

THE GLOBE PROGRAM

NGSS alignment: *What's Up in the Atmosphere? Exploring Colors in the Sky*

Disciplinary Core Ideas

The science content in the storybook is related to several DCIs such as:

- **ESS2.D: Weather and Climate (K and 3rd grade)** *[Note: While sky color and aerosols are not called out in the weather DCI specifically, they are related to observing patterns in the atmosphere and the importance of weather observations.]*
- **ESS3.C: Human Impacts on Earth Systems (K)** Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.
- **PS4.B: Electromagnetic Radiation (1st grade)** Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach.
- **ESS3.A: Natural Resources (4th grade)** Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.

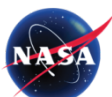
Science and Engineering Practices

The kids in the storybook model many science practices including:

- **Asking Questions and Defining Problems:** In grades K–2, this builds on prior experiences and progresses to simple descriptive questions that can be tested. In grades 3–5, this progresses to identifying testable scientific questions and the ability to ask questions that can be investigated based on patterns such as cause and effect relationships.
- **Planning and Carrying Out an Investigation:** In grades K–2, students plan investigations with guidance and in collaboration with peers. In grades 3–5, students plan and conduct investigations collaboratively to produce data and evaluate methods and tools for collecting data.
- **Analyzing and Interpreting Data:** K–2 students develop skills in collecting, recording, and sharing observations (e.g., *Use observations to describe patterns in the natural world in order to answer scientific questions - K-ESS2-1*). In grades 3–5, this builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data, conducting multiple observations, comparing and contrasting data collected by different methods, and analyzing and interpreting data.
- **Engaging in Argument from Evidence:** In grades K–2, students listen actively to arguments and construct an argument with evidence to support a claim (e.g., *Construct an argument with evidence to support a claim - K-ESS2-2*). In grades 3–5, students respectfully provide and receive critiques from peers about a proposed procedure.
- **Obtaining, Evaluating, and Communicating Information:** In grades K–2, this builds on prior experiences and uses observations and texts to communicate new information. In grades 3–5, this builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.


Crosscutting Concepts

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Two main crosscutting concepts are emphasized in the storybook:

- **Patterns:** Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them
- **Cause and Effect:** Events have causes that generate observable patterns. Cause and effect relationships are routinely identified, tested, and used to explain change.

Performance Expectations

Performance expectations in Kindergarten and 4th grade are a good fit with the storybook:

- K-ESS2-1. Use and share observations of local weather conditions [sky color] to describe patterns over time.
- K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs [human sources of aerosols].
- 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Common Core ELA Standards

The storybook will meet various Common Core ELA standards for *Reading: Literature* (CCSS.ELA-LITERACY.RL) and *Reading: Foundational Skills* (CCSS.ELA-Literacy.RF) depending on how the resource is used in the classroom. For example, in Kindergarten students should be able to ask and answer questions about key details in the story (addressing CCSS.ELA-LITERACY.RL.K.1) and fourth grade students should be able to cite details from the text when explaining what the text says and drawing inferences (addressing CCSS.ELA-LITERACY.RL.4.1).