**The Clean Air Act**

The **Clean Air Act** identifies these pollutants as “criteria pollutants”

Ozone (O3), sulfur dioxide (SO2), nitrogen oxides (NOx), particulate matter (PM10), carbon monoxide (CO), lead (Pb)

There are 1000’s of natural and human-made gases/chemical/fibers etc. that are considered pollutants

1. What distinguishes the criteria pollutants from the others?

**Standards**

1. Define ambient standard.
2. What is the difference between an ambient and emission standard?

Current EPA ambient standards for criteria pollutants:

<https://www.epa.gov/criteria-air-pollutants/naaqs-table>

1. What does ppm mean? ppb? 0.15 μg/m3 ?
2. What is the difference between a primary and secondary ambient standard?
3. These standards have changed over time. Why?
4. What is the primary and secondary standard for ozone?
5. What is meant in the table by averaging time?

The EPA mandates that the states achieve ambient standards in all counties for each criteria pollutant.

1. What is meant by a county being out of compliance with respect to a criteria pollutant?
2. How are states *punished* if counties are found out of compliance with respect to one or more criteria pollutants?
3. Does the EPA directly regulate counties with respect to environmental quality or do the states?
4. Do states normally regulate within-compliance counties at all?
5. What are some of the human health problems triggered by ground-level ozone?
6. Why is ozone considered the most pressing problem among the criteria pollutants in urban areas?
7. Is ozone directly emitted from sources or is it a result of a reaction among emitted pollutants?
8. What are the precursors to ground-level ozone?

EPA green book:

<https://www3.epa.gov/airquality/greenbook/jnc.html>

1. What areas are in severe violation of EPA’s ozone standards?

The **Clean Air Act** set emissions standards for autos

[Emissions Standards for Autos](https://www.dropbox.com/s/ahfdiutdtnp9fy5/The%20main%20emissions%20from%20mobile%20sources%20are%20hydrocarbons%20%28sometimes%20called%20vol-.pdf?dl=0)

1. Why are the numbers for autos considered emissions standards while [these standards](https://www.epa.gov/criteria-air-pollutants/naaqs-table) are considered ambient?
2. The emission standard for Carbon Monoxide as of 2017 is 2.1 grams per mile. Interpret.
3. Compare the CO standard in 2017 to the uncontrolled mean emissions of CO before regulation. Proportionally what’s the difference?
4. Compare the NOx standard in 2009 to the uncontrolled mean emissions of NOx before regulation. Proportionally what’s the difference?
5. NOx is an environmental problem especially in urban areas because it is a component in what pollutant?

The auto emissions standards are considered the single most important reason why urban air quality has dramatically increased since the 1970’s.

[In 2011, the Obama administration decided not to accept the EPA’s recommendation to change the ozone ambient standard to 0.06 ppm.](http://milesfinney.net/434/articles/Ozone_rule.htm)  The year the recommendation was made, the ambient standard stood at 0.075ppm.  The Obama administration eventually allowed the standard to lower to 0.070 in 2015, which is still above the EPA recommendation.

1. Why did the EPA recommend 0.060 ozone standard in 2011?
2. Why did the Obama administration resist applying the standard?
3. What possible economic costs could arise from applying the standard?
4. The EPA used lives extended to partially justify its recommendation. Should economic costs be a consideration in determining environmental policy that could extend human life?