

CRM 4 Sun, Earth and Moon System

Pacing

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

DESIRED RESULTS

Making Meaning

Concepts in the study of the Sun, Earth, and Moon System help explain many changes we observe in the world around us. These concepts build a foundation for the study of Astronomy, Climate Change, and Environmental Sciences. Students build an understanding of the Earth and our place in the solar system and the universe.

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.

Transfer: 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.

Enduring Understandings:

- We can observe, describe and record objects and patterns in our sky and on Earth.

Essential Questions:

- What objects and patterns can we observe in the sky and on Earth?

Essential Vocabulary

- air / aire
- breeze / brisa
- change / cambio
- cirrus/cirro
- clouds /nubes
- cloudy/nublado
- cloud coverage /cobertura nubosa
- cold /frío
- cumulus/cúmulo
- condensation/condensación
- dark / oscuro
- day/día
- evaporation/evaporación
- fall/otoño
- freezing /congelación
- hot /caliente
- light / luz
- meteorologist /meteorólogo
- moon / luna
- night / noche
- orbit / órbita
- phases / fases

- pinwheel / rehilete
- precipitation/precipitación
- rain gauge / pulviómetro
- rainy /lluvioso
- season/estación
- sky/cielo
- spring/primavera
- stars/estrellas
- stratus/estrato
- summer/verano
- Sun/Sol
- telescope / telescopio
- temperature/temperatura
- thermometer/termómetro
- water vapor/vapor de agua
- windy/ventoso
- wind/viento
- wind conditions /condiciones eólicas
- wind vane / manga de viento
- winter/invierno

Supporting Vocabulary Link

- [Elementary School Supporting Vocabulary](#)

Student Prerequisite Knowledge

Students should know:

- weather is what we currently observe happening in our sky with precipitation, clouds, temperature and wind.
- thermometers measure temperature (heat energy.)
- patterns of change occur in the clouds, moon, Sun, and stars.
- as the Earth rotates, it makes the Sun appear to move across the day sky.
- as the Earth revolves around the Sun, it makes the stars appear to move in the night sky.
- patterns occur in the cycle of the seasons and day/night.
- Earth rotates causing day/night.
- Earth revolves around the Sun at an angle, causing the seasons.
- air is all around us.
- wind is moving air.

Resources: AISD Module Kit, Model Lesson Portfolio, FOSS: [Air and Weather Investigations](#), [STEMscopes](#), eBooks: Envisions Science Leveled Readers, Scott Foresman Text, [Science Notebook Resources](#), [Weather Whiz Kids](#), [Tree House Weather Kids - University of Illinois Extension](#), [Weather Coloring Pages](#), [FOSS Duplication Masters & Resources](#), [BrainPop Jr.](#), [Discovery Education](#), [Differentiation Strategies & Resources](#)

ELPS: Mandated by Texas Administrative Code (19 TAC §74.4), click on the link for [English Language Proficiency Standards \(ELPS\)](#) to support English Language Learners.

TEKS Knowledge & Skills	Acquisition	
	Students Will Know	Students Will Be Able To
STAAR: RC = Reporting Category; DC = Dual Coded Skills; Readiness Standard ; Supporting Standard Concepts are addressed in another unit.		
2.8: Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:		
2.8A: measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data;	<ul style="list-style-type: none"> • Weather occurs locally over a short time. • Thermometers measure temperature (heat energy.) • Weather changes are caused by changes in air pressure systems. 	<ul style="list-style-type: none"> • Measure and record daily weather and changes in weather over time submerge (temperature, precipitation, wind conditions, and cloud coverage). • Graph recorded weather data and identify patterns.
2.8B: identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation;	<ul style="list-style-type: none"> • Weather can be predicted. • Weather changes from season to season. • Preparing for changes in the weather can keep us safe and prevent illnesses due to weather conditions. 	<ul style="list-style-type: none"> • Describe the importance of knowing the weather for that week and season. • Choose appropriate clothing, activities, and transportation for that week and season.
2.8C: explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions;	<ul style="list-style-type: none"> • The water cycle consists of the movement of water above and on the surface of the earth. • The Sun is the main energy source for the water cycle. 	<ul style="list-style-type: none"> • Investigate the water cycle processes through hands-on explorations. • Use content vocabulary to describe and illustrate the continuous movement of water above and on the surface of Earth.
2.8D: observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.	<ul style="list-style-type: none"> • Patterns occur in the cycle of the seasons, tides, shadows, and the observable appearance of the Moon. 	<ul style="list-style-type: none"> • Observe and record patterns in the seasons, shadows, position of the sun in the sky, and moon. • Describe the patterns they observe and record both orally and in pictorial/written form.

The study of science is taught through the lens of [Scientific Processes \(TEKS 2.1-2.4\)](#); therefore, these TEKS should be taught in conjunction with content throughout the year. Suggestions for TEKS to embed in each unit are provided in the Yearly Itinerary; however, the TEKS that can be addressed within a unit depends greatly on the learning activities in which students are engaged. Therefore, teachers must be deliberate in their choice of learning activities to ensure that all Scientific Processes TEKS are appropriately embedded within the course. In 2nd grade, districts are encouraged to facilitate laboratory and field investigations for at least 60% of instructional time.

ASSESSMENT EVIDENCE

Student Work Products/Assessment Evidence

Performance Tasks	Other Evidence (i.e. unit tests, open ended exams, quiz, essay, student work samples, observations, etc.)
<ul style="list-style-type: none"> • Suggested Dual Language Activity 1 Record daily weather for several weeks by talking about it in daily classroom routines using the sentence stem, Today’s weather is ____ . The temperature is ____ . • Suggested Dual Language Activity 2 Measure weather patterns including temperature, rainfall, wind speed, cloud formations, make a graph, and draw conclusions about patterns from the data. • Draw and label the water cycle showing how water travels through the cycle by using content vocabulary from a word bank. • Identify weather patterns including the water cycle process from diagrams and lists. • Keep a record of daily sky observations including phases of the moon, clouds, and Sun. (Do not look directly at the Sun. Students should know where it is in the sky and observe its position changes during the day.) 	<ul style="list-style-type: none"> • Science Notebook • Student Discussions • SF Lab Manual, pp. 75-76, 79-80 • Weather Calendars and Data collection • Graphs • FOSS: Air and Weather student sheets • Teacher Observations: Use of safety rules and equipment • Teacher Observations: management and use of tools • Tools foldable/web in Science Notebook • Students’ use of evidence to support explanations and claims.

LESSON PLANNING TOOLS

In the course of lesson planning, it is the expectation that teachers will include whole child considerations when planning such as differentiation, special education, English language learning, dual language, gifted and talented, social emotional learning, physical activity, and wellness.

Model Lesson- [Observing, Measuring, and Recording Weather](#)

- Weather
 - Air
 - Wind
- Suggested Pacing: (11 days)
TEKS: 2.8A

Model Lesson- [Effects of Changing Weather](#)

- Effects of Weather & Seasons
- Suggested Pacing: (5 days)
TEKS: 2.8B

Model Lesson- [Water Cycle](#)

- Clouds
 - Water Cycle
 - Condensation
 - Evaporation
 - Rain Gauges
- Suggested Pacing (5 days)
TEKS: 2.8C

Model Lesson- [*Objects in the Sky*](#)

- Day and Night: Earth's Rotation
- Moon Phases
- The Sun

Suggested Pacing (4 days)

TEKS: 2.8D