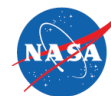


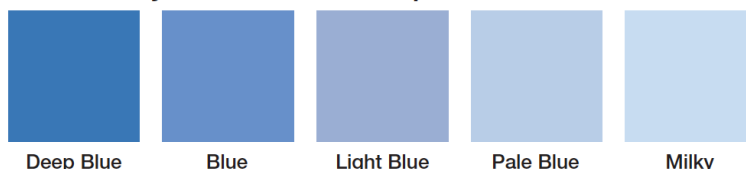
# My NASA Data - Lesson Plans

## Sky Viewer

National Aeronautics and Space Administration



**Sky Color: What's the deepest shade of blue?**



### You Can Help NASA Study Aerosols

Aerosols are very small particles floating in the sky. Although they occur in nature (like pollen), aerosols can also be human-made (like car exhaust). A milky or hazy sky is a sign that there are many aerosols in the sky.

Submit your data through:



or through the **GLOBE Observer** app, available for Apple or Android devices.

### Participate in NASA Science:

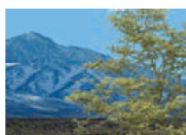
Download the **GLOBE Observer** app and contribute your observations.  
[observer.globe.gov](https://observer.globe.gov)



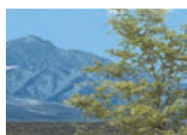
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**Sky Visibility: What does a distant object along the horizon look like?**



Unusually Clear



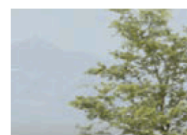
Clear



Somewhat Hazy



Very Hazy



Extremely Hazy

## Overview

In this activity, we will introduce children to the colors of the sky. Children love to look at clouds. Here we will focus in on the sky in which clouds float. Children will learn why the sky has such a wide range of colors.

## Learning Objectives

- Observe the color of the sky
- Observe the visibility of the sky

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- Discuss reasons for these sky conditions

## Why Does NASA Study This Phenomenon?

### You Can Help NASA Study Aerosols

Aerosols are very small particles floating in the sky. Although they occur in nature (like pollen), aerosols can also be human-made (like car exhaust). A milky or hazy sky is a sign that there are many aerosols in the sky.

## Essential Questions

- What's the deepest shade of blue?
- What does a distant object along the horizon look like?
- What do these conditions help us to understand?

## Materials Required

- Sky Viewer PDF
- Access to outdoors

## Technology Requirements

- Standalone Lesson (no technology required)

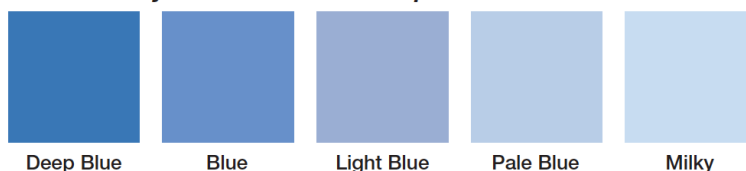
## Teacher Background Information

The sun is blinding white, but a clean sky is blue. How can this be? View the video ["Why is the Sky Blue?"](#). Young students need to know that white light from the sun is actually a combination of the colors violet, blue, green, yellow and red. We know this because of the rainbow that is formed when rain droplets divide the white light from the sun into its various colors. Why is the sky blue? Molecules of air scatter the blue colors of sunlight much more effectively than the green and red colors. Therefore, a clean sky appears blue. Air pollution and natural haze can cause the sky to appear light blue or even milky white. Air pollution can cause the sky over the horizon to appear brown or gray.

## Procedure



### Sky Color: What's the deepest shade of blue?



### You Can Help NASA Study Aerosols

Aerosols are very small particles floating in the sky. Although they occur in nature (like pollen), aerosols can also be human-made (like car exhaust). A milky or hazy sky is a sign that there are many aerosols in the sky.

Submit your data through:



**THE GLOBE PROGRAM**

or through the **GLOBE Observer** app, available for Apple or Android devices.

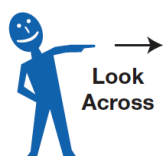
### Participate in NASA Science:

Download the **GLOBE Observer** app and contribute your observations.

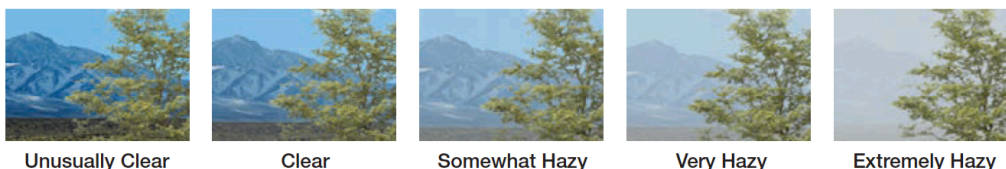
[observer.globe.gov](https://observer.globe.gov)



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### Sky Visibility: What does a distant object along the horizon look like?



The best way for kids to learn about sky color is for them to look at the sky on different days. This is best done outdoors, but sky watching can also be done through a clean window, preferably when the sun is away from the window.

- Engage students in the topic of sky color. Have students brainstorm what different sky colors they have seen.
- Review the perspective of horizon, above the horizon, and straight ahead. Also, review the terms clear and hazy.
- Go outdoors:
  - What color is the sky near the horizon?
  - What color is the sky well above the horizon?
  - What color is the sky straight overhead?
- Ask children to describe the sky as they see it.
- Review the Sky Viewer with students.
- Ask your students to classify the sky according to the colors recommended by the GLOBE Program:

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- Deep blue (unusually clear)
  - Blue (clear)
  - Light blue (somewhat hazy)
  - Pale blue (very hazy)
  - Milky (extremely hazy)

Explain to children the following:

- A deep blue color means a very clean sky. A deep blue sky can occur when a cold front brings in clean air from the north. A deep blue sky can also occur when clean air from over the ocean blows over the land.
- A medium blue sky suggests there might be plenty of water vapor in the sky. It can also mean the presence of sulfur from coal-burning power plants, chemical factories, and natural sources.
- A pale or milky white sky suggests the possibility of considerable air pollution, often in the form of sulfur from coal-burning power plants. In some areas, this condition occurs mainly in summer when the air is still and pollution accumulates. Smoke can cause the sky over the horizon to look gray or dark gray. Pollution from cars and trucks can cause a layer of brown or brownish orange pollution over the horizon. Major volcano eruptions can cause a hazy sky that can last for several years and cause the sky to appear brown.

Teachers and parents, please be aware that some boys may be red-green color blind. While they should be able to see the blue hue of the sky as well as other children, they might not perceive subtle differences in the colors of a polluted sky the same way.

**Caution: Always be safe and alert to your surroundings when sky watching. Children should be careful if they are walking while looking up at the sky. The sky scatters much of the sun's ultraviolet rays, so sky watchers should wear sunglasses if at all possible, especially during the summer. Children should never look at or near the sun! Instead, they should watch the sky with their backs to the sun.**

## Extensions

- [Teacher's Guide - Clouds](#)
- [On-line Cloud Chart](#)