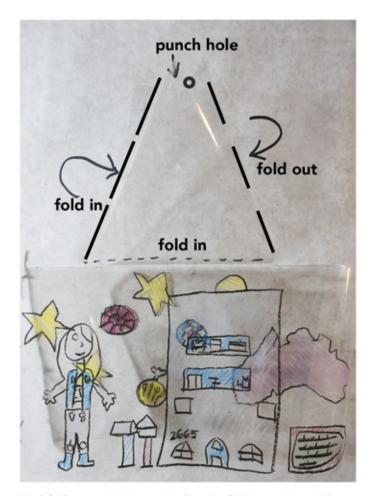


The skectch can be done on paper first in order to work out ideas. Or draw directly on the acetate with the china markers.

There are four drawings to make. One representing the self, a dream house, an outline of a country to visit, and an image about the universe.

Templates or outlines of shapes of countries can be made ahead of time. Or, the student can refer to maps and draw freehand.

Flip over the acetate when the line drawings are completed. Add color with crayons on the flip side.



Fold the acetate as indicated. Repeat on the other side. Punch a hole that will be used for the ribbon or cord for hanging.





Connect the sides of the windcatcher with staples, use carpet thread with a needle, or yarn with a punched hole. Then hand with ribbon or yarn.

Kim Abeles originally designed this project for Family Day at the Hammer Museum in 2016.

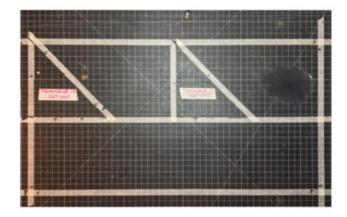
Here are supply sources for the Wind Catchers

Grafix Clear Acetate Rolls .005" thick 25" x 25" or similar AKA "cellulose" is a wood product, not a plastic. Several vendors sell this but here is one: Dick Blick http://www.dickblick.com/items/55501-1405/ larger rolls available.



China markers – these come in several colors http://www.dickblick.com/products/sharpie-peel-off-china-marker/





TIP
If you prepare the clear cellulose for the students, you can consider marking your cutting board like this. It will make the cutting process easier.

Here are supplies for the project that are easy to find and as recycled goods:

yarn, cord, or carpet thread Needle for thread or use a stapler Paper punch

Optional supplies that are easy to find on the internet:

Barrel Swivel with Safty Snap Connector Solid Rings Fishing #7 +B To help with easy of turning for the wind catcher.



What Goes Around Comes Around Photo credit: Tom Glynn/Hammer Museum

1/8" hole punch



Fiskars 1/8 Inch Circle Hand Punch (23517097J) by Fiskars

\$795 \$8:29 *Iprime*Only 18 left in stock - order soon.