

Elementary GLOBE Aerosols One Week Guide

Phenomena: Aerosols
Grade Level: K-5

Guiding Question: *What impacts the colors of the sky?*
Theme: Earth and Human Activity

Access this progression online at: <https://www.globe.gov/web/nasa-langley-research-center/resources>

Activity	Steps to follow	NGSS Connection
Activity 1: Become a student scientist Sky Observer by collecting sky color and visibility observations.	<ol style="list-style-type: none"> As a group, use a projector to review the Webstory <i>Become an Atmosphere Observer</i>. http://science-edu.larc.nasa.gov/skycolor/ Go outside to observe and record sky observations using the Sky Observers data collection sheet <i>Optional:</i> Submit your observations to NASA through the GLOBE Observer app, available in app store for iPhone and Android devices. 	Disciplinary Core Idea: ESS3.C Human Impacts on Earth Systems Crosscutting Concept: Cause and Effect Science Practice: Analyzing Data NGSS Performance Expectation: K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time
Activity 2: Read the Elementary GLOBE Storybook: What's Up in the Atmosphere?	<ol style="list-style-type: none"> Read the Elementary GLOBE storybook: What's Up in the Atmosphere? Exploring Colors in the Sky. Teachers should use appropriate reading strategies based on reading level of the students. Book is freely available online and as an eBook: https://www.globe.gov/web/elementary-globe/overview/aerosols/story-book. <i>Optional:</i> Create a <i>word wall</i> with the students focusing on the science vocabulary and science skills. Read more about integrating other ELA strategies in the Elementary GLOBE Teachers' Guide. 	Disciplinary Core Idea: ESS3.C Human Impacts on Earth Systems Crosscutting Concept: Cause and Effect Science Practice: Obtaining Information
Activity 3: Design an Aerosol Particle Collector and analyze the results.	<ol style="list-style-type: none"> Small groups of students can work together to design and build an aerosol particle collector using the activity Up in the Air. Once built, students will place the collectors outside and go back later to retrieve their sample and analyze what was collected. <i>Optional:</i> Make this into a STEAM project have the students creatively design the particle collector to showcase something artistic. For example, students can create a stencil to place over the contact paper. 	Disciplinary Core Idea: ESS3.C Human Impacts on Earth Systems Crosscutting Concept: Cause and Effect Science Practice: Designing Solutions
Follow up Discussion: Talk about why NASA investigates aerosols.	<ol style="list-style-type: none"> Lead a group discussion about why aerosols are important to understand. NASA has a very important role in studying Earth and our atmosphere. Scientists use information from satellites, aircraft and ground-based instruments to study and measure aerosols. This helps us to understand the air we breathe. Watch this short video to learn more: NASA's Earth Minute: My Name is Aerosols <i>Optional-Going Further:</i> read the article Aerosols: Tiny Particles, Big Impact 	Disciplinary Core Idea: ESS3.C Human Impacts on Earth Systems Crosscutting Concept: Cause and Effect Science Practice: Asking Questions
Closure: Complete the phenomena investigation.	<ol style="list-style-type: none"> Have students create a Cause-Effect Chain or Cartoon Strip. Here are some suggested questions: <ul style="list-style-type: none"> • What are aerosols? • How do they impact the color of the sky? • What causes aerosols? • How does that affect me? • What can I do to help reduce aerosols? <i>Optional:</i> Share what you have learned or pictures of your activities or data on social media using #skycolor 	Disciplinary Core Idea: ESS3.C Human Impacts on Earth Systems Crosscutting Concept: Cause and Effect Science Practice: Analyzing Data and Constructing Explanation NGSS Performance Expectation: K-ESS3-3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment