

Earth in Space

Gravity on Earth Lessons

Books

Floating in Space (Let's-Read-And-Find-Out Science Series)

By Franklyn M. Branley; illustrated by True Kelley. (1998, HarperCollins Juvenile Books)

Narrates a space shuttle mission, from blast-off to touchdown, but focuses mainly on life in orbit.

Describes how a negligible gravitational pull affects astronauts.

The Magic School Bus Lost in the Solar System

By Joanna Cole; illustrated by Bruce Degen. (1992, Scholastic Books)

Ms. Frizzle takes her class on a trip to the planetarium, but the magic school bus has a better idea and blasts off into space to visit each planet in the solar system. Includes information about how much a child would weigh on each planet.

No Jumping on the Bed

By Tedd Arnold. (1996, Puffin)

But Walter can't resist, so he ignores his father's bedtime warning. He bounces so high his hair brushes the ceiling. But when he comes down, well, let's just say the laws of gravity and weight are somewhat altered. This is a fun fiction read aloud that you can use for speculation and discussion.

The Science of Gravity

By John Stringer. (2000, Hodder Wayland)

Introduces the force of gravity and discusses its effects and reasons for its variations in strength.

Science Rock (Video or DVD)

By Schoolhouse Rock! (2008, Disney Educational Productions)

A collection of three-minute segments with catchy, instructional songs about science from Schoolhouse Rock! Includes "A Victim of Gravity."

Daily Pattern of the Sun Lessons

Web links

General

[The Planetary Society](http://www.planetary.org/)

Offers extensive up-to-date information and pictures of the most current happenings in astronomy.

(<http://www.planetary.org/>)

[Astronomy Picture of the Day](http://apod.nasa.gov/apod/astropix.html)

Each day a different picture from space is shown with an information sheet to go along with it.

(<http://apod.nasa.gov/apod/astropix.html>)

[StarChild](http://starchild.gsfc.nasa.gov/docs/StarChild/StarChild.html)

This child-friendly NASA site offers an enormous amount of information about astronomy for children to explore independently.

(<http://starchild.gsfc.nasa.gov/docs/StarChild/StarChild.html>)

[Science, Optics & You](http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10/)

View the Milky Way at 10 million light years from the Earth. Then move through space towards the Earth in successive orders of magnitude until you reach the subatomic universe of electrons and protons.

(<http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10/>)

Sun's Daily Pattern

[Sunrise Sunset](http://www.sunrisesunset.com/custom_srss_calendar.asp)

This very easy to navigate website allows users to find sunrise and sunset data. All times are adjusted for local and daylight saving time. The website also includes an AM/PM clock as well as a 24 hour clock.

(http://www.sunrisesunset.com/custom_srss_calendar.asp)

[World Time Zones](http://www.worldtimezone.com/)

Use this site to locate the time zones around the world.

(<http://www.worldtimezone.com/>)

[Sun Clock](#)

This page shows current areas of the world that are experiencing daytime and nighttime.
(<http://www.worldtimezone.com/datetime.htm>)

[Complete Sun and Moon Data for One Day](#)

Use this site to obtain sunrise and sunset data for one day.
(<http://www.usno.navy.mil/USNO/astronomical-applications>)

[The World Clock](#)

World clock showing the current time in cities around the world.
(<http://www.timeanddate.com/worldclock/>)

Daily Pattern of the Sun Lessons

Books

The Sun's Daily Pattern

The books listed below hold particular relevance to daily sun pattern lessons. They concern the sun and shadows, with two books about ancient astronomers learning about Earth as a sphere. Most are nonfiction books, although one suggests a poem, "My Shadow."

A Child's Garden of Verses

By Robert Louis Stevenson; illustrated by Brian Wildsmith. (2008, Star Bright Books)
Since their first appearance in 1885, the poems of Robert Louis Stevenson have engaged children's sensibilities. This book includes the poem, "My Shadow."

How We Learned the Earth is Round

By Patricia Lauber; illustrated by Megan Lloyd. (Harper Trophy Books, 1992)
This book follows the development of the idea that Earth is a sphere, from early deductions by ancient Greeks to the explorations of Columbus and Magellan. Includes simple experiments for children to try with tools as simple as those available to ancient Greeks. Since this book is out of print, look for it in a library or as a used book.

The Librarian Who Measured the Earth

By Kathryn Lasky. (1994, Little, Brown and Company)

The story of Eratosthenes, a Greek scholar of the third century B.C. who calculated the circumference of Earth with impressive accuracy by measuring shadows in two distant cities, measuring the distance between the cities, and using geometry. The children may need adult assistance if they want to understand why this method worked.

Shadows (Scholastic Science Readers)

By Carolyn B. Otto. (2001, Scholastic)

Easy-to-read text is combined with photographs to give children an introduction to what shadows are and why they change. Includes ideas for experiments using flashlights.

Shadows Everywhere (Hello Reader! Science, Level 2)

By Gina Shaw; illustrated by Joan Holub. (2002, Scholastic)

Written for kindergarten through grade 2, this book illustrates very easy, yet fun, shadow activities for children to read about and do on their own.

Shadowy Science

By Jess Brallier; illustrated by Bob Staake. (2001, Planet Dexter)

An excellent, age-appropriate book packed with neat things children can do with shadows.

Sun-Day, Moon-Day: How the Week Was Made

By Cherry Gilchrist; illustrated by Amanda Hall. (1998, Barefoot Books)

This book explains how the names of the days of the week are associated with the sun, the moon, and the planets. Each entry is followed by a relevant story or myth representing a different tradition, including ancient Greek, Norse, Roman, Old English, and Babylonian cultures.

The Sun

By Michael George. (1998, The Child's World, Inc.)

Incorporates photographs with easy-to-read text divided into chapters about the sun. The first half of the book covers topics relevant to the Our Solar System unit, such as what makes day and night, the distance from the earth, and identifies the sun as a star. The second half of the book focuses on the sun's energy and its effects on Earth.

The Way to Start a Day

By Byrd Baylor; illustrated by Peter Parnall. (1986, Aladdin Library)

This Caldecott Honor Book shows how many different cultures (from Native Americans to ancient Egyptians) greet the morning sun.

Sun and Other Stars Lessons

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Stars Outside Our Solar System

[NASA- Astronomy Picture of the Day](#)

Detailed images of star clusters beyond our solar system.

(<http://apod.nasa.gov/apod/lib/aptree.html>)

[Curious About Astronomy?](#)

This informational site for teachers provides lots of facts about stars as well as links to other star sites.

(<http://curious.astro.cornell.edu/stars.php>)

[Interactive Sky Chart](#)

Launch the Interactive Star Chart on this site to create star charts for your location and date. Once the star chart is showing, clicking on the “plus” hours will cause the stars and planets to move across the screen. Using the Interactive Star Chart requires registration and login, which is free.

(<http://www.skyandtelescope.com/observing/skychart>)

Sun and Other Stars Lessons

Books

Stars

The list below includes books to encourage children to continue learning stars, space, and space camp. Two books concern huge numbers and size.

All About Space (Scholastic First Encyclopedia)

By Sue Becklake. (2002, Scholastic Reference)

Perfect for elementary-school children, a reference book that includes a table of contents, glossary, index, and “How to Use This Book.” Chapters include The Universe, The Solar System, Studying Space, and Space Travel. Each topic (e.g., the sun, Saturn, galaxy, astronomer, astronaut) is discussed in a two-page spread with full color illustrations, including many photographs.

The Atlas of Space

By Jack Challoner. (2003, Franklin Watts Ltd)

A comprehensive, illustrated reference guide for children that includes contents, glossary, index, and labeled maps and diagrams. Chapters include Watching the Sky, The Solar System, Deep Space, and Space Exploration.

Blasting Off to Space Academy (Ultimate Field Trip 5)

By Susan E. Goodman; photographs by Michael J. Doolittle. (2001, Atheneum)

Anecdotal storytelling and photos let readers join a group of kids who go to U.S. Space Academy for a week. They try on flight suits and the lives of training astronauts. They use NASA

simulators and learn how to walk on the moon and how to work without gravity. Finally, they blast off on a mission of their own.

The Constellations: Stars and Stories

By Chris Sasaki. (2003, Sterling Publishing Co)

Recounts the stories behind 88 constellations easily identifiable in the clear night sky. Color visuals are accompanied by facts on how far stars really are, other interstellar phenomena, the history of every constellation and how they got their names, and the best way to search for stars.

Count to a Million

By Jerry Pallotta; illustrated by Ray Bolster. (2003, Scholastic Inc.)

"If you can count to ten, you can count to one million. Welcome to the decimal system." With these words on an opening page that pictures Earth in space, this book clearly presents and illustrates counting by the power of ten to reach 1,000,000.

Is a Blue Whale the Biggest Thing There Is?

By Robert E. Wells. (1993, Albert Whitman & Company)

With this book children think about some big things (like a blue whale), some bigger things (like Earth), and the biggest thing there is: the universe.

Night Sky (National Audubon Society First Field Guide)

By Gary Mechler. (1999, Scholastic Reference)

Designed to help novices look at the night sky the way an astronomer does. The book is divided into four parts: What is Astronomy?, How to Look at the Sky, field guide, and reference. Includes descriptions of objects in our solar system as well as numerous star maps.

One Small Square: The Night Sky

By Donald M. Silver; illustrated by Patricia J. Wynne. (1998, McGraw-Hill)

Focuses on "one small square" of night sky around the constellation Orion. Discusses the stars' colors, the Great Orion Nebula, the Milky Way galaxy, planets, comets, and the moon.

The Sky is Full of Stars (Let's-Read-and-Find-Out Science, 2)

By Franklyn M. Branley; illustrated by Felicia Bond. (1983, HarperCollins Publishers)

Appropriate for independent readers or as a read-aloud book. Provides good illustrations and directions for finding constellations. Emphasizes that stars appear to move across the sky at night, and that at different times of year you will see different stars.

Stars

By Seymour Simon. (2006, Collins)

In clear text and with over 20 full-color photographs, this book describes many varieties of stars, from red giants to white dwarfs, from the enormous explosions known as supernovas to tiny, extremely dense neutron stars. It also discusses nebulas, black holes, pulsars, and quasars.

The Storytelling Star: Tales of the Sun, Moon, and Stars

By James Riordan; illustrated by Amanda Hall. (1999, Anova Books)

A collection of myths and legends from ancient cultures around the world, including the Incas, Aztecs, Ancient Greeks, Chinese, and Native Americans. This book was particularly popular with the children of the Science Companion authors who were asked to read a handful of books about the solar system.