

First Grade Solar System Resources

Next Generation Science Standard 1-ESS1: “Earth’s Place in the Universe”

ESS1.A: The Universe and its Stars

Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1- ESS1-1)

ESS1.B: Earth and the Solar System

Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)

Books:

Earth by Charlotte Guillain (2009)

In *Earth*, children learn what kind of planet Earth is, how sunlight affects Earth, and about Earth's place in the Solar System.

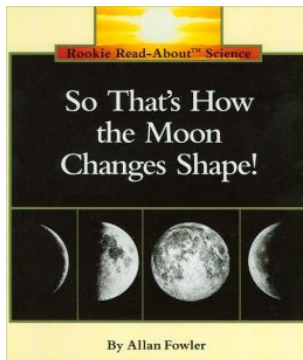


Guided Reading Level: G

24 Pages

So That's How the Moon Changes Shape by Allan Fowler (1992)

Includes index. A simple explanation of the moon and why it changes shape throughout the month.

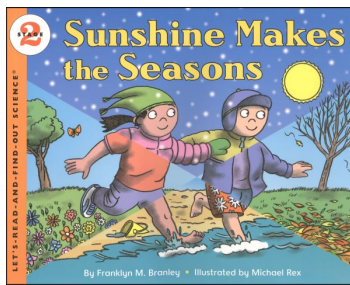


Guided Reading: G

31 Pages

Sunshine Makes the Seasons by Franklyn M. Branley (2005)

Describes how sunshine and the tilt of the earth's axis are responsible for the changing seasons.

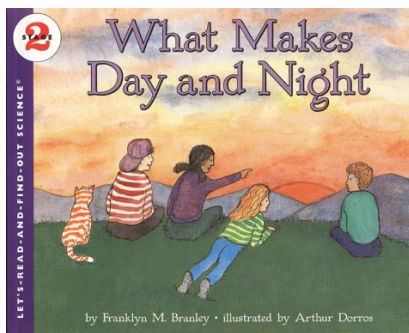


Guided Reading: O

31 Pages

What Makes Day and Night by Franklyn M. Branley (1999)

Accompanied by NASA photographs and Dorros's colorful, lively drawings, the text explains the Earth's rotation in clear and simple terms. An experiment using a lamp as the 'sun' further clarifies the principles introduced.

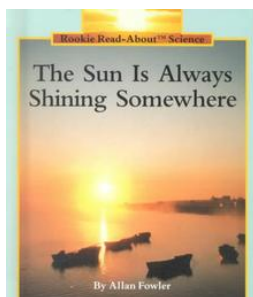


Guided Reading: N

32 Pages

The Sun is Always Shining Somewhere by Allan Fowler (1991)

Includes index. Examines the sun in the context of other, more distant stars and discusses the night sky and movement of the earth.



Guided Reading: G

32 Pages

The Sun: Our Nearest Star by Franklyn M. Branley (2002)

Describes the sun and how it provides the light and energy which allow plant and animal life to exist on the earth.

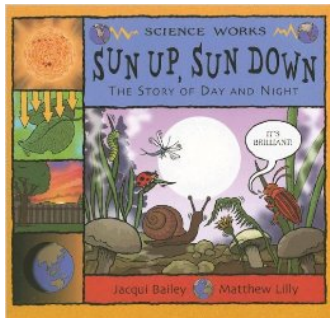


Guided Reading: L

32 Pages

Sun Up, Sun Down: the Story of Day and Night by Jacqui Bailey (2004)

Follows the sun from dawn to dusk to explain how light rays travel, how shadows are formed, how the moon lights up the night sky, and more. Includes activity.

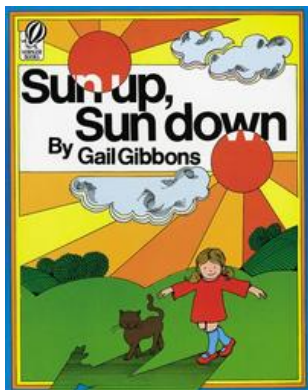


Guided Reading: O

32 Pages

Sun Up, Sun Down by Gail Gibbons (1987)

Simple language and bold illustrations make this a fun and informative book about the sun.

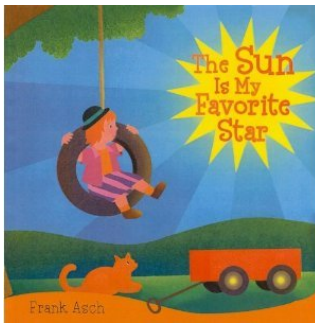


Guided Reading: H

32 Pages

The Sun is My Favorite Star by Frank Asch (2008)

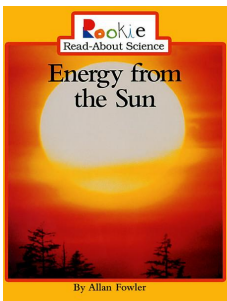
Celebrates a child's love of the sun and the wondrous ways in which it helps the earth and the life upon it.



Guided Reading: E
32 Pages

Energy From the Sun by Allan Fowler (1998)

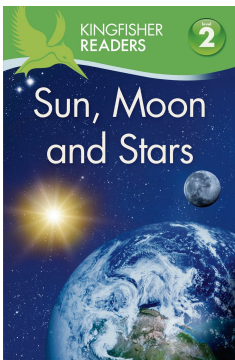
Includes index. Defines energy and examines how energy from the sun provides us with heat, light, plants, food and other things necessary for life on Earth.



Guided Reading: I
32 Pages

KingFisher Readers Sun, Moon and Stars by Thea Feldman (2014)

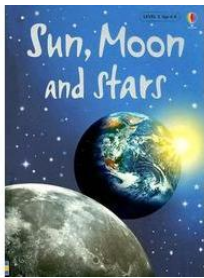
Sun, Moon and Stars introduces young readers to the sky above them. Vocabulary is easy and familiar, and sentences are mainly short and simple.



Guided Reading: I/J
32 Pages

Usborne Beginners: Sun, Moon and Stars by Stephanie Turnbull (2007)

Budding scientists discover what the sun is made of, how astronauts got to the moon, and what causes an eclipse. Striking color photographs accompany a straightforward, fact-filled text.



Guided Reading: M
32 Pages

Our Stars by Anne Rockwell (2002)

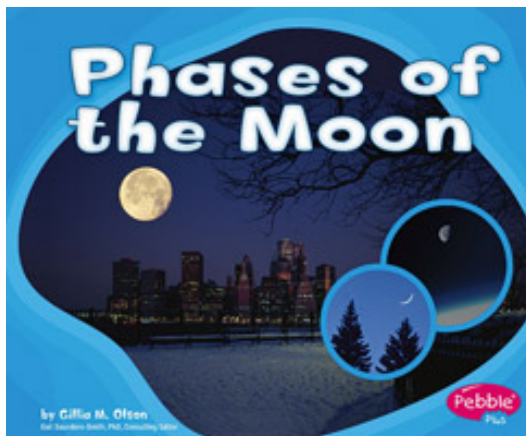
Presents a children's study of the stars, planets, constellations, comets, and other interesting facts about the solar system.



Guided Reading: K
24 Pages

Phases of the Moon by Gillia M. Olson (2007)

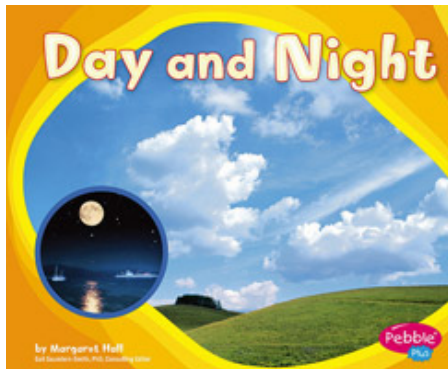
Introduces moon phases, including why they occur and what the different phases are called.



Guided Reading: J
24 pages

Day and Night by Margaret Hall (2007)

Introduces how day and night occur, and explains why they are one of nature's patterns.



Guided Reading: I

24 Pages

Seasons of the Year by Margaret Hall (2007)

Explains why the seasons change and how seasons are a recurring pattern in nature.



Guided Reading: J

24 Pages

Exploring Space by David Conrad (2011)

Includes bibliographical references (p. 23) and index. An introduction to exploring space that provides information on satellites, telescopes, astronauts, moon landings, probes, robots, and possible space missions in the future, with instructions for making a balloon rocket.



Guided Reading: L

24 Pages

Constellations by Martha E. H. Rustad (2012)

Includes bibliographical references (p. 23) and index. Full-color photographs and simple text provide a brief introduction to various constellations.



Guided Reading: L

24 Pages

The Milky Way by Martha E. H. Rustad (2012)

Includes bibliographical references (p. 23) and index. Full-color photographs and simple text provide a brief introduction to the Milky Way galaxy.



Guided Reading: L

24 Pages

Planets by Charlotte Guillain (2009)

Explains what planets are made of, how planets orbit the Sun, and our planet, Earth.



Guided Reading: G

24 Pages

The Moon by Charlotte Guillain (2009)

Explains what the Moon is made of, how the Moon moves around Earth, and how people have visited the Moon.



Guided Reading: G

24 Pages

The Sun by Charlotte Guillain (2009)

Explains what the Sun is, what it is made of, and how it influences the planets in the Solar System.



Guided Reading: G

24 Pages

Stars by Charlotte Guillain (2009)

Explains what stars are made of, what size and color they can be, and how the Sun is a star.



Guided Reading: G

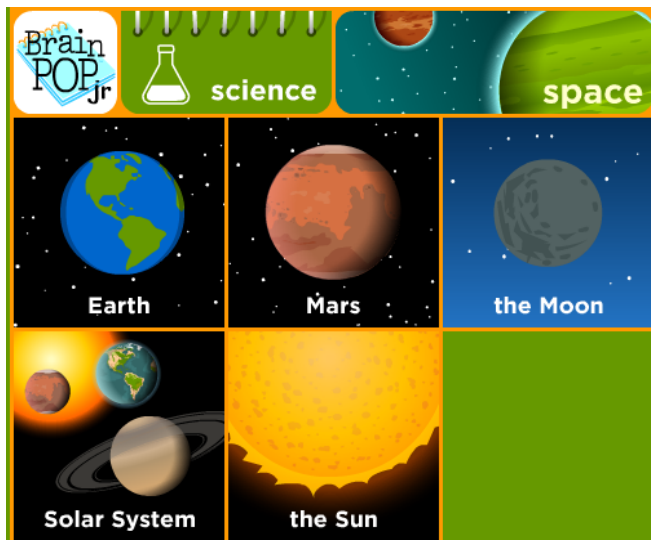
24 Pages

Digital Resources

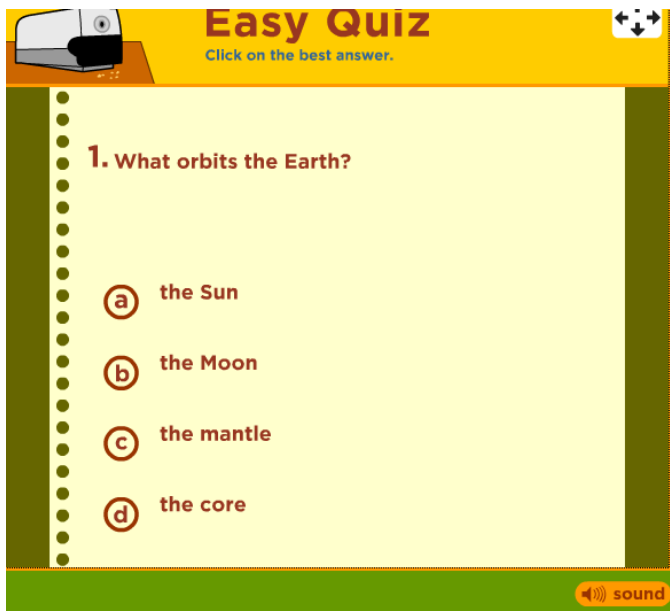
Databases: (To access these databases remotely, ask your librarian for your school's username and password.)

Brainpop Jr.: *Brainpop, Jr. is a database that provides a 3-6 minute video on informational topics followed by a comprehension quiz. The database includes activities and lesson plans as well. It is geared towards grades K-3.*

This selection of videos on Earth, Mars, the Moon, the Solar System and the Sun are offered.



Two different online quizzes are offered after each video to check for understanding. They are entitled "Easy" and "Hard" with 5 questions each.



Pebble Go! *Pebble Go is a database that includes non-fiction books, videos and activities. The target audience for Pebble Go is Kindergarten through 3rd grade, however Pebble Go can be a great way to pique interest in a topic for 4th and 5th graders. Each book is 5 pages long and includes a read-aloud button that highlights each word as it reads aloud. There are often one or two very short videos on the topic embedded within each book.*



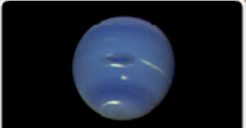
Here is an example of a Pebble Go book that aligns with Next Generation Science Standards for 1st Grade on Earth's Place in the Universe

The screenshot shows a digital book page for 'Stars'. At the top left is a 'Back' button with a left arrow. Next to it is a 'Space' category icon showing a starry sky. The main title 'Stars' is in large green letters. Below the title are five yellow buttons: 'What Are They?', 'How Stars Form', 'Star Colors', 'Constellations', and 'How Many Are There?'. On the left side, there is a speaker icon for audio playback. On the right side, there are two 'Video' buttons labeled 'Video 1' and 'Video 2'. The main text area contains the following text: 'Stars are huge balls of gases out in space. The gases burn and give off light and heat. The sun is the easiest star to find in the sky. It is the star closest to Earth. Other stars look like tiny points of light.' To the right of the text is a large image of a starry night sky. At the bottom right of the page is a 'Print This' button.





Other books that fit this topic are pictured below and can be found by clicking "Space" in the "Earth and Space" section of Pebble Go:

The screenshot shows a digital book page for 'Exploring Space'. At the top left is a 'Back' button with a left arrow. Next to it is a 'Space' category icon showing a starry sky. The main title 'Exploring Space' is in large green letters. Below the title are three image-based buttons: 'Astronauts' (showing an astronaut in a white suit), 'First Moon Landing' (showing an astronaut on the moon surface), and 'Space Shuttles' (showing a space shuttle in flight).

Back  Planets

 Earth	 Jupiter	 Mars	 Mercury
 Neptune	 Saturn	 Uranus	 Venus
 Pluto: Dwarf Planet			

Back  Our Solar System

 The Solar System	 Meteors and Asteroids	 The Moon	 Moon Phases
 The Planets	 The Sun		

These are two related games from Pebble Go:



World Book Web:

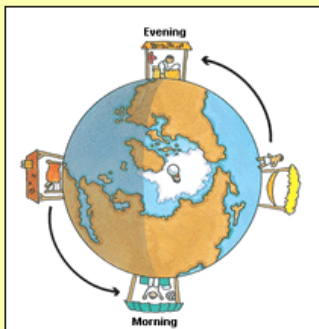
The World Book Web is a suite of online research tools that includes encyclopedia articles, primary source collections, educator tools, student activities, pictures, audio, and video, complemented by current periodicals and related Web sites. Most all of these World Book Web research tools include options where text can be read aloud to the user. All Ithaca elementary school libraries currently subscribe to **Worldbook Kids**, **Worldbook Student**, **Worldbook Discover**, **Worldbook Timelines** and **Worldbook Classroom: Early World of Learning**. For specific training in how to use these amazing tools consult Worldbook's training website or ask your school's librarian. <http://www.worldbookonline.com/training/>

World Book Kids has an article called "Day and Night" which aligns with Next Generation Science Standards for 1st Grade. You can use this link to access the article on day and night: <http://www.worldbookonline.com/kids/article?id=ar830627> OR you can simply type "day night" in World Book Kids and choose the first article.

Day and night

Day and night are caused by Earth's spinning motion. The "day" side of Earth faces the sun, and the "night" side faces away from the sun. As Earth spins, part of it moves from the night side to the day side. People see the sun rise in the east. At the same time, part of it moves from the day side to the night side. People see the sun set in the west.

Each day begins at midnight. In most countries, the day is divided into two parts of 12 hours each. The hours from midnight to noon are the a.m. hours. The hours from noon to midnight are the p.m. hours. The letters a.m. stand for *ante meridian*, which means before noon. The letters p.m. stand for *post meridian*, which means after noon. Night is really a part of the whole day.



In addition to spinning around once a day, Earth travels around the sun once a year. This journey gives us the seasons. The lengths of days and nights are different in each season. This difference is caused by the tilt of Earth's axis. Earth's axis is an imaginary line that connects the North and South poles. When the North Pole tilts toward the sun, the northern part of Earth has summer, with long days and short nights. After six months, Earth has moved to the other side of the sun. The North Pole now tilts away from the sun, and the northern part of Earth



There are also several articles on the solar system which may be useful including:

"Moon" <http://www.worldbookonline.com/kids/article?id=ar831569>

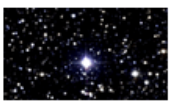
"Sun" <http://www.worldbookonline.com/kids/article?id=ar831399>

"Star" <http://www.worldbookonline.com/kids/article?id=ar831371>

Note the 1 minute video on the subject of “How Far Apart are the Stars?”

Star

A star is a huge ball of very hot matter in space. The sun is a star. There are many different kinds of stars. Some stars are smaller than the sun. Other stars are much larger than the sun. A number of stars are hotter than the sun, but many are cooler. Stars change as they grow older. They eventually stop shining and grow cool and dim.



Video
[How far apart are the stars?](#)

The stars in the sky shine because of a process called *fusion*. In fusion, the *nuclei* (cores) of atoms combine to form nuclei of heavier atoms. This process gives off tremendous energy. In most stars, including the sun, hydrogen nuclei are *fused* (combined) into helium nuclei. The resulting energy is given off in the form of heat, light, and particles.



Picture

[The Pleiades, a group of stars, are named for seven sisters in an ancient Greek story.](#)

Moon

The moon is the brightest object in the night sky. On some nights, the moon looks like a shining circle of light. On others, it looks like a thin, silver fingernail. The moon does not make its own light. The light we see comes from the sun and bounces off the moon.

If the moon and Earth were side by side, the moon would look like a tennis ball next to a basketball. It looks bigger than the stars and as large as the sun because it is closer to Earth than any other natural object in space. But the moon is about 400 times smaller than the sun, and it is not all that close to Earth. A rocket journey from Earth to the moon and back takes about six days.

The moon is a huge rock that travels around Earth. Nothing lives on the moon. The moon has no air and no wind. Its surface is dry. Its sky is always black, even in the daytime, and the stars are always visible. At night, the moon's rocky surface is colder than any place on Earth. During the day, the rocks are hotter than boiling water.



Astronauts who visit the moon carry air with them to breathe. They talk to each other by radio because there is no air to carry sounds. Space suits protect astronauts from the heat and the cold.



Picture

[The moon was photographed by the Apollo 11 astronauts during their return trip to Earth in 1969.](#)

The article on the sun includes two videos: “How long will the sun burn” and “Why is the sun so hot.”

Sun

The sun is a huge, shining ball of matter at the center of the solar system. Earth and the other seven planets *orbit* (revolve around) the sun. The sun is only one of billions of stars in the universe, but it is more important to people than any other star. Without the heat and light of the sun, there could be no life on Earth.

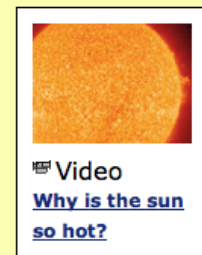
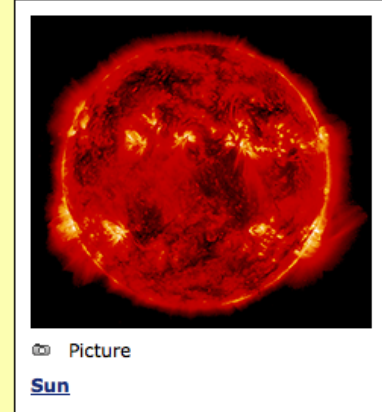


The sun is the star that is closest to Earth. Scientists study the sun to learn about stars that are much farther away. The surface of the sun is made up of hot gases that give off light and heat.

How the sun affects Earth

Sunlight affects the weather of an area. The temperature of any place on Earth depends on where the sun is in the sky. Tropical areas near the equator, an invisible line around the middle of Earth, have a hot climate because the sun shines almost directly overhead at noon. Areas near the North Pole and the South Pole have cold weather because the sun never rises very high there.

The sun gives us heat, light, and other kinds of energy. All life on Earth—people, animals, and plants—depends on this energy from the sun. Plants use sunlight to make their own food. As they make their food, plants give off a gas called oxygen. People and animals eat the plants and breathe in the oxygen. In turn,



Websites:

What Causes the Seasons?

<http://www.neok12.com/video/Seasons/zX5b606f020e437a4e5a4177.htm>

Two minute and seventeen second video on the subject.

Four Seasons Time Lapse

<http://www.neok12.com/video/Seasons/zX755b755e04470c5d627f63.htm>

Four and a half minute video of a nature scene slowly changing from spring to summer to fall to winter. Piano solo background music.

The Earth and Beyond: Children's University of Manchester

<http://www.childrensuniversity.manchester.ac.uk/interactives/science/earthandbeyond/>

Information about the about the Sun, Earth and Moon, the stars and planets, and the Universe as we know it.

iPad apps:

Seasons and Weather! - by Tribal Nova

Cost: Free

The first level of this interactive game is free. Student can choose activities that are appropriate for Poko and Beebee based on the season and weather.

The Four Seasons - An Earth Day Interactive Children's Story Book by TabTale, LTD

Cost: Free

Raises awareness about the importance of clean air, water and a green environment with a story that takes place over all four seasons.

The Solar System: Explore your Backyard - by Christopher Albeluhn

Cost: Free

Tour the planets in a beautifully rendered 3D environment. Navigate everything from the countries of Earth to 88 constellations in the sky.

Day and Night World Map HD - by Time and Date

Cost: \$2.99

See where in the world it is daylight, twilight, and nighttime with this app. Solar eclipses are shown as well.