

CRM 4 El Sistema del Sol, la Tierra y la Luna

Administración

- 25 days
- Nov. 13-Dec. 20
- Week 12-17

RESULTADOS ESPERADOS

Formando Conceptos

Concepts in the study of the Sun, Earth, and Moon System help explain many patterns of change we observe in the world around us. Students examine changes in the sky and build an understanding of the Earth and our place in the solar system. These concepts in this unit build a foundation for the study of Astronomy, Climate Change, and Environmental Sciences. The following make meaning valuable for learners and are investigated in this unit:

- The Sun, Earth, and Moon interact in a system and are intricately interconnected. The motion of the Sun, Earth, and moon and tilt of the Earth cause observable patterns: the apparent movement of the Sun in the sky, day/night, daily and seasonal changes in the length of shadows, seasons, phases of the moon, and the movement of stars in the night sky.
- Earth is part of a broader system: the solar system, which is a small part of the Milky Way Galaxy which is one of many galaxies in the universe.
- Gravity holds the planets in orbit around the Sun, and the gravity of various planets holds their moons in orbit around them.
- The Sun is the major source of energy for Earth, and fuels the water cycle and weather.

Transferencia: Students will observe, graph, and analyze patterns of change in both weather and objects in the sky to build an understanding of interactions among the Sun, Earth, and moon.

Entendimiento perdurable:

- El sol guía muchos de los ciclos en la Tierra.
- Podemos observar, describir y anotar objetos y patrones en nuestro cielo y en la Tierra.
- La Tierra, la luna y el sol varían en tamaño, composición, y superficie.
- Ocho planetas de diferentes tamaños, composiciones, y superficies orbitan el sol.

Preguntas Esenciales:

- ¿Cómo nos afectan los patrones y ciclos del sistema de la Tierra, la Luna y el Sol?
- ¿Cómo se posicionan los planetas en nuestro sistema solar?

Vocabulario Esencial

- atmosphere/ atmósfera
- axis/eje
- climate/clima
- condensation/condensación
- corona/ corona
- craters/cráteres
- equator/ecuador
- evaporation/evaporación
- gravity/gravedad
- ground water/agua subterránea
- ocean currents / las corrientes oceánicas
- orbit/órbita
- overhead/ aéreo, encima de la cabeza
- percolation/percolación
- high tide/marea alta
- low tide/marea baja

- phase/fase
- precipitation/precipitación
- rain gauge/pluviómetro
- revolution/vuelta
- rises/salir
- rotation/rotación
- saltwater/agua salada
- solar flares/ las erupciones solares
- solar system /sistema solar
- sunrise/salida del sol
- sunset/puesta del sol
- sunspots/ las manchas solares
- tide/ marea
- tilt/inclinación
- density /densidad

Vocabulario de apoyo

- [Vocabulario de apoyo para las escuelas primarias](#)

Requisitos de conocimiento previo del estudiante:

Students should know:

- weather is always changing and occurs locally over a short time.
- thermometers measure temperature (heat energy).
- rain gauges measure precipitation levels.
- wind vanes measure wind direction.
- many weather changes are caused by changes in air pressure systems.
- the water cycle, driven by the Sun’s energy, consists of the movement of water above and on the surface of the Earth, causing patterns and cycles in Earth’s weather.
- water evaporates from the Earth’s surface, rises and cools, condenses into precipitation, and falls again to the surface.
- water that falls to the ground collects in streams, rivers, and lakes, and eventually flows back into the oceans.
- models help us understand the relationships of the Sun, Moon, and Earth system.
- Earth rotates on its axis, causing the Sun to appear to move across the sky and creating changes in shadows throughout the day.
- tides are the alternating rise and fall in sea level with respect to the land, produced by the gravitational attraction of the moon and occur about every 12 hours.
- the Earth orbits the Sun in a 365 day cycle. (one year)
- the Earth tilts on its axis at a 23.5 degree angle. This tilt coupled with the revolution causes direct and indirect lighting in the hemispheres giving Earth different seasons.
- the moon orbits the Earth in a 28 day cycle which causes different parts of the moon to be illuminated and seen from the Earth. (moon phases)
- people cannot determine how the Solar System is put together just by observing the night sky.
- the Earth is one of 8 planets that revolve around the Sun in nearly circular orbits.
- each planet has unique characteristics and a unique position in the Solar System.

Recursos Kit del módulo de AISD, Carpeta de lecciones modelo, Investigaciones FOSS: [Magnetismo and Electricidad](#)

Libros electrónicos: Libros nivelados de ciencias de Envisions, Texto de Scott Foresman, [Recursos para el cuaderno de ciencias](#), [BrainPop Jr.](#), [Discovery Education](#), [Recursos y Estrategias de Diferenciación](#)

ELPS: Bajo el mandato del Código Administrativo de Texas (19 TAC §74.4), haz clic en el enlace [English Language Proficiency Standards \(ELPS\)](#) para proporcionar apoyo a los Aprendices del Idioma Inglés.

TEKS Conocimientos y Destrezas	Adquisición Conocimientos y Destrezas Importantes	
STAAR: RC = Área de Conocimientos; DC = Destrezas de Doble Codificación; Estándar de Preparación Esencial; Estándar de Apoyo, Conceptos son tratados en otra unidad.	Los estudiantes conocerán	Los estudiantes serán capaces de
5.8: Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:		
5.8A: <i>differentiate between weather and climate.</i> RC3	<ul style="list-style-type: none"> • Weather is always changing and occurs locally over a short time while climate is the pattern of weather in an area over time. 	<ul style="list-style-type: none"> • Differentiate between weather and climate.
5.8B: <i>explain how the Sun and the ocean interact in the water cycle.</i> RC3	<ul style="list-style-type: none"> • The water cycle processes as water cycles above, on, and below Earth’s surface. • The Sun is the major source of energy for the water cycle. • The oceans contain most of the Earth’s water. 	<ul style="list-style-type: none"> • Investigate water cycle processes. • Explain in pictures, words, and writing how water cycles. • Explain how the Sun and the ocean interact in the water cycle.
5.8C: demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the	<ul style="list-style-type: none"> • Earth rotates on its axis. • Earth’s rotation causes day and night. 	<ul style="list-style-type: none"> • Demonstrate the pattern of the Earth’s rotation. • Demonstrate day and night cycles.

<p><u>apparent movement of the Sun across the sky.</u> RC3</p>	<ul style="list-style-type: none"> • The Sun appears to move across the sky because of the Earth's rotation. 	<ul style="list-style-type: none"> • Demonstrate the Earth's rotation and the Sun's apparent motion. • Explain the day/night cycle using diagrams, models, data from their investigations, and research.
<p>5.8D: <i>identify and compare the physical characteristics of the Sun, Earth, and Moon.</i> RC3</p>	<ul style="list-style-type: none"> • Sun's characteristics. • Moon's characteristics. • Earth's characteristics. • Ways they are the same and different. 	<ul style="list-style-type: none"> • Collect data, identify characteristics of, and compare the Sun's, Earth's, and Moon's characteristics.
<p>4.8: La Tierra y el espacio. El estudiante entiende que hay patrones reconocibles en la naturaleza y entre el sistema formado por el Sol, la Tierra y la Luna. Se espera que el estudiante:</p>		
<p>4.8A: <i>mida y anote los cambios en el estado del tiempo y haga predicciones usando mapas del estado del tiempo, y símbolos y claves en mapas del estado del tiempo.</i> RC3</p>	<ul style="list-style-type: none"> • Weather is always changing and occurs locally over a short time. • Thermometers measure temperature (heat energy.) • Rain gauges measure precipitation levels. • Wind vanes measure wind direction. • Many weather changes are caused by changes in air pressure systems. 	<ul style="list-style-type: none"> • Observe, measure and record daily changes in weather over time (temperature, precipitation, wind direction and wind conditions). • Graph and compare recorded weather data in different locations. • Use weather maps, symbols, and map keys to predict weather.
<p>4.8B: <i>describa e ilustre el movimiento continuo del agua en la tierra, en la superficie y por encima de esta, durante el ciclo del agua y explique el papel del Sol como fuente principal de energía en este proceso.</i> RC3</p>	<ul style="list-style-type: none"> • The Sun, the major source of energy for Earth, is a medium sized star that provides heat and light energy for the water cycle. • The water cycle consists of the movement of water above and on the surface of the Earth, causing patterns and cycles in Earth's weather. • Water evaporates from the Earth's surface, rises and cools, condenses into precipitation, and falls again to the surface. Water that falls to the ground collects in streams, rivers, and lakes, and eventually flows back into the oceans. 	<ul style="list-style-type: none"> • Create a diagram of the Sun and its effect on Earth. • Describe and illustrate the continuous movement of water above and on the surface of Earth. • Investigate the water cycle processes through hands-on explorations.
<p>4.8C: <i>reúna y analice información para identificar secuencias y prediga los patrones de cambio en las sombras, mareas, estaciones del año y en la apariencia observable de la Luna a través del tiempo.</i> RC3</p>	<ul style="list-style-type: none"> • Models help us understand the relationships of the Sun, Moon, and Earth system. • Earth rotates on its axis, causing the Sun to appear to move across the sky and creating changes in shadows throughout the day. • Tides are the alternating rise and fall in sea level with respect to the land, produced by the gravitational attraction of the moon. • Tides occur twice a day or about 	<ul style="list-style-type: none"> • Collect and analyze data collected from observations and research, then predict the movement of the Sun in the sky and shadow formation. • Collect, analyze and predict tidal occurrence using data from tidal activity. • Collect, analyze and predict patterns of change as the Earth goes through the cycle of seasons. • Collect, analyze and predict the

	<p>every 12 hours.</p> <ul style="list-style-type: none"> • The Earth orbits the Sun in a 365 day cycle. (one year) • The Earth tilts on its axis at a 23.5 degree angle. This tilt coupled with the revolution causes direct and indirect lighting in the hemispheres gives Earth different seasons. • The moon orbits the Earth in a 28 day cycle which causes different parts of the moon to be illuminated and seen from the Earth. (moon phases) 	<p>observable appearance of the moon using models, data, and observations.</p>
<p>3.8 La Tierra y el espacio. El estudiante entiende que hay patrones reconocibles en la naturaleza y entre los objetos en el cielo. Se espera que el estudiante:</p>		
<p>3.8D: <i>identifique los planetas en nuestro sistema solar y sus posiciones con relación al Sol.</i> RC3</p>	<ul style="list-style-type: none"> • People cannot determine how the Solar System is put together just by observing the night sky. • The Earth is one of 8 planets that revolve around the Sun in nearly circular orbits. • Each planet has unique characteristics and a unique position in the Solar System. 	<ul style="list-style-type: none"> • Illustrate and describe the position of each of the 8 planets in our solar system. • Describe the unique characteristics of each of the planets.
<p>El estudio de las Ciencias se enseña a través de la perspectiva de los Procesos Científicos (TEKS 5.1-5.4) por lo tanto, los Conocimientos y Destrezas Esenciales de Texas (TEKS) deberán enseñarse en conjunto con el contenido durante el transcurso del año. Sugerencias para integrar los TEKS en cada unidad se ofrecen en el Itinerario Anual; sin embargo, los TEKS que se pueden tratar dentro de una unidad dependen en gran parte de las actividades de aprendizaje en que están participando los estudiantes. Por esta razón, el maestro debe considerar las actividades que se emplearán con los estudiantes para asegurar que todos los Procesos Científicos TEKS estén debidamente incorporados durante el curso. En el quinto grado, se recomienda a los distritos que faciliten la realización de investigaciones en el laboratorio y de campo por lo menos en 50 por ciento de tiempo de instrucción.</p>		

EVIDENCIA DE EVALUACIÓN	
Productos del trabajo del estudiante/evidencia de evaluación	
Actividades de Desempeño Académico	Otras pruebas o evidencia (ej. exámenes de unidad, exámenes con preguntas abiertas, tipo ensayo, pruebas breves, ejemplos de trabajo diario del estudiante, observaciones, etc.)
<ul style="list-style-type: none"> • Students make water cycle journals using content based vocabulary from a word bank. • Students write and perform a weather report to expand and internalize content area vocabulary. • Students track Sun’s shadows and path. • Students explore Sun’s angle and track temperature. • Students track sunrise and sunset and analyze data to formulate conclusions about how the amount of sunlight changes in a pattern during the year. • Students measure time with sundials. • Students research and present information on the planets. 	<p>Evaluación de Ciclo Corto</p> <ul style="list-style-type: none"> • <i>SCA Testing Window: December 3-7, 2012</i> <i>Tested TEKS: 5.8A, 5.8B, 4.8A, 4.8B</i> • <i>SCA Testing Window: December 13-20, 2012</i> <i>Tested TEKS: 5.8C, 5.8D, 4.8C</i> <i>TEKS 3.8D will be tested with Earth Science in Jan.</i> <p>Sugerencias Adicionales para la Evaluación</p> <ul style="list-style-type: none"> • Student science notebook • Student discussions • Teacher questioning and observations • Students demonstrate mastery of differentiating the difference between weather and climate. • Weather Calendars and Data collection • Graphs and comparisons of climate over time • Descriptions and diagrams of the water cycle including the ocean and identification of real world applications of the water cycle • Analyze pictorial representations and data to predict and recognize patterns of change in shadows, tides, seasons, and moon phases. • Student diagrams, pictures, and explanations of the apparent movement of the Sun and day/night cycles. • Solar system diagrams and/or models • Students use a T-chart to differentiate between weather and climate. • Students collect weather data over time. • Students compare the Earth, Moon, and Sun.

HERRAMIENTAS PARA LA PLANEACIÓN DE LECCIONES DE CLASE
<p>En el transcurso de la planeación de lecciones de clase, la expectativa es que los maestros tomen en cuenta consideraciones del estudiante en su totalidad como incluirán elementos que cubren todos los aspectos de diferenciación instructiva, educación especial, aprendizaje del idioma inglés, nivel de dotados y talentosos, aprendizaje social y emocional, actividad física y bienestar.</p>
<p>LECCIÓN MODELO- WEATHER AND CLIMATE</p> <ul style="list-style-type: none"> • Weather • Climate <p>Review Lesson</p> <ul style="list-style-type: none"> • Weather Maps <p>Suggested Pacing: (4 days)</p> <p>TEKS: 5.8A, 4.8A</p>

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En el transcurso de la planeación de lecciones de clase, la expectativa es que los maestros tomen en cuenta consideraciones del estudiante en su totalidad como incluirán elementos que cubren todos los aspectos de diferenciación instructiva, educación especial, aprendizaje del idioma inglés, nivel de dotados y talentosos, aprendizaje social y emocional, actividad física y bienestar.

LECCIÓN MODELO- [SUN AND OCEAN INTERACTIONS](#)

- Water, Water Everywhere
 - Currents
- Review Lessons
- Water Cycle Processes Game (optional)
- Suggested Pacing: (4 days)
TEKS: 5.8B, 4.8B

LECCIÓN MODELO- [DAY/NIGHT CYCLE AND SEASONS](#)

- Earth's Rotation and Shadows
 - Earth's Revolution
 - The Reason for the Seasons
- Review Lessons
- Tides
 - Moon Phases
- Suggested Pacing: (8 days)
TEKS: 5.8C, 4.8C

LECCIÓN MODELO- [CHARACTERISTICS OF THE EARTH, MOON, & SUN](#)

- Characteristics of the Moon
 - Characteristics of the Sun
 - Comparing the Sun, Earth, and Moon
- Suggested Pacing: (5 days)
TEKS: 5.8D

LECCIÓN MODELO- [SOLAR SYSTEM/ PLANETS](#)

- Review Lessons
- Gravity
 - Distance and Size Models of the Planets
- Suggested Pacing (4 days)
TEKS: 3.8D