



WHAM

Why Healthy Air Matters

Air Quality Education by South Coast AQMD



What gases are in the air we breathe?

What else is in the air we breathe?

Is breathing dust bad for you? Why or why not?

What is particle pollution?



How do particles form in the atmosphere?

How can we collect dust that's on the ground?

What is dust made of?

What can make your house dustier?

How are particles collected?

- **High-Volume Sampler**
 - Uses a pump to pull air through a filter that traps particles of a certain size.
 - The longer the pump is run, the greater the number of particles that will be trapped
- You can also collect particles by waiting for them to settle onto a sticky surface, like a piece of tape. This method works well with coarse particles, since they settle out of the air quickly.





What are some particles sources inside the home?

What are some particle sources outside the home?

Name a major source of particles that is due to human activity.



Do cars make particles?

What kinds of vehicles make the most particles?

Can diesel engines be changed to pollute less?

Where Do Particles Come From?

- **Combustion—creates soot**
 - Natural sources: forest fires
 - Man-made sources: wood-burning stoves, cars and trucks, power plants
- **Natural & Weather-Related—creates soot, sulfur, sand, road salt, sea salt**
 - Dust, volcanic eruption or out-gassing, drought-enhanced forest fires, de-icing roads
- **Mechanical Processes—creates particles with toxic components**
 - Tire wear, brake wear, paint flecks

Industrial processes and combustion create gases that can react in the atmosphere to form particles.



What Do the Color and Shape of a Particle Tell Us?

Soot From Combustion

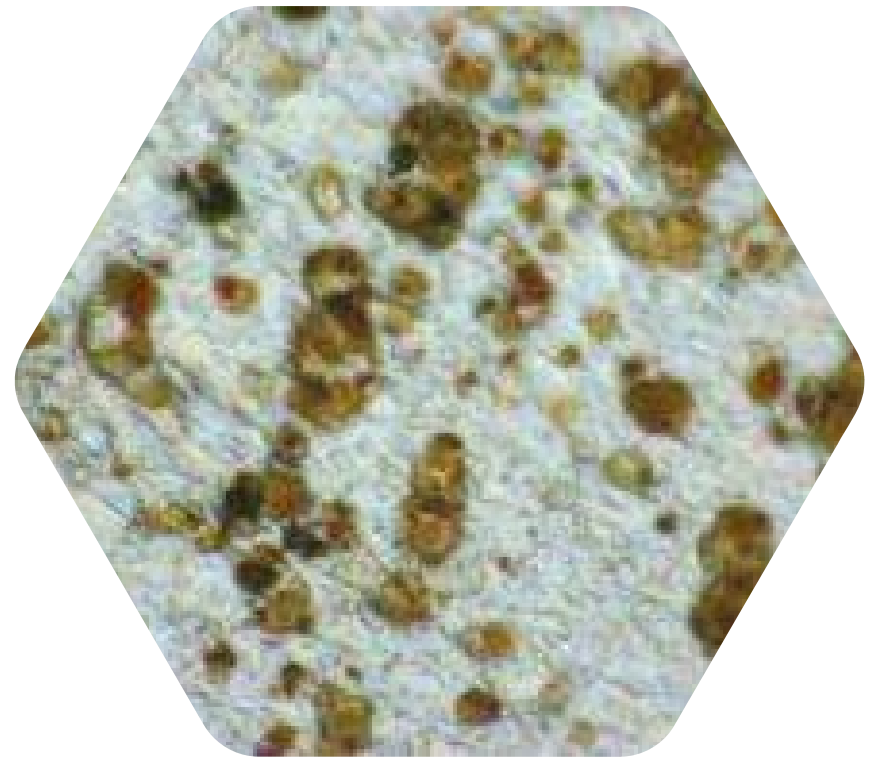
- Black smoke from a bus or large diesel truck or train
- Particles are very dark black on a filter
- Soot particles very small, often round, and join together into long, complicated-looking chains



What Do the Color and Shape of a Particle Tell Us?

Dust Particles

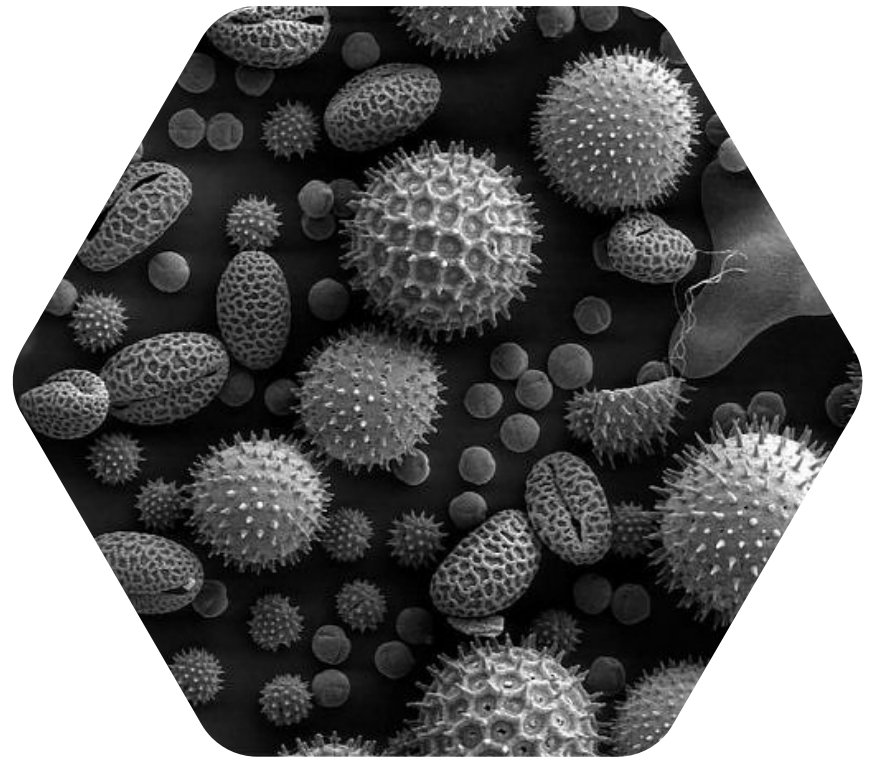
- Range of colors, mostly brown
- May look like tiny bits of sand or rock



What Do the Color and Shape of a Particle Tell Us?

Pollen

- Very fine powder from plants
- Interesting shapes (look like tiny seeds)
- Can be colorful



What Do the Color and Shape of a Particle Tell Us?

Wood Smoke

- Light brown or gray
- If you collect enough, might smell like a campfire or fireplace





What sources do you think we should be concerned about around our school?

Why should we be careful about our exposure to these pollutants?

Is there anything that can be done about particle pollution?

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Questions?