What is Carbon Monoxide (CO) ?

Which do you think is true?

Carbon Monoxide smells like …

sliced cucumber. **OR** has no smell.

Carbon Monoxide (also known as **CO**) is a colorless, tasteless, and odorless gas. It is non-irritating - it won't make you cough - but it is very poisonous.

Where does CO come from?

Whenever you burn fuel (like gasoline in your car), CO is produced. You may be breathing high levels of CO near busy roads and intersections. Other sources of CO include almost anything with an engine, power plants that burn coal, gas, or oil, and incinerators used to burn garbage. Inside your home, CO can come from your furnace or space heater, wood burning fireplace, or from cigarette smoke.

The Major Sources of CO pollution

Things with **engines**: cars, trucks, buses airplanes trains gas lawnmowers snowmobiles	**power plants** that burn oil, gas, or coal trash **incinerators**	**wildfires**
60% of CO nationwide up to **95%** in cities		

Which do you think is true?

There is more CO in the air during the …

WINTER **OR** SUMMER

More carbon monoxide is emitted into the air during the winter months. This is because fuels burn less efficiently at cold temperatures. Also, the air is more stagnant in cold weather. When the air is stagnant, it doesn't get as mixed up, so the pollution just hangs around.

Health and CO

Carbon monoxide causes more poisoning deaths in the U.S. each year than any other substance. Many of these poisonings happen during cold-weather months when indoor heating devices are misused or malfunction.

The details of CO poisoning: CO reduces the amount of oxygen that gets to the brain, the heart, and the rest of the body.

Every living thing needs oxygen to stay alive, and breathing is the way we get oxygen into our bodies. When a person inhales (takes a breath), the air goes into the lungs. Deep inside the lungs, oxygen travels from the air into the blood. Now that the oxygen is in the body, the oxygen needs help to get where it's going. It has a helper. The helper is a special delivery molecule called hemoglobin (pronounced: HE – mow – globe – in). Hemoglobin's job is to grab the oxygen and deliver it to the parts of the body that need it. If there is a lot of CO in the air, oxygen is not delivered. Here's why:

The delivery molecule (hemoglobin) will deliver oxygen (that's good for you) **OR** CO (that's bad for you). When a person breathes air that contains CO, the CO pushes the oxygen out of the way. Hemoglobin grabs the CO, and delivers CO instead of oxygen. This means: **when CO is around, hemoglobin delivers less oxygen to the body**. The brain and heart need a lot of oxygen and they don't function normally when a person breathes CO. When exposed to high levels of CO, a person might notice shortness of breath or a slight headache. These symptoms will be more intense if the person is exercising or has a weaker heart or lungs.

Who's at risk?

High CO concentrations can occur in heavy traffic areas in many cities. People who spend their days in the normal city streets (bus, truck, and police drivers, vehicle inspectors and parking attendants, pedestrians and cyclists, street repair workers and street vendors) may breathe more CO. Vehicle drivers are also exposed to CO from traffic, and possibly the exhaust of their own vehicle or cigarette smoke. When traffic is stopped, CO levels inside a car go up.

Individuals with cardiovascular or respiratory diseases, anemia or irregular hemoglobin may experience more severe health effects or may experience health effects at lower exposures.

Children may be more vulnerable because their lungs are not fully developed, they breathe faster, and they often spend lots of time outdoors.

In healthy individuals, exposure to high levels of CO can affect vision and mental alertness.

Carbon Monoxide -- Air Quality Index (AQI) and Health Concerns

AQI Values	Air Quality Descriptor	Health Concerns
0 - 50	Good	None

51 - 100*	Moderate	None
101 - 150	Unhealthy for Sensitive Groups	People with cardiovascular disease, such as angina, should limit heavy exertion and avoid sources of CO, such as heavy traffic.
151 - 200	Unhealthy	People with cardiovascular disease, such as angina, should limit moderate exertion and avoid sources of CO, such as heavy traffic.
201 - 300	Very Unhealthy	People with cardiovascular disease, such as angina, should avoid exertion and sources of CO, such as heavy traffic.
301 - 500	Hazardous	People with cardiovascular disease, such as angina, should avoid exertion and sources of CO, such as heavy traffic; everyone else should limit heavy exertion.

* An AQI of 100 for carbon monoxide corresponds to a CO level of 9 parts per million (averaged over 8 hours).