



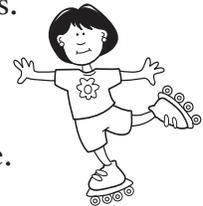
Activity 8: Pollution Solutions

Where does air pollution come from? It comes from us! Most of the air pollution in the San Joaquin Valley is created by the people that live there. Our health depends on clean air, and clean air depends on the choices we make every day.

TRANSPORTATION

The average car releases about 500 pounds of pollution each year into the Valley's air. And there are a lot of cars in the Valley—more and more every year. That's why cars and other vehicles produce about 60% of the Valley's air pollution. To help cut down on air pollution from cars, here's what we can do:

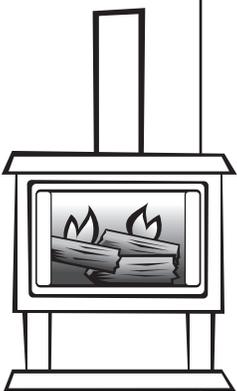
- Carpool or take public transportation instead of driving alone.
- Bicycle, skate, or walk instead of using the car.
- Combine errands—that is, “trip link”—so that only one trip is necessary.
- Shop by phone, mail, or Internet instead of driving to stores.
- Don't let a car idle for more than one-minute.
- Keep cars in good working condition.
- Don't fill the gas tank to the very top when getting gasoline.

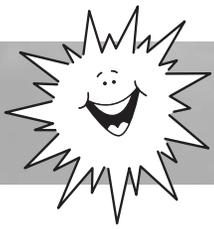


HEATING

On winter days, wood smoke from fireplaces and wood stoves can create up to a third of the PM10 pollution in urban areas. To stay warm and breathe clean air, you can:

- Replace older wood inserts and stoves with EPA-certified cleaner devices that are pellet-fueled or that use natural gas or propane.
- Burn dense woods such as oak, which burn slower and more evenly. And use firewood that is clean and dry.
- Keep fireplaces, wood stoves, and chimneys clean and have them inspected periodically.
- Never burn trash, newspapers, magazines, wrapping paper, plastics, or other items not designed for burning in a fireplace. **Burning trash can create hazardous emissions** and is a violation of the Valley's Air District rules, which can result in fines.





Activity 8: Pollution Solutions

YARD WORK

Even lawn mowers can contribute to air pollution. Gasoline-powered lawn equipment creates 5% of our nation's air pollution. You can clean up your yard and keep the air clean if you:

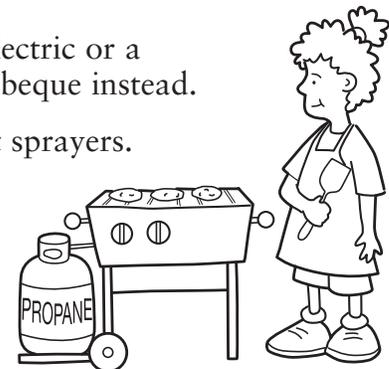
- Use push mowers or electric lawn mowers.
- Clean up with a broom and rake instead of a leaf blower.
- Avoid pesticides, especially in sprayers.



PRODUCTS

A squirt or two of charcoal lighter fluid may not seem like much. But more than three million people live in the San Joaquin Valley, and almost all use products that contribute to air pollution. Household products—such as lighter fluid, paint, cleaners, polishes, drain openers, and insecticides—create tons of air pollution every day in the Valley. To help reduce that amount:

- Light your barbeque briquettes without lighter fluid; use an electric or a chimney briquette starter; or use a propane or natural gas barbeque instead.
- Paint with water-based paint, and use brushes and rollers, not sprayers.
- Choose pump sprays, gels, or solids instead of aerosol sprays.
- Avoid products with labels that have words such as “Hazardous,” “Toxic,” or “Danger.”



SPARE THE AIR AND CHECK BEFORE YOU BURN

We should make air-friendly choices every day. But when air pollution is forecast to reach unhealthy levels, we must be particularly careful. In the summer, when ozone levels are high, the Valley Air District may declare a *Spare the Air* day. On those days, residents are asked to reduce or avoid as many activities as possible that cause air pollution.



In the winter, when particulate matter is high, the Valley Air District asks residents to *Check Before You Burn*. On those days, depending on the level of air pollution, wood-burning is either prohibited or it is discouraged.

Solutions to pollution are up to all of us. We can all help prevent air pollution and keep our skies blue.

Activity 9: Air Pollution Home Survey

Take this questionnaire home and fill it out with your family.

Name: _____

Date: _____

POTENTIAL POLLUTERS

1. Put a check next to the products you find in your home with the words "Hazardous," "Toxic," "Danger," "Caution," or "Warning."



- Spray Paint
- Paint Remover
- Lighter Fluid
- Bug Spray
- Window Cleaner
- Furniture Polish
- Drain Opener
- Disinfectant
- Cleanser
- Aerosol Hair Spray
- Aerosol Deodorant
- Nail Polish
- Nail Polish Remover
- Air Freshener
- Fabric Softener Sheets
- Other:

DRIVING

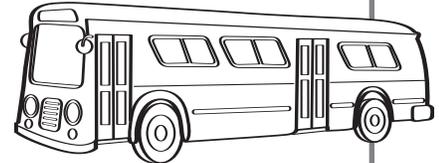
2. Does anyone in your family regularly carpool?

- a. no
- b. yes



3. Does anyone in your family regularly take public transportation?

- a. no
- b. yes



4. Does anyone in your family regularly walk or bicycle or skate instead of use a car to run errands?

- a. no
- b. yes

5. Does your family try to run several errands at one time when taking the car?

- a. no
- b. yes
- c. don't own a car

6. Is your car well-maintained?

- a. no
- b. yes
- c. don't own a car

7. Do you avoid "topping off" your gas tank?

- a. no
- b. yes
- c. don't own a car

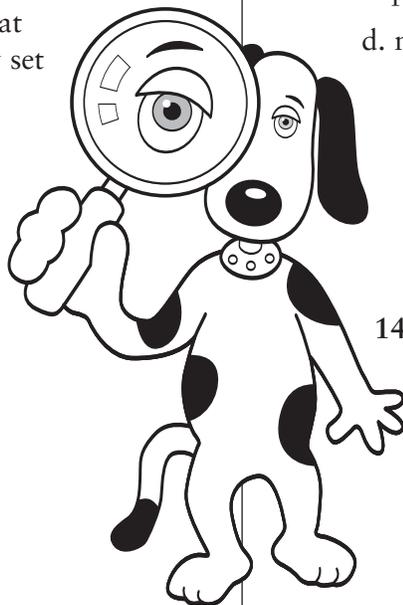
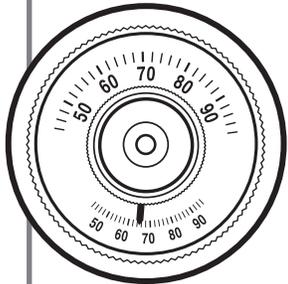
7. Does your family often shop by phone, mail, or Internet?

- a. no
- b. yes

Activity 9: Air Pollution Home Survey

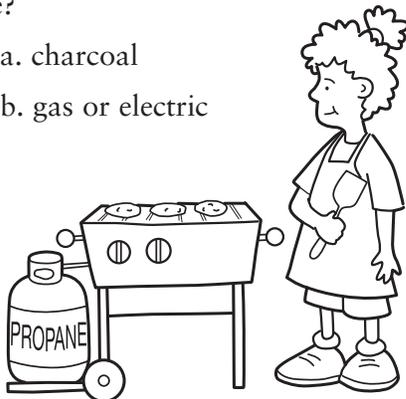
HEATING YOUR HOME

9. What is the primary source of heat for your home?
- a. wood stove or fireplace
 - b. gas or electric heater
10. If you have a thermostat, what temperature do you regularly set it in the winter?
- a. 70° or above
 - b. below 70°



BARBEQUING

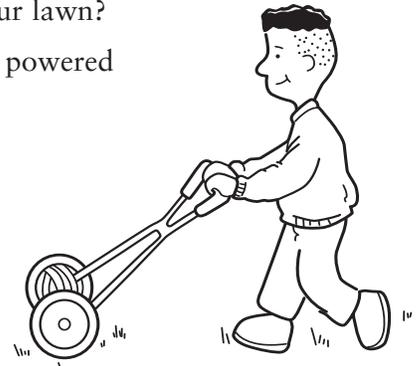
11. If you barbeque, what kind of grill do you use?
- a. charcoal
 - b. gas or electric



12. Do you ever use charcoal lighter fluid?
- a. yes
 - b. no

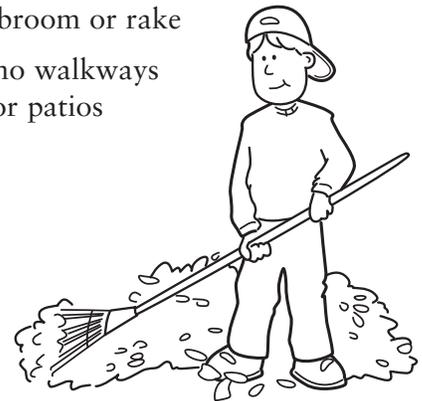
DOING YARD WORK

13. What kind of lawn mower is used to cut your lawn?
- a. gasoline powered
 - b. electric
 - c. push
 - d. no lawn



14. What do you use to clean-up walkways or patios?

- a. gasoline-powered leaf blower
- b. broom or rake
- c. no walkways or patios



15. Do you use pesticides in the garden?
- a. yes
 - b. no



Activity 10: What Can You Do?

After analyzing your “Air Pollution Home Survey,” answer the questions below.

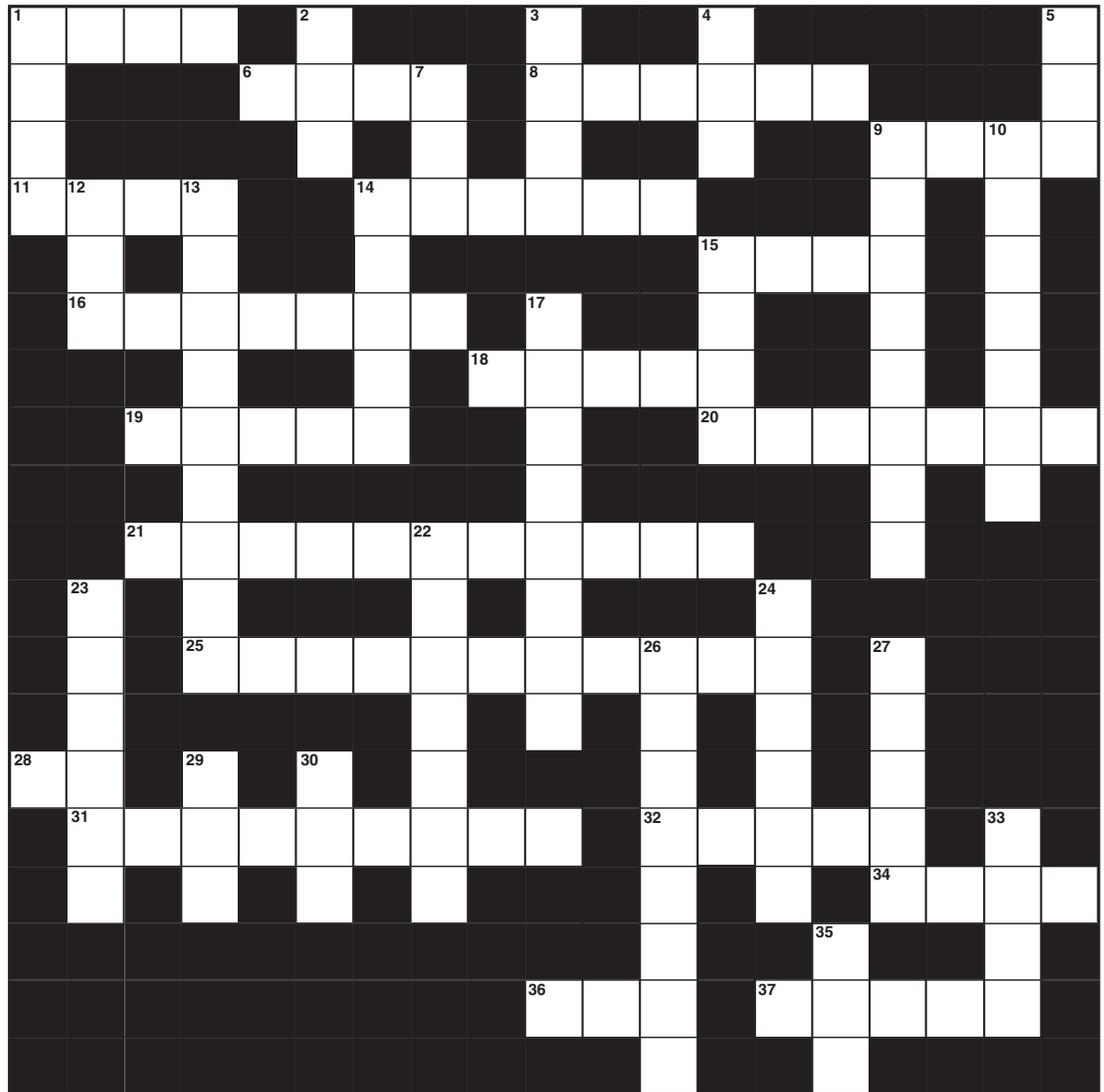
What could your family do to help reduce air pollution?

What could you do personally to help reduce air pollution?





Activity 12: Clean Air Crossword



Across

1. A camp ____ is a source of air pollution.
6. Particles are released into the air when we ____ wood.
8. Gas-powered lawn ____ contribute to air pollution.
9. ____ refer to volatile organic compounds.
11. Gas-powered ____ blowers contribute to air pollution.
14. ____ makes up 21% of our air.
15. ____ mowers help reduce air pollution.
16. Avoid ____ sprays when possible.
18. Use a ____ instead of a leaf blower.
19. We can all ____ the Air.
20. We ____ the air in many ways.
21. ____ matter is more of a problem in the winter.
25. The surroundings in which we live is our ____.
28. ____ means particulate matter.
31. Gases or particles released into the air are called ____.
32. You should ____ Before You Burn.
34. Air pollution can make our ____ sting and water.
36. ____ means Air Quality Index.
37. Air pollution decreases the function of our ____.

Down

1. Harmful emissions come from burning fossil ____.
2. Avoid using ____ spray.
3. Ozone is the main ingredient in ____.
4. Choose a solid or a ____ instead of an aerosol spray.
5. Ozone is an odorless, colorless ____.
7. ____ refers to nitrogen oxide.
9. Most of the emissions that create ozone come from motor ____.
10. One reason that the Valley has high levels of air pollution is our ____.
12. ____ refers to the Environmental Protection Agency.
13. Never burn trash in your ____.
14. The Valley's air quality does not meet federal or state standards for ____.
15. If possible, choose a ____ spray instead of an aerosol.
17. ____ means combining errands to make only one car trip.
22. To reduce air pollution from cars, we should ____.
23. Ozone is more of a problem in the ____.
24. Wood ____ are a source of air pollution.
26. Use an ____ starter to light barbecue briquettes without lighter fluid.
27. ____ in the air is a sign of air pollution.
29. We can all help keep our ____ clean.
30. Burning wood puts ____ into the air.
33. Air pollution harms people and their ____.
35. NOx + VOCs + Hot ____ = Ozone.



Activity 13: Math Message

Solve the math problems below. Then fill in the bubbles with the letter that matches each number to read the message.

$\frac{1}{4} = A$

$\frac{1}{2} = B$

$1 = C$

$2 = D$

$3 = E$

$4 = F$

$5 = G$

$6 = H$

$7 = I$

$8 = J$

$9 = K$

$10 = L$

$11 = M$

$12 = N$

$13 = O$

$14 = P$

$15 = Q$

$16 = R$

$17 = S$

$18 = T$

$19 = U$

$20 = V$

$21 = W$

$22 = X$

$23 = Y$

$24 = Z$

$3 \overline{)21}$	$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 303 \\ - 296 \\ \hline \end{array}$	$5 \overline{)85}$	$\begin{array}{r} 7 \\ + 12 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$

$9 \overline{)162}$	$\begin{array}{r} 6,985 \\ - 6,972 \\ \hline \end{array}$	$7 \overline{)161}$	$\begin{array}{r} 6 \\ + 7 \\ \hline \end{array}$	$\begin{array}{r} 78 \\ - 59 \\ \hline \end{array}$

$\begin{array}{r} 533 \\ - 515 \\ \hline \end{array}$	$1 \overline{)13}$	$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 9001 \\ - 8998 \\ \hline \end{array}$	$8 \overline{)112}$

$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$	$1 \overline{)3}$	$\begin{array}{r} 5314 \\ - 5297 \\ \hline \end{array}$	$9 \overline{)81}$	$\begin{array}{r} 15 \\ + 8 \\ \hline \end{array}$

$\begin{array}{r} 1/8 \\ + 3/8 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 852 \\ - 833 \\ \hline \end{array}$	$9 \overline{)27}$