

48. AIR QUALITY/HOW DIRTY IS IT?

Overview: Participants perform an experiment to examine particulates in the air.

Objective: Participants will discover how air quality is affected by location and activity in that location.

Time Needed: Half day

Group Size: any size

Age Appropriateness: 4th Grade and Above

Site: Select a variety of locations throughout the Garden. Microscopes need to be set up in one location.

Background Information: The quality of air affects the quality of life. The government has a whole agency, the Environmental Protection Agency that constantly monitors the quality of many things in our environment including the air. In the Yuma area, there is a constant problem with airborne particulates, especially dust.

Materials:

Clear plastic sheets or blank microscope slides
Petroleum jelly
Microscopes

Preparation: Examine and locate areas of the Garden with differing levels of activity. Students need instruction in how to use a microscope.

Pre Activity: Research causes of air pollution.

Procedure:

1. Number a series of slides or clear plastic squares.
2. Decide on several places around the Garden where students think visible pollutants will occur. Each group should have a different area to test.
3. Make predictions about which area will have more visible pollutants and why.
4. Record predictions in journal.
5. Smear a thin layer of petroleum jelly on one side of a piece of plastic or microscope slide.
6. Place each slide in different locations of the Garden and leave for several hours.
7. Bring slides to a central location after placing a clean slide over the collection side of the slide.

8. Observe and rank the slides from the one with the most visible pollutants to the one with the least. Discuss why certain areas have more visible pollutants than others.
9. Mark a Garden map showing the ranking of areas from Step 8
10. Observe each slide under a microscope and make drawings of observations.
11. Compare what was observed with the naked eye and what could be seen in a microscope.

Modifications:

Extensions:

Perform this experiment in conjunction with Activity 46 Off Road Vehicles. Have a discussion about the impact of breaking the desert surface and what happens when the wind blows.

Reference List: (What resources were used for information that will be presented to participants?)

<http://www.tnrcc.state.tx.us/air/monops/lessons/mathlesson.html>
Description of different types of air pollutants

Time of Year: any