

5th Grade Earth's Place in the Universe Resources

Next Generation Science Standards:

ESS1.A: The Universe and its Stars

The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1)

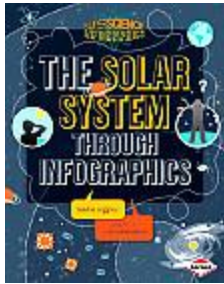
ESS1.B: Earth and the Solar System

The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)

Books:

The Solar System Through Infographics by Nadia Higgins (2014)

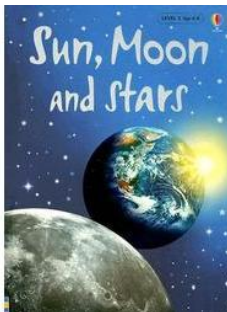
The charts, maps, and illustrations in this book tell a visual story to help you better understand key concepts about our solar system. Examines the solar system, including planets, black holes, meteorites, asteroids, the sun, other stars, and moons, as well as how those entities relate to each other.



Guided Reading: S
32 Pages

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

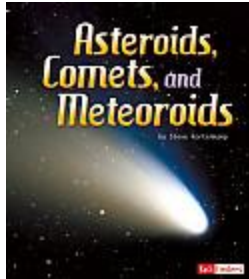
Budding scientists discover what the sun is made of, how astronauts got to the moon, and what causes an eclipse. Striking color photographs accompany a straightforward fact-filled text.



Guided Reading: M
32 Pages

Asteroids, Comets, and Meteoroids by Steve Kortenkamp (2012)

Includes bibliographical references (p. 31) and index. Color photographs and text provide information about the formation of the solar system, describe the characteristics of leftover space rocks known as asteroids, comets, and meteoroids, and discuss how scientists study space.



Guided Reading: S
32 Pages

Space Encyclopedia: A Tour of Our Solar System and beyond by David A. Aguilar (2013)

Presenting the latest exciting findings on space exploration and research and cutting-edge, spectacular views of the universe that technology is bringing back to Earth, all in one ultimate reference book. Includes bibliographical references (page 191) and index. Text and photographs look at the solar system, the stars and beyond.



Guided Reading: W
191 Pages

13 Planets: The Latest View of the Solar System by David A. Aguilar (2011)

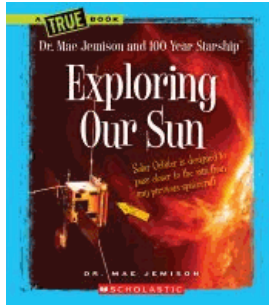
This book profiles all 13 planets in their newly created categories—plus the sun, the Oort Cloud, comets, and other worlds being discovered. Back-of-the-book activities offer hands-on fun for budding astronomers.



Guided Reading: Z
60 Pages

Exploring Our Sun: A True Book by Mae Jemison and Dana Meachen Rau (2013)

Includes bibliographical references (p. 45) and index.;The sun is a star -- The life of stars -- A power plant -- A ball of energy -- Thanks to the sun. This book explains what the Sun is and how it affects the rest of the solar system.



Guided Reading: Q
48 Pages

Space, Stars and the Beginning of Time: What the Hubble Telescope Saw by Elaine Scott (2011)

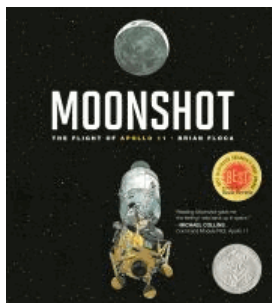
Photographs and text examine the Hubble Space Telescope, discussing how Hubble has helped scientists learn about the universe, and describing how scientists have used the telescope to discover new galaxies, verify the existence of dark energy, and related topics.



Guided Reading: n/a
66 Pages

Moonshot: The Flight of Apollo 11 by Brian Floca (2009)

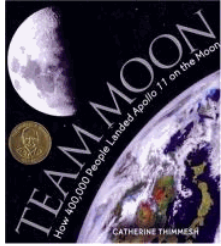
An illustrated account of the flight of Apollo 11 in 1969, the first manned mission to land on the moon.



Guided Reading: P
42 Pages

Team Moon: How 400,000 People Landed Apollo 11 on the Moon by Catherine Thimmesh (2006)

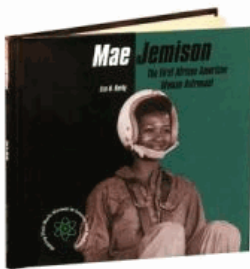
Includes bibliographical references and index. Chronicles the Apollo 11 mission, the spaceflight that landed the first man on Earth's moon on July 20, 1969, emphasizing the contributions and reactions of the thousands of people who made the mission successful.



Guided Reading: Y
80 Pages

Mae Jemison: The First African American Woman Astronaut by Liza Burby (1997)

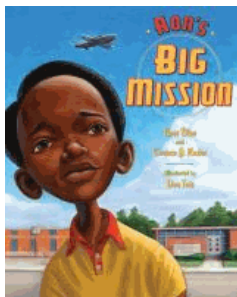
Briefly traces the life of the first African-American woman to go into space, from her childhood in Chicago through her education and work as a doctor to her historic flight.



Guided Reading: Q
24 Pages

Ron's Big Mission by Rose Blue and Corinne J. Naden (2009)

Nine-year-old Ron, a frequent visitor to the Lake City Public Library in South Carolina in the 1950s, where he pores over books on airplanes and flight, makes his own quiet stand against segregation when he decides to apply for his own library card. Based on the life of astronaut Ron McNair.



Guided Reading: J
32 Pages

How Long Will the Sun Last by Michael Sabatino (2014)

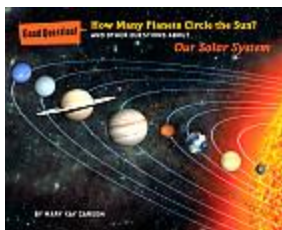
Our sun is our constant companion, giving us a seemingly endless supply of light, heat, and energy. But it will have an end. Like all stars, the sun had a beginning, and it will die, too. This book details how this will happen and the likely effects the sun's end will have on Earth. Readers learn how gravity and nuclear fusion work together in the birth and death of stars. This captivating glimpse into the far, far future will awe enthusiasts of astronomy.



Guided Reading: V
32 Pages

How Many Planets Circle the Sun and Other Questions About Our Solar System by Mary Kay Carson (2014)

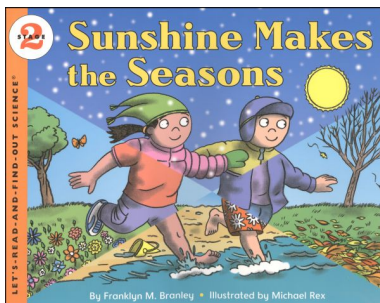
Why is there life on earth? How did Saturn get its rings? Which planet is biggest, which one's hottest—and which has a cloud named Scooter? Take a trip into outer space to learn about the asteroid belt, Martian volcanoes, dwarf planets, and other fascinating facts about our universe.



Guided Reading: Q
32 Pages

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

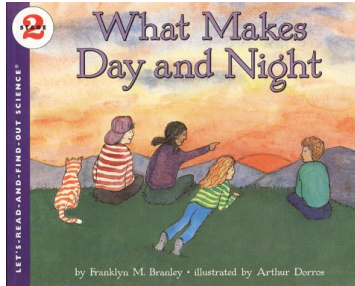
Describes how sunshine and the tilt of the earth's axis are responsible for the changing seasons.



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

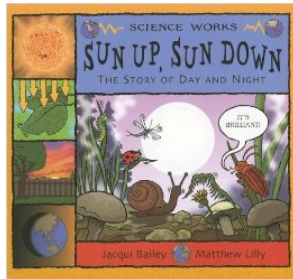


Guided Reading: N

32 Pages

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, Moon and Stars: a cosmic case by Emily Sohn (2011)

Includes bibliographical references (p. 31) and index. Describes the sun, moon, and stars, discussing what they are and how they move or seem to move around Earth. As readers use scientific inquiry to learn about the universe they live in, an activity based on real-world situations challenges them to apply what they have learned in order to solve a puzzle.



Guided Reading: P

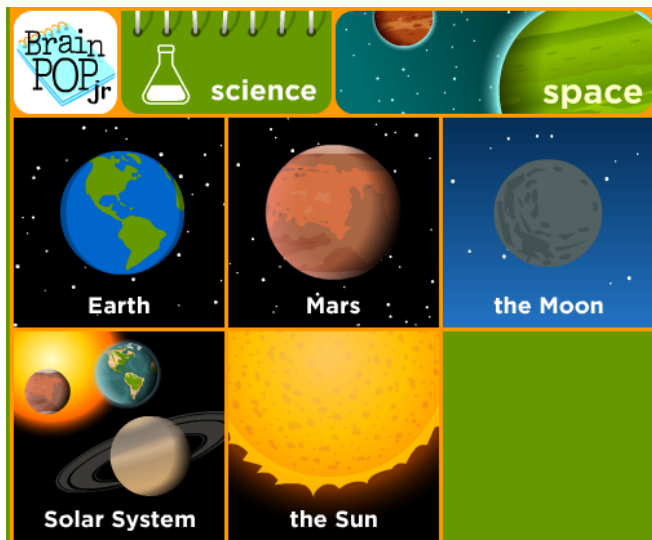
32 Pages

Digital Resources

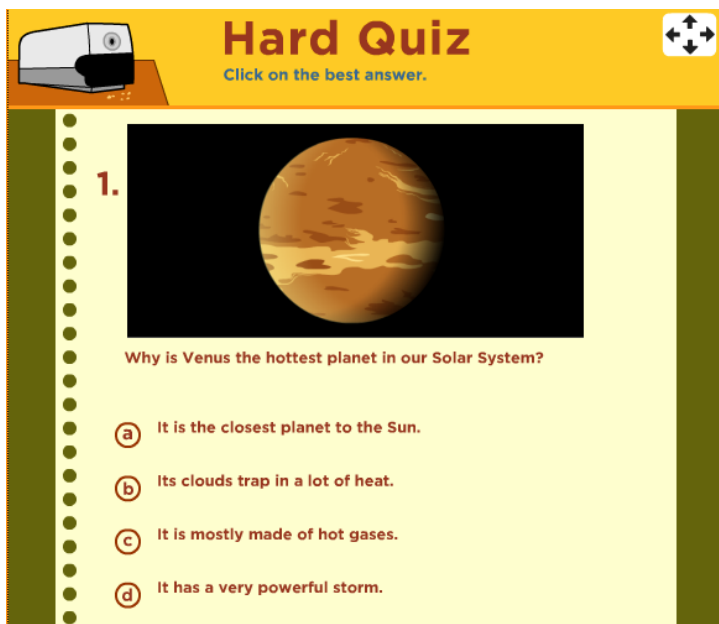
Databases: (To access these databases remotely, ask your librarian for your school's username and password.)

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, but can be used in 4th and 5th grades as well.*

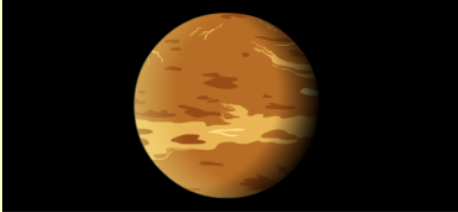
This selection of videos on Earth, Mars, The Moon, the Solar System and the Sun are offered that align with Next Generation Science Standards for 5th Grade.



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



Hard Quiz
Click on the best answer.

1. 

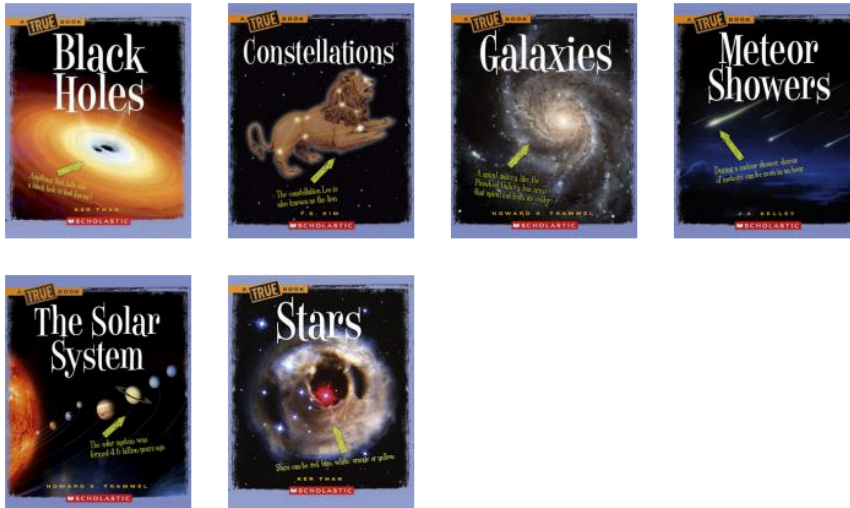
Why is Venus the hottest planet in our Solar System?

- (a) It is the closest planet to the Sun.
- (b) Its clouds trap in a lot of heat.
- (c) It is mostly made of hot gases.
- (d) It has a very powerful storm.

TrueFlix: Trueflix is a database that includes non-fiction electronic books. Within each selected book you will find a 3-6 minute informational video on the subject, and a list of recommended websites.

Trueflix contains these six e-books that support the Next Generation Science Standards on Earth's Place in the Universe for 5th Grade. Each book is 48 pages long, and includes a "Read-Along" button which highlights each word as it is read aloud.

Space



Here is an example of the layout and contents of one of the books. This title is *Constellations*.



Each subject in *Trueflix* has a part called “Show What You Know.” This is a ten question quiz that can be used to check understanding from the text.

Show What You Know

4. The half of Earth that is north of the equator is called the Northern _____.



TRUE

- Rotation
- Star
- Constellation
- Hemisphere

NEXT →

Trueflix also offers word match activity that can be done online. Word match gives a clue that can then be matched with a keyword from the text. As you can see from the toolbar on the left, there are project ideas for the classroom, a list of other non-fiction resources on the same topic in “Explore More,” related websites that have been tested and recommended, and a 3-6 minute video in “Watch the Video.”



Start

Watch the Video

Read the Book

Explore More

Project Idea

Activity Center

- Show What You Know
- Word Match

Explore the Web

More
Space

Word Match

Read the clue below. Click on the word it matches.
Match all the words to uncover a picture.

CLUE: the study of space and everything in it

	nebula	astrology
zodiac	astronomy	Southern Hemisphere
	myths	orbit

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 5th Grade on Earth and Solar System:

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 the lunar module 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 **World Book Kids**, **World Book Student**, **World Book Discover**, **World Book Timelines** and **World Book 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 Student has many articles which align with Next Generation Science Standards on Earth's Place in the Universe for 5th Grade. You can simply type "universe" in World Book Student to get started. It will start you with some articles like these:

The screenshot shows a search interface for "universe". On the left, a sidebar lists search categories: Encyclopedia Articles (266 items), Dictionary (1 item), Tables (9 items), Pictures (13 items), Videos (9 items), Back in Time Articles (139 items), Special Reports (41 items), Web Sites (4 items), and Research Guides (1 item). The main content area, titled "Encyclopedia Articles", shows a list of search results. At the top right of this area, it says "1 - 15 of 266 items" with navigation links 1, 2, 3, 4, 5. Below the title are links for "Check All", "Clear All", and "Save to My Research". The search results list includes:

- Universe**
Universe consists of all matter and all light and other forms of radiation and energy.
- Astronomy**
Astronomy is the study of the universe and the objects in it.
- Inflation theory**
Inflation theory, in physics, holds that the early universe experienced an extremely brief period of particularly rapid expansion.
- XMM-Newton**
XMM-Newton is a satellite observatory that studies the universe in X rays as well as visible and ultraviolet light.
- Cosmology**
Cosmology in astronomy, is the study of the structure and development of the universe and the forces that shape it.
- Cosmic microwave background (CMB) radiation**
Cosmic microwave background (CMB) radiation is energy left over from the early universe.
- Big bang**
Big bang was a cosmic explosion that scientists think started the expansion of the universe.

Another great place to start is in the "Earth" article. If you search for "Earth" in the search bar, you will find this article: <http://www.worldbookonline.com/student/article?id=ar171540> There is a specific section in the Earth article called "Earth as a Planet" that directly addresses the Next Generation Science Standards for 5th Grade.

Article Contents

Lexile® Measure: 890L

MAIN SECTIONS

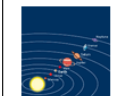
- Introduction**
- Earth as a planet**
 - Earth in the solar system
 - Sun size compared to Earth
 - How Earth moves
 - Motions of Earth
 - Earth's size and shape
 - Dimensions of Earth
 - Sizes of astronomical objects: Earth
 - Earth and its moon
 - Earth and Moon
- Earth's spheres
- Earth's rocks
- Cycles on and in Earth
- Earth's interior
- Earth's crust

Back

Tools

- Print full section
- Highlight search term in text
- Double-click a word to define it.
- View full article
- Save to My Research
- Translate this text
- E-mail article
- Save article
- Hear text read aloud

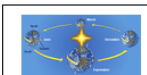
Earth as a planet

 **Picture**
Earth in the solar system

Earth ranks fifth in size among the sun's planets. It has a diameter of about 8,000 miles (13,000 kilometers). Jupiter, the largest planet, is about 11 times larger in diameter than Earth. Mercury, on the other hand, has a diameter of about two-fifths that of Earth.

Earth, like all the planets in our solar system, travels around the sun in a path called an *orbit*. Earth is about 93 million miles (150 million kilometers) from the sun. It takes one year for Earth to complete one orbit around the sun. The innermost planet, Mercury, is only about one-third as far from the sun as Earth and circles the sun in only 88 days. Neptune, the outermost planet, is 30 times as far from the sun as Earth and takes 165 Earth years to circle the sun.

[Print "Earth as a planet" subsection](#)

 **How Earth moves.** Earth has three motions. It (1) spins like a top around an imaginary line called an axis that runs from the North Pole to the South Pole, (2) it travels around the sun, and (3) it moves through the Milky Way along with the sun and the rest of the solar system.

Related Information

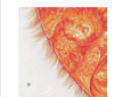
for: Earth

- Encyclopedia Articles
- Books to Read
- Back in Time Articles
- Special Reports
- Web Sites
- Magazine Articles

Content Standards

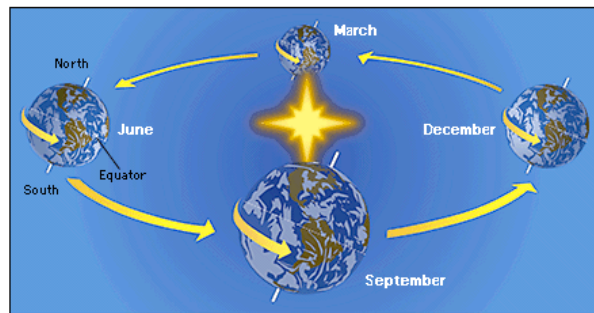
This World Book article aligns with New York Learning Standards

[View Learning Standards](#)

 **Picture**
Sun size compared to Earth

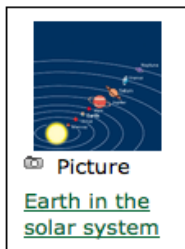
The images in this part of the article help explain the patterns that occur due to Earth's movements.

Picture: Motions of Earth
(Home Article: [Earth](#))



Earth spins around its axis once every 24 hours. This motion creates day and night. Earth also travels around the sun once every 365 days. This motion creates the year. The entire solar system revolves around the center of the Milky Way Galaxy.

Earth as a planet



Earth ranks fifth in size among the sun's planets. It has a diameter of about 8,000 miles (13,000 kilometers). Jupiter, the largest planet, is about 11 times larger in diameter than Earth. Mercury, on the other hand, has a diameter of about two-fifths that of Earth.

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Websites:

National Geographic Kids: Mission to Earth

<http://kids.nationalgeographic.com/explore/space/mission-to-earth.html>

Information and graphics on the earth and other planets in the solar system.

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.

H-R Diagram lesson plan and activity

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=429>

A collection of stars visible from Earth can be arranged and classified based on their color, temperature, luminosity, radius, and mass. This can be done using one or two-dimensional plots, including a Hertzsprung-Russell diagram of luminosity vs. temperature.

Seasons - Earth, Moon and Sun lesson plan and activity

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=468>

Observe the motions of the Earth, Moon and Sun in three dimensions to explain Sunrise and Sunset, and to see how we define a day, a month, and a year. Compare times of Sunrise and Sunset for different dates and locations. Relate shadows to the position of the Sun in the sky, and relate shadows to compass directions.

Seasons - Why Do We Have Them lesson plan and activity

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=407>

Learn why the temperature in the summertime is higher than it is in the winter by studying the amount of light striking the Earth. Experiment with a plate detector to measure the amount of light striking the plate as the angle of the plate is adjusted (and then use a group of plates placed at different locations on the Earth) and measure the incoming radiation on each plate.

Summer and Winter lesson plan and activity

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=656>

Observe the tilt of Earth's axis and the angle that sunlight strikes Earth on June 21 and December 21. Compare day lengths, temperatures, and the angle of the Sun's rays for any latitude. The tilt of the Earth's axis can be varied to see how this would affect seasons.

iPad apps:

GEO Game U.S. - by Axon Pro

Cost: Free

Geography game that includes 26 tests from 5 groups including U.S. and World Geography and the Solar System.

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.

Sun Rise and Fall - by Team Lundsgard

Cost: Free

Shows what time the sun rises and falls every day at a particular location.

Interactive Minds: Solar System - by Vasonos LLC

Cost: \$2.99

Interactive science book containing 58 pages of images, videos and interactive simulations. There is a "Lite" version available for free with less information.

NASA app - by NASA

Cost: Free

Explore NASA's latest images, videos, mission information, news, etc.

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.