

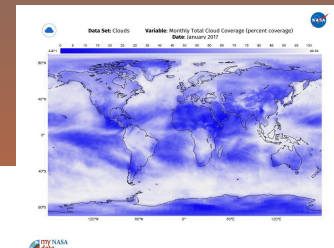
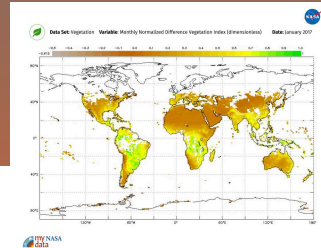
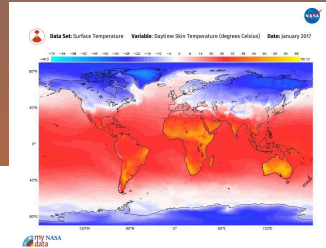
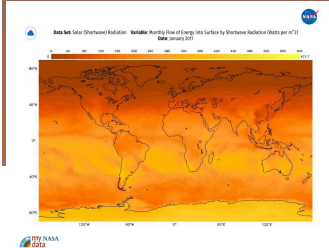


my NASA
data

GLOBE Digital Earth System Poster

Implementing the NGSS Grades K-5

<http://mynasadata.larc.nasa.gov/globe/>



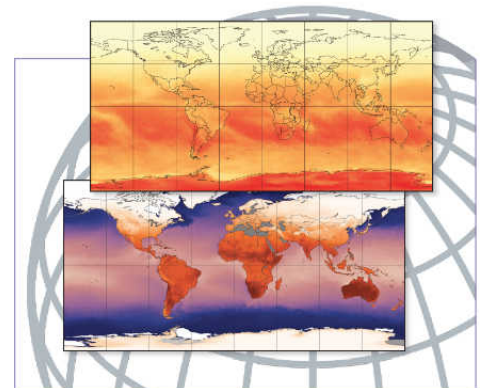
In the Classroom:

The GLOBE Digital Earth System Poster available on My NASA Data provides teachers and students opportunities to explore data and identify relationships between/among the different components of the Earth system. The animations and printable poster cards help the learner visualize how the different Earth science variables change over time, make comparisons between years to establish cause/effect relationships for a specific variable, identify patterns, and determine relationships between variables.

Teachers, consider using the Digital Poster, poster cards, and the Learning Activity Guide as tools to support NGSS Science Practices, Disciplinary Core Ideas, and Crosscutting Concepts as they relate to Earth Science Performance Expectations.

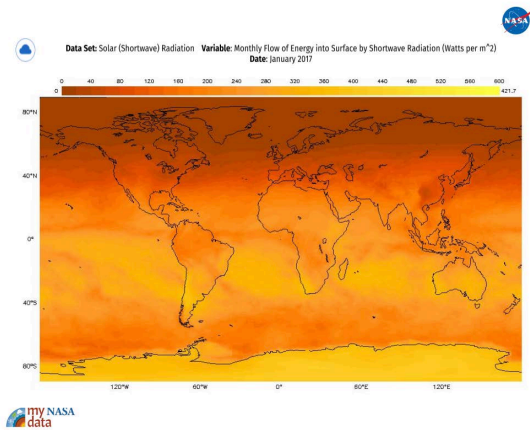


The **GLOBE**
Earth System Poster
Learning Activities



Activities to accompany the GLOBE Earth System Poster
"Exploring Connections in Year 2007"

Visit <https://mynasadata.larc.nasa.gov/>
for Animations, Printable Poster Cards, Lesson Plans,
and the GLOBE Earth System Poster Card Activity Guide.



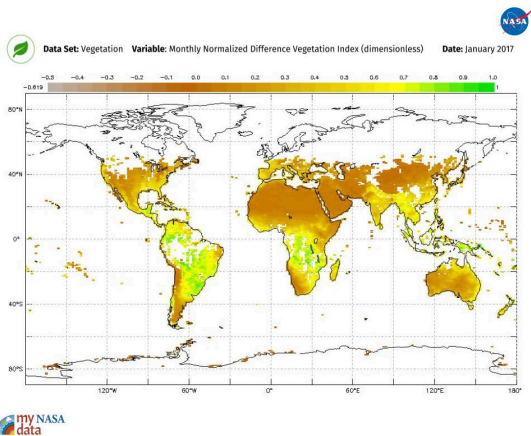
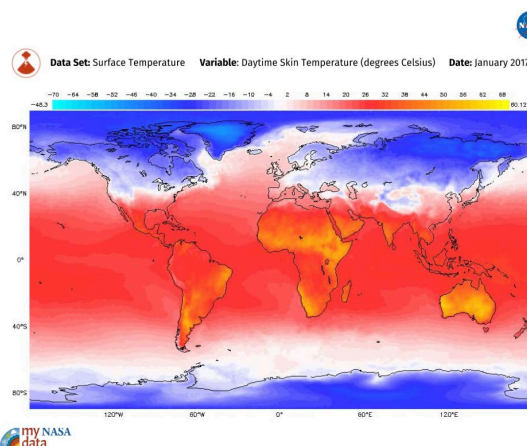
1-ESS1-2: Make observations at different times of year to relate the amount of daylight to the time of year.

There is a correlation between the changing seasons, the amount of solar (shortwave) radiation, and the amount of daylight that a particular region receives during the year.

- Students investigate the total daylight hours for their local area and compare that with the amount of solar (shortwave) radiation shown for their area in the animations.
- Next, students examine the animations to see how the amount of solar (shortwave) radiation changes between the two hemispheres, as well as over the seasons.

3-ESS2-1: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

- Students observe the surface temperature, precipitation, and/or vegetation animation(s) to gather data related to typical weather conditions during the different seasons of the year. *This can be completed for one year, for multiple years, as single variables or as multiple variables.* Additional data sets can be accessed on My NASA Data's Earth System Data Explorer: <https://my NASA data.larc.nasa.govEarthSystemLAS/UI.vm>
- Using the information they collect, students develop tables and/or graphs to display their findings.

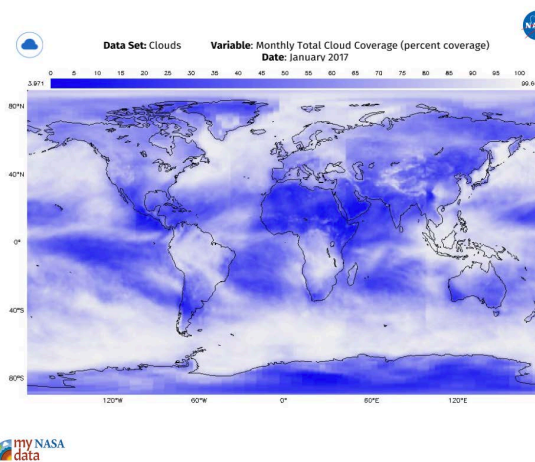


3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.

- Students observe and compare animations for solar (shortwave) radiation and vegetation to identify different climate regions around the world. *In addition, other variables can be visualized to identify how the various variables affect the climate for a particular region.*
- Students investigate cause/effect relationships between different variables and discuss how changes in one might affect the other.

5-ESS2-1: Develop a model using an example to describe ways the Geosphere, Biosphere, Hydrosphere, and/or Atmosphere interact.

- Students examine animations of the different spheres that make up Earth's system (i.e., Geosphere, Biosphere, Hydrosphere, Cryosphere and Atmosphere).
- Students identify patterns among the different spheres.
- Students discuss cause/effect relationships by identifying how one sphere changes in response to changes occurring in other spheres.
- Students ask questions based on the data they observe.



K- 5 NGSS Performance Expectations Using the GLOBE Digital Poster:

1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.

<p>Science and Engineering Practices</p> <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2) <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-2) 	<p>Disciplinary Core Ideas</p> <p>ESS1.B: Earth and the Solar System</p> <ul style="list-style-type: none"> Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2) 	<p>Crosscutting Concepts</p> <p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-2)
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3- ESS2- 1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

3- ESS2- 2. Obtain and combine information to describe climates in different regions of the world.

<p>Science and Engineering Practices</p> <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none"> Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) <p>Obtaining, Evaluating, and Communicating Information</p> <ul style="list-style-type: none"> Obtain and combine information from books and other reliable media to explain phenomena. (3-ESS2-2) 	<p>Disciplinary Core Ideas</p> <p>ESS2.D: Weather and Climate</p> <ul style="list-style-type: none"> Scientists record patterns of the weather across different areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1) Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2) 	<p>Crosscutting Concepts</p> <p>Patterns</p> <ul style="list-style-type: none"> Patterns of change can be used to make predictions. (3-ESS2-1),(3-ESS2-2)
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5- ESS2- 1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

<p>Science and Engineering Practices</p> <p>Developing and Using Models</p> <ul style="list-style-type: none"> Develop a model using an example to describe a scientific principle. (5-ESS2-1) 	<p>Disciplinary Core Ideas</p> <p>ESS2.A: Earth Materials and Systems</p> <ul style="list-style-type: none"> Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) 	<p>Crosscutting Concepts</p> <p>Systems and System Models</p> <ul style="list-style-type: none"> A system can be described in terms of its components and their interactions. (5-ESS2-1)
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