# Air Quality (Title of Experiment)

# (Date Experiment took place)

<http://www.af.mil>

**Introduction**

Humans, and many other species, depend on the air around us to survive. Over the years the air has become contaminated by many air pollutants such as Hydrochlorofluorocarbons (HCFC), Aerosols, Carbon Monoxide (CO), and Chlorofluorocarbons (CFCs), just to name a few.According to the U.S. Environmental Protection Agency, the air becomes polluted from activities such as driving cars and trucks; burning coal, oil, and other fossil fuels; and manufacturing chemicals. Air pollution can even come from smaller, everyday activities such as dry cleaning, filling your car with gas, and degreasing and painting operations. These activities add gases and particles to the air we breathe. Air pollution is also not limited to outdoors activities alone. They can occur in both outdoor and indoor environments and are not only created by humans. Nature contributes to the air quality as well. For example, forest fires and volcanic eruptions can produce smoke and gases as well as large amounts of particulate matter that can be emitted into the air. This natural occurrence can cause respiratory problems in both humans and animals, limit the visibility of specific areas, and even change the climate.

Through the U.S. Congress passing the Clean Air Act in 1963, the Air Quality Act in 1967, the Clean Air Act Extension in 1970, and Clean Air Act Amendments in 1977 and 1990, the United States has been making an attempt to “clean up” the air in America. These actions require many power plants and factories to use devices called “scrubbers”. Scrubbers remove air pollutants that the operation employed by the factory produces before the pollutants can make their way into the air. Although this may seem an effective way to stop pollutants from entering the air, the Energy Information Administration, which is the official energy statistics of the U.S. government, has estimated scrubbers to cost $322 per ton of SO2 removal and is the most expensive compliance method. They suggest modifying high sulfur bituminous coal-fired plants to burn lower sulfur subbituminous coal, which is estimated to cost $113 per ton of SO2 removal. This effort and many others employed by the U.S. have the potential to improve the health of American citizens and maybe even prolong the average life span of those citizens by improving the air quality as a whole. Everyone can do a part in improving air quality. If everyone just contributed a little to preserve the air quality, there would be significant changes in our world. The climate would remain normal, people would be expected to live longer lives, and most of all the general health of everyone, humans and animals, would be improved.

Many environmental specialists are performing tests to determine the levels of those various pollutants that can potentially cause damage to our health and the environments around us. In this experiment we will use grease slides, nutrient agar Petri dishes, starch agar Petri dishes, and Scotch® double stick tape Petri dishes to determine the air quality of three locations. The locations, after determining the air’s quality, will then be ranked from lowest air quality to highest. This experiment will observe and identify microorganisms in the air, collect and observe particulate matter, and identify potential sources of air pollution.