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SCIENCE PARENT GUIDE – UNIT 2

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| ***IMPORTANT CONCEPTS YOUR STUDENT SHOULD KNOW AND ACTIVITIES TO DO AT HOME*** | |
| **SOLAR SYSTEM: Earth, Moon & Sun Relationship** | |
| **DESCRIPTION** | |
| In this unit, fourth grade students will explore celestial bodies of the solar system by examining patterns regarding orbits and composition. Students will study the relationship between Earth, Moon, and Sun as it corresponds to day and night, seasonal changes, and phases of the moon. Students will develop a model to support an explanation of why the length of day and night changed throughout the year. Students will also develop a model based on observations to describe the repeating patterns of the phases of the moon (new, crescent, quarter, gibbous, and full). Lastly, students will construct an explanation of how the Earth’s orbit, with its consistent tilt, affects seasonal changes. | |
| **KEY WORDS TO KNOW** | |
| * Axis- An imaginary line that runs through both poles of a planet * Orbit-the path that an object such as a planet makes as it revolves around a second object * Rotation- the motion of a planet or other object as it turns on its axis * Revolve- to move around an object on a central axis, such as the moons movement around earth or the planets movement around the sun * Revolution- The movement of any object in an orbit, such as Earth moving around the sun * Day: the time of light between sunrise and sunset * Night: the time of darkness between sunset and sunrise * Seasons- The four natural divisions of the year based on changes in temperature due to varied amounts of sunlight (both the intensity and the number of daylight hour received); caused by the tilt of Earth during revolution. * Hemisphere- Half the terrestrial glove or celestial sphere; can be divided by north and south or east and west * Tilt: to not be straight up and down; Earth is slightly tilted on its axis | * Orbit - the path that an object such as a planet makes as it revolves around a second object * Rotation - the motion of a planet or other object as it turns on its axis * Revolution - The movement of any object in an orbit, such as Earth moving around the sun * Moon - natural satellite that revolves around the Earth * Lunar- relating to the moon * Lunar Cycle/Phases- the illuminated portion of the **moon** which a person observes from the earth. The revolution of **moon** around earth makes it appear like it is changing shapes (29 ½ days) * Phases - One of the different shapes the moon seems to have as it orbits around Earth * New Moon- The Moon is not visible from Earth * Waxing Crescent- The Moon phase where less than ½ of the Moon is illuminated by the direct sunlight, creating a crescent Moon. Waxing describes seeing more and more of Moon. * First quarter- Sun illuminates exactly the right half of the side of the Moon. Sometimes call half Moon * Waxing gibbous- The Moon phase where the Moon appears to have the Sun’s light shining on more than half the right side of the moon * Full Moon- The Sun illuminates the whole side of the Moon facing Earth * Waning gibbous- occurs as the full moon changes to last quarter. Waning describes seeing less and less of the Moon. * Third (Last) quarter- The last half of the Moon phase before the new Moon * Waning crescent- The Moon phase where less than ½ of the Moon is illuminated by direct sunlight, creating a crescent Moon   **AT HOME VOCABULRY STRATEGIES**  **1**. Read aloud with your child.  **2**. Use vocabulary words in daily conversations.  **3**. Build a word wall or window.  **4**. Play simple vocabulary games.  **5.** Relate words to real life experiences.  http://1.bp.blogspot.com/-QOn2S_p5PU8/Vg5eWgC54BI/AAAAAAAAPuU/lQnA-gp1UkM/s640/vocabulary.png |

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| C:\Users\KENNEDY\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\QH0NFGU2\idea-azione-motivazione[1].png**Recommended Children’s Literature (Available at your local public library or Amazon).**  *Look Inside Space* by Rob Lloyd Jones  *Maragret and the Moon* by Lucy Knisley  *Jump Into Science: Sun* by Steve Tomecek  *I Took the Moon for a Walk* by Carolyn Curtis, illustrated by Alison Jay  *The Sun, Earth, and Moon* by Jordan Bling | | | |
| **SOLAR SYSTEM: Earth, Moon & Sun Relationship** | | | |
| **Important Concepts**  **Addressed in this Unit** | **Sample Problems** | | **How You Can Help Your Student** |
| S4E2. Obtain, evaluate, and communicate information to model the effects of the position and motion of the Earth and the moon in relation to the Sun as observed from the Earth.   1. **Develop a model** to support an explanation of why the length of day and night change throughout the year. 2. **Develop a model** based on observations to describe the repeating patterns of the phases of the moon (new, crescent, quarter, gibbous, and full). 3. **Construct an explanation** of how the Earth’s orbit, with its consistent tilt, affects seasonal changes. | 1. Draw model that explains why day and night changes throughout the year. 2. Draw and label the phases of the moon including: new, crescent, quarter, gibbous, and full. 3. Explain how the Earth’s tilt affects seasonal changes. 4. Travis noticed the moon appeared absent in the night sky. What phase of the moon did Travis observe? | | Digital Resources  Science Curriculum: STEMscopes via MyBackpack <https://launchpad.classlink.com/atlanta>  Supplemental Resource  Freckle (available via MyBackpack in August)  NASA [www.nasakids.com](http://www.nasakids.com)  Astronomy <http://www.kidsastronomy.com/stars.htm>  Study Jams Videos  [Seasons](http://studyjams.scholastic.com/studyjams/jams/science/weather-and-climate/seasons.htm)  [A Day on Earth](http://studyjams.scholastic.com/studyjams/jams/science/solar-system/day-on-earth.htm)  Day/Night Cycle Facts: <http://www.theschoolrun.com/homework-help/day-and-night> |
| **Changes to Science Standards: Students are expected to perform the practices while learning the content and understanding the crosscutting concepts.** | | | |
| **Science and Engineering Practices**  Students can use their understanding to investigate the natural world through the practices of science inquiry, or solve meaningful problems through the practices of engineering design.  **Crosscutting Concepts**  Provide students with connections and intellectual tools that are related across the differing areas of disciplinary content and can enrich their application of practices and their understanding of core ideas  **Core Ideas**  Core ideas cover the four domains: physical sciences, earth and space sciences, life science, and engineering and technology. | |  | |