

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### **Unit: Atmospheric Aerosols and Climate Change**

Task: What are Aerosols?

Aerosols are tiny solid particles and miniscule liquid droplets suspended in the lower atmosphere. There are two types of particles, those that occur naturally and others that are created due to human activity. In order to understand how aerosols can have an impact on our climate it is important to:

- Learn what they are;
- Where they come from;
- How they impact us positively and negatively; and
- How they are measured and monitored.

These particles play an important role on cloud formation and can influence the clouds' ability to produce precipitation, therefore affecting the water cycle. The NASA Earth Observatory has produced a very helpful article that introduces the most important aspects of aerosols such as how they interact with our atmosphere and clouds. The article is divided into five sections: The Basics, Patterns, Aerosols and Incoming Light, Aerosols and Clouds, and Measuring Aerosols. There are a series of guiding questions below that will help summarize relevant information related to aerosols.

Part I What are aerosols?

#### **NASA Article: The Basics - Aerosols: Tiny Particles, Big Impact**

Link: <http://earthobservatory.nasa.gov/Features/Aerosols/page1.php>

Questions:

Part I:

1. What are aerosols?
2. How do different specialists describe these particles?
3. What are the different chemical compositions of particles according to the NASA Earth Observatory web page?
4. What are the sources of 90% of aerosols? How are they called as a group?
5. What are the sources of the remaining 10% of aerosols? How are they called as a group?
6. List a few examples of natural aerosols and anthropogenic aerosols?
7. Which aerosols are considered the most abundant? What is their source?
8. What is the difference between natural aerosols and anthropogenic aerosols?
9. Pick two anthropogenic aerosols and describe their source and how do they get to the atmosphere?
10. Why are aerosols responsible for hazy skies?

**Unit: Atmospheric Aerosols and CLIMATE Change**  
**What are aerosols?**  
Student Worksheet

**Name:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**NASA Article: Aerosols: Tiny Particles, Big Impact**

Link: <http://earthobservatory.nasa.gov/Features/Aerosols/page1.php>

**1. Define:** What are aerosols?

List Aerosol	✓ Natural	✓ Anthropogenic	Source

Examples of sources: industrial, volcanic, oceans, etc.

1. What are some of the terms that specialists use to describe aerosols?

2. What are the labels climatologists use to categorize key aerosols groups according to chemical composition?

List Chemical Aerosol Groups	
1.	4.
2.	5.
3.	6.

3. What are some of the common chemical mixtures that occur among aerosols creating hybrids?

<b>Aerosol Hybrid Mixtures</b>	
<b>Name of Aerosol</b>	<b>Mix With</b>

4. What are the sources of 90% of aerosols? How are they called as a group?
5. What are the sources of the remaining 10% of aerosols? How are they called as a group?
6. Which aerosols are considered the most abundant? What is their source?
8. What is the difference between natural aerosols and anthropogenic aerosols?
9. Pick two anthropogenic aerosols and describe their source and how do they get to the atmosphere?
10. Why are aerosols responsible for hazy skies?