

Let's Get It Started – Air Pollution

1. In 1988 employees inside Patagonia clothing companies Boston store began complaining of headaches inside the building. What do you think was causing the problem?
2. What are the major sources of airborne particulates in the Central Valley?
3. What is the geographic reason our valley air has such as high amount of particulate matter?

Let's Get It Started – Air Pollution

1. In 1988 employees inside Patagonia clothing companies Boston store began complaining of headaches inside the building. What do you think was causing the problem?
They were being poisoned by Formaldehyde and other chemicals had been used on the Cotton T-shirts to reduce wrinkling and shrinkage. The ventilation system in the building was broken and was endlessly recirculating the air. This is called sick building

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2. What are the major sources of airborne pollutants in the Central Valley?
 - cars, trucks, buses, agricultural equipment, dairies, industrial factories combust fossil fuels and release nitrogen oxides (NOx) and Particulate Matter (PM).
 - Consumer products such as paint and even hair spray release Volatile Organic Compounds (VOC's)
 - 11% of Fresno air pollution comes from San Francisco and Sacramento

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3. What is the geographic reason our valley air has such as high amount of PM, NOX, Smog, Ozone, etc?

- Our Air Basin is basically a bowl with mountains on both sides. The air has no outlet.



Let's Get It Started (LGIS) #2 – Air Pollution

1. Identify two sources of each – particulate matter, formaldehyde, asbestos, volatile organic compounds.
2. Describe why Ozone is a secondary pollutant and not a primary pollutant.
3. Diagram a temperature inversion.
4. Describe why wearing a jacket keeps you warm.
5. Have you signed up for the AP test?

Let's Get It Started (LGIS) #2 – Air Pollution

1. Identify two sources of each – particulate matter, formaldehyde, asbestos, volatile organic compounds.

PM	Formaldehyde	Asbestos	VOC
Examples: Dust, Diesel Smoke, Smoke, Pollen, Smog Sources: Cars, Industry, Agriculture, Flowers	Sources: Wood Paneling, Furniture (glue), Anti Wrinkling Agent Clothes	Uses: Fireproofing, Insulation Sources: Popcorn, Ceilings, Insulation	Sources: Paint fumes, glue, gasoline, air freshener, dry cleaning chemicals, household cleaners.

Let's Get It Started (LGIS) #2 – Air Pollution

2. Describe why Ozone is a secondary pollutant and not a primary pollutant.

Let's Get It Started (LGIS) #2 – Air Pollution

3. Diagram a temperature inversion.

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4. Describe why wearing a jacket keeps you warm.

Let's Get It Started (LGIS) #2 – Air Pollution

5. Have you signed up for the AP test?

You Have Until Next Friday the 6th. After Next Friday there will be a \$15.00 penalty.

Let's Get It Started (LGIS) #3 – Air Pollution

1. Last classes' activity focused on CO₂. Redesign the activity to include CH₄, N₂O, and CFCI₂.
2. Describe similarities and differences between the greenhouse effect and wearing a jacket in the winter.

Let's Get It Started (LGIS) #3 – Air Pollution

1. Last classes activity focused on CO₂. Redesign the activity to include CH₄, N₂O, and CFCI₂.

CH₄ – Catch 2 students
N₂O – 5 students
CFCI₂ – Everybody

Let's Get It Started (LGIS) #3 – Air Pollution

2. Describe similarities and differences between the greenhouse effect and wearing a jacket in the winter.

Let's Get It Started (LGIS) #4 – Air Pollution

1. Explain how acid rain causes the soil to leach nutrients.
2. Balance these rxns for Nitric Acid and Sulfuric Acid

- $N_2 + O_2 \rightarrow NO$
- $NO + O_2 \rightarrow NO_2$ (Brown Air Smog)
- $NO_2 + H_2O \rightarrow HNO_3 + NO$
- $SO_2 + O_2 \rightarrow SO_3$
- $SO_3 + H_2O \rightarrow H_2SO_4$

Let's Get It Started (LGIS) #4 – Air Pollution

1. Explain how acid rain causes the soil to leach nutrients.

Let's Get It Started (LGIS) #4 – Air Pollution

2. Balance these rxns for Nitric Acid and Sulfuric Acid

- $\text{N}_2 + \text{O}_2 \rightarrow 2 \text{NO}$
- $2 \text{NO} + \text{O}_2 \rightarrow 2 \text{NO}_2$ (Smog)
- $3 \text{NO}_2 + \text{H}_2\text{O} \rightarrow 2 \text{HNO}_3 + \text{NO}$
- $2 \text{SO}_2 + \text{O}_2 \rightarrow 2 \text{SO}_3$
- $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$

Let's Get It Started (LGIS) #5 – Air Pollution

1. In the stratosphere describe why ozone is beneficial and show the chemistry of both ways Ozone is broken down.
2. Did you sign up for the AP test yet? Friday!
3. Graph This Information – be sure to accurately label your axis.

Levels of Methane

1. Year:	ppm
2. 1890	14
3. 1900	18
4. 1915	27
5. 1920	14
6. 1930	20
7. 1950	23

Let's Get It Started (LGIS) #5 – Air Pollution

1. In the stratosphere describe why ozone is beneficial and show the chemistry of both ways Ozone is broken down.
