

Theme Guide

*The Sky
Above Me*



CiRCLE
PRE-K
CURRICULUM

by the
Children's Learning Institute

Table of Contents

- Theme Guide Overview** 1
- Suggested Theme Sequence** 2
- Theme Guide Components** 3
- Theme Guide Icons** 4
- Getting Started with Themes** 4
- Book Club** 4
- Book Club: The Sky Above Me** 5
- Narrative 5
- Informational 7
- The Sky Above Me** 11
- The Cloudy Sky** 12
- Whole Group & Small Group Theme Lessons** 12
- Math 12
- Science 12
- Social Studies 13
- Theme Extenders** 13
- Book & Print Reading 13
- Phonological Awareness 13
- Language & Communication 13
- Alphabet Knowledge 14
- Writing 14
- Mathematics 14
- Learning Centers** 14
- ABC 14
- Classroom Library/Listening 15
- Construction 15
- Creativity 15
- Math 15
- Pretend & Learn 15
- Science 16
- Writer’s Corner 16

Cloud in a Jar	17
Head in the Clouds	22
Recording the Weather	24
The Sunny Sky	27
Whole Group & Small Group Theme Lessons	27
Science	27
Social Studies	27
Theme Extenders	28
Book & Print Reading	28
Phonological Awareness	28
Language & Communication	28
Alphabet Knowledge	28
Writing	29
Mathematics	29
Learning Centers	29
ABC	29
Classroom Library/Listening	29
Construction	30
Creativity	30
Math	30
Pretend & Learn	30
Science	30
Writer's Corner	30
Tracking Shadows in the Sun	31
What's in the Sky?	33
The Night Sky	36
Whole Group & Small Group Theme Lessons	36
Fine Arts	36
Science	36
Social Studies	36
Theme Extenders	37
Book & Print Reading	37
Phonological Awareness	37
Language & Communication	37

Alphabet Knowledge	37
Writing	38
Mathematics	38
Learning Centers	38
ABC	38
Classroom Library/Listening	38
Construction	38
Creativity	39
Math	39
Pretend & Learn	39
Science	39
Writer's Corner	39
Day or Night	40
Pictures in the Stars	42
Shapes of the Moon	45
The Seasonal Sky	47
Whole Group & Small Group Theme Lessons	47
Science	47
Social Studies	47
Writing	48
Theme Extenders	48
Book & Print Reading	48
Phonological Awareness	48
Language & Communication	48
Alphabet Knowledge	49
Writing	49
Mathematics	49
Learning Centers	49
ABC	49
Classroom Library/Listening	49
Construction	50
Creativity	50
Math	50
Pretend & Learn	50
Science	50
Writer's Corner	51

Creating a Web	52
Response to End of Theme	54
Weather Watchers	57
What Should I Wear?	60

Theme Guide Overview

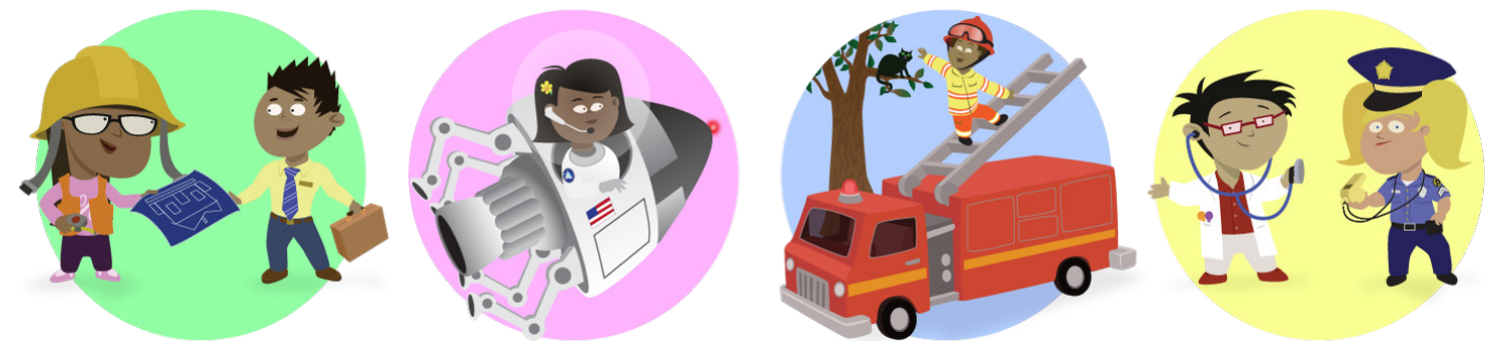
Themes provide rich opportunities for children to make lasting learning connections to a specific topic. They foster a fun and engaging learning environment that encourages children to use new vocabulary in authentic and meaningful ways.

Theme Guides work in partnership with the *Scope and Sequence* to organize meaningful, hands-on lessons and experiences around a common theme. The *Theme Guide* offers guidance for integrating theme vocabulary, books, and activities with the whole group and small group skills and lessons indicated on the weekly *Scope and Sequence*. Supplemental whole group and small group lessons directly connected to the theme are provided, along with recommendations for adding thematic materials and activities to supplement existing center materials. This curriculum is comprised of a variety of resources designed to support teachers' weekly planning and delivery of theme-embedded instruction.

Each theme addresses a set of topics, or subthemes, captured each week. Based on the needs and background knowledge of the children in your classroom, you can adjust the time spent on the different topics. For example, you may plan to spend only three days focusing on a particular topic to allow more time with another topic.

Theme Guides are flexibly designed to allow them to be used in any order, or teachers may follow a suggested sequence.

SAMPLE



Suggested Theme Sequence

Start the school year with Welcome to Pre-K!—an integrated *Scope and Sequence* and *Theme Guide*. Beginning with week 3, themes can be used in any order or teachers may follow the suggested sequence.

Theme	Topics	Scope & Sequence
I'm Me! I'm Special!	My Home and Family My Amazing Body My Five Senses My Important Feelings	Weeks 3-6
All Around My Community	Places in My Community People and Jobs in My Community Getting Around in My Community Construction in My Community	Weeks 7-10
It's Harvest Time!	Signs of Fall Harvest Harvesting Crops Bringing the Harvest Home	Weeks 11-13
The Sky Above Me	The Cloudy Sky The Sunny Sky The Night Sky The Seasonal Sky	Weeks 14-17
Animals All Around	Animal Bodies and Movements Animal Homes and Habitats Animal Babies and Diets Animal Adaptations and Habits	Weeks 18-21
I'm Healthy! I'm Safe!	My Safe and Active Body My Safe and Healthy Eating Habits My Healthy Body and Teeth	Weeks 22-24
Get Moving!	Moving Through Air Moving on Land Moving on Water	Weeks 25-27
The Earth Around Me	Land All Around Plants All Around Water All Around Caring All Around	Weeks 28-31
Creepy Crawly Critters	Critter Bodies and Movements Critter Homes and Habitats Critter Life Cycle and Diet Critter Adaptations and Habits	Weeks 32-35

Theme Guide Components

Whole Group and Small Group Theme Lessons

Whole group and small group lessons directly support each theme topic and are intended to supplement the weekly *Scope and Sequence*. When using the suggested theme sequence, you will see that some lessons are indicated in both the *Theme Guide* and the *Scope and Sequence* because they match the target skill(s) for the week and also support the theme. Following the suggested theme sequence offers the benefit of aligning weekly *Scope and Sequence* Target Lessons with theme content.

Theme Extenders

The Theme Extenders section includes suggestions on how to provide meaningful connections between the learning objectives in the weekly *Scope & Sequence* and the learning objectives in the *Theme Guide*. Begin by looking at the *Scope and Sequence* for skills and lessons to be taught. Compare the *Scope and Sequence* lessons to the Theme Extenders for ideas on how to capture elements of the theme in the *Scope and Sequence* lessons. A variety of Theme Extender ideas are included, and not all ideas will match the focus skill(s) of the *Scope and Sequence*. Select carefully when planning.

Learning Centers

The *Theme Guide* provides recommendations for eight key learning centers. Each center provides a different purpose for learning:

1. ABC
2. Construction
3. Creativity
4. Classroom Library/Listening
5. Math
6. Pretend and Learn
7. Science
8. Writer's Corner

Each theme topic provides activity choices to reinforce and extend learning objectives. The suggested activities are included to assist you with adding to or replacing current center choices. When planning, incorporate lesson activities from the *Theme Guide* as well as the *Scope and Sequence*. Provide choices of activities in centers, and allow children to create, experiment, discover, and ask questions about the activities of their choosing.

Teach new activities during circle time (whole group) or small groups prior to adding to centers. This gives supported opportunities to observe, explore, and practice using new materials in a purposeful way before working independently. You can also plan time to join children in centers with new activities to promote higher levels of learning, language, and engagement. Incorporate theme-related books and writing materials into centers. For more information, refer to the [Writing in Centers](#) lesson in the CIRCLE Activity Collection at www.CLIEngage.org.




More About Pretend and Learn

The *Theme Guide* provides suggestions on how to transform the Pretend and Learn center into a completely new environment inspired by the theme. This change of environment will provide opportunities for play-based, experiential learning while also facilitating children's use of new vocabulary in meaningful contexts. Model and role-play the many interactions and experiences possible in that environment. Read books about the environment to help children build background knowledge and learn new vocabulary to integrate into their play. For more

information, refer to [Building Language through the Dramatic Play Center](#) in the CIRCLE Activity Collection.

The Pretend and Learn Center is a play environment that can provide rich opportunities for children to practice and apply new language in a low-risk setting. This can be especially beneficial for children learning English. Thoughtful planning and preparation of this center can facilitate language experiences that benefit English learners and all children.

Theme Guide Icons

-  Indicates **notes or tips** for preparing and delivering lessons or activities.
-  Identifies lessons with **video examples**. Visit the digital lesson in the CIRCLE Activity Collection at www.CLIEngage.org to view these lessons in action with children.
-  Indicates **songs and rhymes** which can be found in *The Complete Book of Rhymes, Songs, Poems, Fingerplays, and Chants* by Jackie Silberg and Pam Schiller.

Getting Started with Themes

1. **Using both the *Theme Guide* and the *Scope and Sequence*, strategically embed the theme topics into whole group, small group, and center experiences:**
 - read alouds
 - focus vocabulary
 - lesson activities
 - manipulatives
2. **Prepare and collect materials needed for your theme plans:**
 - books
 - props and decor
 - manipulatives
 - print for display and labeling
 - letter wall vocabulary cards with pictures
3. **Adjust the classroom environment to reflect the theme:**
 - Incorporate theme materials into multiple centers
 - Transform the Pretend and Learn center into a theme-related environment
 - Hang theme decor and print around the classroom

Book Club

The Book Club is an expansive list of narrative and informational texts that complement themes. This resource is unique for each theme and is located at the front of each *Theme Guide*. You may wish to refer to the Book Club list as you gather books from your school and classroom libraries that address theme topics. A short list of suggested read alouds is also included within each theme topic.

Book Club: The Sky Above Me

Narrative			
English Title	English Author	Spanish Title	Spanish Author
<i>All About Weather: A First Weather Book for Kids</i>	Huda Harajli		
<i>Bear Feels Scared</i>	Karma Wilson		
<i>City Dog, Country Frog</i>	Mo Willems		
<i>Cloudette</i>	Tom Lichtenheld		
<i>Flashlight</i> (wordless book)	Lizi Boyd	<i>Flashlight</i> (wordless book)	Lizi Boyd
<i>Float</i> (wordless book)	Daniel Miyares	<i>Float</i> (wordless book)	Daniel Miyares
<i>Gilberto and the Wind</i>	Marie Hall Ets	<i>Gilberto y la viento</i>	Marie Hall Ets
<i>Good Day, Good Night</i>	Margaret Wise Brown	<i>Buen día, buenas noches</i>	Margaret Wise Brown
<i>Good Morning / Buenos Días</i>	Meritxell Martí	<i>Good Morning / Buenos Días</i>	Meritxell Martí
<i>Good Night / Buenas Noches</i>	Meritxell Martí	<i>Good Night / Buenas Noches</i>	Meritxell Martí
<i>Good Night, Gorilla</i>	Peggy Rathmann	<i>Buenas noches, Gorila</i>	Peggy Rathmann
<i>Goodbye Autumn, Hello Winter</i>	Kenard Pak		
<i>Happy Birthday, Moon</i>	Frank Asch	<i>Feliz cumpleaños, Luna</i>	Frank Asch
<i>Hello, World! Weather</i>	Jill McDonald		
<i>I am a Bunny</i>	Richard Scarry	<i>Soy un conejito</i>	Richard Scarry
<i>In the Town All Year 'Round</i>	Rotraut Susanne Berner		
<i>It Looked Like Spilt Milk</i>	Charles Shaw		

Narrative			
English Title	English Author	Spanish Title	Spanish Author
<i>It's Raining</i>	Gail Gibbons		
<i>Let It Rain</i>	Maryann Cocca-Leffler		
<i>Little Cloud</i>	Eric Carle	<i>Pequeña nube</i>	Eric Carle
<i>Matthew and the Color of the Sky</i>	Rocío Martínez	<i>Matías y el color del cielo</i>	Rocío Martínez
<i>Moonbear's Shadow</i>	Frank Asch		
<i>Moonbear's Skyfire</i>	Frank Asch		
<i>My Shadow</i>	Robert Louis Stevenson		
<i>Papa, Please Get the Moon for Me</i>	Eric Carle	<i>Papá, por favor, bájame la luna</i>	Eric Carle
<i>Picture the Sky</i>	Barbara Reid		
<i>Rain!</i>	Linda Ashman	<i>¡Lluvia!</i>	Linda Ashman
<i>Rain</i>	Carol Thompson	<i>Lluvia</i>	Carol Thompson
<i>The Rain Came Down</i>	David Shannon	<i>Y siguió lloviendo</i>	David Shannon
<i>A Rainbow of My Own</i>	Don Freeman		
<i>Raindrop, Plop!</i>	Wendy Cheyette Lewison		
<i>Shapes in the Sky</i>	Josepha Sherman		
<i>Skip Through the Seasons</i>	Stella Blackstone	<i>Un recorrido por las estaciones</i>	Stella Blackstone
<i>Sky Color</i>	Peter H. Reynolds		
<i>The Snowy Day</i>	Ezra Jack Keats	<i>Un día de nieve</i>	Ezra Jack Keats
<i>Stars</i>	Mary Lyn Ray and Marla Frazee		
<i>Storm is Coming</i>	Heather Tekavec		

Narrative			
English Title	English Author	Spanish Title	Spanish Author
<i>Sunshine and Snowballs</i>	Margaret Wise Brown	<i>Rayos de sol y copos de nieve</i>	Margaret Wise Brown
<i>Touch the Brightest Star</i>	Christie Matheson		
<i>Tree: Seasons Come, Seasons Go</i>	Britta Teckentrup	<i>Las 4 estaciones desde el gran árbol</i>	Britta Teckentrup
<i>The Weather</i>	Gladys Rosa-Mendoza	<i>El tiempo</i>	Gladys Rosa-Mendoza
<i>What Kind of Weather?</i>	Dona Rice	<i>¿Qué tipo de tiempo?</i>	Dona Rice
<i>Worm Weather</i>	Jean Taft		
<i>The Wind Blew</i>	Pat Hutchinson		
		<i>Las estaciones</i>	Amy White
		<i>Linus y las estaciones</i>	Susanna Isern y Glòria Falcón

Informational			
English Title	English Author	Spanish Title	Spanish Author
<i>All the Colors of the Rainbow</i>	Allan Fowler		
<i>Changing Seasons</i>	Sian Smith		
<i>Clouds</i>	Erin Edison	<i>Nubes/Clouds</i>	Erin Edison
<i>A Cloudy Day</i>	Robin Nelson	<i>Un día nublado</i>	Robin Nelson
<i>Day and Night</i>	Robin Nelson	<i>Día y noche</i>	Robin Nelson
<i>Explore My World: Clouds</i>	Marfe Ferguson Delano		
<i>I Feel Fall Weather</i>	Mari Schuh		

Informational			
English Title	English Author	Spanish Title	Spanish Author
<i>Let's Explore the Stars</i>	Walt K. Moon	<i>Exploremos las estrellas</i>	Walt K. Moon
<i>Light Makes a Rainbow</i>	Sharon Coan	<i>La luz forma un arco iris</i>	Sharon Coan
<i>The Little Raindrop</i>	Joanna Gray		
<i>Moon</i>	Melanie Mitchell		
<i>The Moon</i>	Carmen Bredeson		
<i>The Moon</i>	Martha E. H. Rustad	<i>La luna</i>	Martha E. H. Rustad
<i>The Moon</i>	Thomas K. Adamson	<i>La luna</i>	Thomas K. Adamson
<i>The Night Sky</i>	Robin Nelson	<i>El cielo de noche</i>	Robin Nelson
<i>Our Stars</i>	Anne Rockwell		
<i>Rainbow</i>	Marion Dane Bauer		
<i>Rainbows</i>	Martha E. H. Rustad		
<i>Rainbows</i>	Precious McKenzie	<i>Arco iris</i>	Precious McKenzie
<i>Seasons</i>	Robin Nelson	<i>Estaciones</i>	Robin Nelson
<i>The Seasons</i>	William Rice	<i>Las estaciones</i>	William Rice
<i>Shadows</i>	Sharon Coan	<i>Sombras</i>	Sharon Coan
<i>A Stroll Through the Seasons</i>	Kay Barnham		
<i>Summer Days and Nights</i>	Wong Herbert Yee		
<i>Sun</i>	Marion Dane Bauer		
<i>The Sun and the Moon</i>	Carolyn Cinami DeCristofano		
<i>The Sunlight</i>	Erin Edison	<i>Luz del sol</i>	Erin Edison
<i>A Sunny Day</i>	Robin Nelson		

Informational			
English Title	English Author	Spanish Title	Spanish Author
<i>Weather (National Geographic Readers)</i>	Kristin Baird Rattini		
<i>Weather (TIME for Kids)</i>	Dona Herweck Rice	<i>El tiempo (TIME for Kids)</i>	Dona Herweck Rice
<i>Weather in Spring</i>	Martha E. H. Rustad		
<i>Weather in Winter</i>	Jenny Fretland VanVoorst	<i>El clima en el invierno</i>	Jenny Fretland VanVoorst
<i>What Does Sunlight Do?</i>	Jennifer Boothroyd		
<i>What is the Weather?</i>	Nellie Wilder	<i>¿Cómo está el tiempo?</i>	Nellie Wilder
<i>What Makes a Shadow?</i>	Clyde Robert Bulla		
<i>What the Sun Can Do (TIME for Kids)</i>	Sharon Coan	<i>Lo que puede hacer el sol (TIME for Kids)</i>	Sharon Coan
<i>What's the Weather Today?</i>	Allan Fowler		
<i>Who Likes Rain?</i>	Wong Herbert Yee		
<i>Wind</i>	Erin Edison	<i>Viento</i>	Erin Edison



Suggested time: 4 weeks

Purpose:

This theme unfolds across three topics:

- 1 The Cloudy Sky
- 2 The Sunny Sky
- 3 The Night Sky
- 4 The Seasonal Sky

Topics in The Sky Above Me focus on the importance of each object in the sky and how these objects impact our lives. Children will investigate the different types of clouds and the weather they bring, the important role of the sun in providing light and heat for the Earth, how the moon lights up the night sky, and seasonal changes that occur each year.

Depending on the needs of the children in your class, the length of time that you spend on each topic may vary. For example, it may take a little longer to teach the essential ideas in "The Sunny Sky" than those in "The Seasonal Sky." Adjust and plan for what will work best in your class.

Pretend and Learn Center:

During this theme, the Pretend and Learn Center will be transformed into a TV station's weather reporting stage. Guidance has been provided for creating fun and meaningful play experiences to reinforce vocabulary and key ideas about the sky, weather, and seasons.



The Cloudy Sky

Essential Ideas:

- Clouds are made of tiny droplets of water.
- Clouds can be seen during the day and during the night.
- The wind moves clouds and can change their shapes.
- Different types of clouds bring different types of weather.

Whole Group & Small Group Theme Lessons

Select from these whole and small group lessons to supplement those indicated on the *Scope and Sequence*.

Math

- **Recording the Weather:** This activity can be adapted to focus on any kind of weather. You might also collect weather data every day throughout the theme, graphing each week or at the end of the theme.

TPG V.A.5., V.E.2.

Science

- **Cloud in a Jar**
- **Head in the Clouds**
- Read a book about weather and discuss the types of weather clouds can bring. Create a list, with pictures, of types of weather discussed. Examples: wind, snow, rain, thunder, fog
- ★ Children learning English can benefit by repeating the names of various types of weather, while looking at the pictures. This can be turned into a game after teaching the words:

point at a picture and have children name the type of weather, or vice versa.

- **Wind Investigation:** One at a time, place different objects in front of a small table fan to determine if the items will move in the wind. Discuss the characteristics of the objects that are easily moved by the wind versus the objects that do not move in the wind, and how clouds can also be moved by the wind. Examples: rock, marker, piece of wood, paper, feather, leaf

- ★ Provide pictures of each object in the investigation, yes/thumbs up header card, and no/thumbs down header card. Display each object on a chart under the correct header card to show whether it was moved by the fan.

TPG VI.A.1., VI.A.2., VI.A.4., VI.C.2., VI.C.3., VIII.A.1., VIII.B.1.
EL TPG II.D.3., II.D.6.

Social Studies

- Explain the job of a meteorologist and elaborate by showing pictures or short video clips of meteorologists in action. Point out the different tools that meteorologists use. Examples: maps, pointers, thermometers
- ★ In selecting clips, be sensitive to children's past experiences with weather. For example, if children have experienced hurricanes or tornadoes, do not include clips that show extreme weather events.

- Have children take turns role-playing as meteorologists, using appropriate props and materials. Refer to the Pretend and Learn Center information (below) for ideas.

TPG VII.B.3., VIII.C.1.

Theme Extenders

Consider ways to use theme-related materials and vocabulary during whole group and small group lessons from the *Scope and Sequence*. Suggestions are included below.

Book & Print Reading

Suggested Read Aloud Titles:

- *Cloulette* by Tom Lichtenheld
- *Explore My World—Clouds* by Marfe Ferguson Delano
- *The Little Raindrop* by Joanna Gray
- *What's the Weather Today?* by Allan Fowler
- *The Wind Blew* by Pat Hutchins
- ★ See Book Club list for a more expansive selection of theme-related books.

Read Together:

- Copy "Cloud" onto chart paper. Read and reread it over several days, having children act it out. Use a pointer to track the words while reading.
- ★ Add a picture for at least one word per line to help children remember the words as you read together.

TPG II.A.1., II.B.1., II.D.5., III.A.1., III.A.3., III.D.3.
EL TPG II.D.6.

Phonological Awareness

Use theme-related vocabulary with the activities from the *Scope and Sequence* to practice PA skills.

Children can:

- Blend onset and rime
Examples: cl-oud, w-ind, st-orm
- Blend phonemes
Examples: s-k-y, r-ai-n
- ★ When pronouncing phonemes, remember to pronounce each sound rather than each letter. Practice saying sounds crisply and cleanly, without an added schwa (an uh) after the sound.

TPG III.B.8., III.B.9.
EL TPG II.C.3.

Language & Communication

Vocabulary:

cloud	float
rain	meteorologist
sky	storm
weather	wind
droplet	

Songs, Rhymes, & Chants:

From *The Complete Book of Rhymes, Songs, Poems, Fingerplays and Chants* by Jackie Silberg and Pam Schiller

- “April Clouds”
- “Cloud”
- “It’s Raining”
- “Itsy Bitsy Spider”
- “A Thunderstorm”

Other Activities:

- Give clues about a specific type of weather for children to name. If needed, display pictures to use as hints. Example: “I come out of the clouds and make the ground wet” (rain).

TPG II.A.1., II.D.5.

EL TPG II.D.6.

Alphabet Knowledge

- Raindrop Match: Draw 2-3 clouds on construction paper and label each with a different review letter. Draw and cut out raindrops labeled with corresponding uppercase and lowercase letters. Children can then match raindrops to the correct clouds.

- ★ Encourage verbalization of letter names and sounds as children sort and match letters.

TPG III.C.1., III.C.2., III.C.3.

Learning Centers

Suggestions are included below to assist with adding to or replacing current center choices. Any activities from the *Scope and Sequence* may also be added to centers.

ABC

- Add Raindrop Match (see Theme Extenders for description) after introducing to class.
- Provide letters written on raindrop or cloud cutouts, to be used in playing

name games and practicing alphabet activities from the *Scope and Sequence*.

TPG III.C.1., III.C.2., III.C.3., IV.C.1.

Writing

For modeled/shared writing lessons, use topics related to clouds, rain, and weather.

Examples:

- Looking at the clouds and finding different shapes or objects
- Playing outside/inside on a rainy day
- Flying a kite or windsock on a windy day

TPG IV.B.1., IV.B.2.

Mathematics

Provide theme-related opportunities to practice target math skills from the *Scope and Sequence*.

For example, children can:

- Create shape clouds using stretched or unrolled large cotton balls
- Sort clouds formed like basic shapes
- Create patterns or sort using cutouts of weather icons such as clouds, raindrops, or lightning

TPG V.C.1., V.C.2., V.E.1., V.E.3.

Classroom Library/Listening

- Provide a variety of narrative and informational texts about clouds and weather. Be sure to include books from read alouds.
- Encourage children to look through books to locate and name different types of weather that clouds can bring.

- ★ Attach different weather pictures to craft sticks for children to select and use as visual reminders when locating and naming types of weather.

TPG II.A.3., II.B.1., II.D.5., III.A.1., III.A.3.

EL TPG II.A.3., II.D.6.

Construction

Cloud Scenes:

- Provide materials to construct different weather scenes using white and gray cotton balls (clouds or snow), yellow pipe cleaners (lightning), and blue or clear gems or snap cubes (rain or snow).
- Include pictures of different types of weather for children to reference.
- Provide writing materials so children can draw weather scenes they have created, if desired.

TPG I.C.2., I.C.7., II.B.2., IV.A.1., VII.C.1., IX.B.1., IX.B.2.

Creativity

- Rainy-Day Umbrella: Provide paper plates cut in half, markers, paint, pipe cleaners, and other craft items for children to create and decorate rainy-day umbrellas.

Windsock: Provide markers, crayons, construction paper, paper streamers, glue sticks, tape, and yarn. Demonstrate how to decorate and personalize the construction paper, roll it, and tape it. Then show how to attach streamers to the bottom with glue sticks. Yarn may be used for a handle at the top.

- ★ Allow children to take their windsocks outside to explore how they move in the wind.

TPG VIII.A.1., VIII.A.2., IX.B.1.

Math

Add math activities from Theme Extenders once they have been introduced to the class.

TPG V.C.1., V.C.2., V.E.1., V.E.3.

Pretend & Learn

Props to create a TV station at a weather channel:

- microphone
- keyboard
- video camera (real or pretend)
- pointers
- dresses
- dress shirts and ties/blazers
- glasses
- notepads and pens
- weather books
- large map
- five-day forecast board

- ★ The board can be created by using painters' tape on an area of wall or white board. Section off five rectangles and label with the days of the week.

- cloudy, stormy, windy, rainy, foggy, and snowy weather icons to attach to map and forecast board

- ★ Use hook-and-loop fasteners so children can easily attach and detach icons, as desired.

Activities:

Children can role-play as people working at the TV station. Possibilities include:

- Camera Operators: setting up microphones and cameras, filming meteorologists giving weather reports, moving camera to follow meteorologists

- Meteorologists: dressing in professional clothing, using microphones to give weather reports, changing weather icons on map and forecast board, writing or typing out notes for weather reports
- Director: giving instructions to meteorologists and camera operators, telling the meteorologists when to begin/stop reporting, asking meteorologists to give the report a new way
Examples: Give the report more slowly; use a louder voice.

TPG I.C.4., I.C.7., II.B.2., III.A.3., IV.A.1., VII.B.2., VII.B.3., VIII.C.1.

Science

- Add materials from **Head in the Clouds** and **Cloud in a Jar** (see Whole Group and Small Group Lessons) after introducing them to the class.
- ★ Be sure to reinforce appropriate use and safety of materials before placing them in the center.
- Provide books about the shapes of clouds and different cloud types.
Examples: *Shapes in the Sky* by Josepha Sherman, *Little Cloud* by Eric Carle, *It Looked Like Spilt Milk* by Charles Shaw

TPG VI.A.1., VI.C.2., VIII.B.1.

Writer's Corner

- Prompt children to draw/write about times they played in or got wet in the rain.
- ★ Add topic word cards with pictures to use as references for drawing and adding labels, as appropriate. To add interest, provide pens and pencils with different weather icons glued to the top.
Examples: raindrop pen, lightning pencil

TPG IV.A.1., IV.A.2., IV.C.2., IV.C.3.

Cloud in a Jar

Children will observe, record, discuss, and identify some of the conditions that cause clouds to form by investigating a model of a cloud in a jar.

Head Start Alignment

Goal P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events).

PreK Guidelines Alignment

VI.A.1. Child observes, investigates describes, and discusses properties and characteristics of common objects.
VI.C.2. Child identifies, observes, and discusses objects in the sky
VIII.B.1. Child participates in classroom music activities including singing, playing musical instruments, and moving to rhythms.

Kindergarten TEKS Alignment

§112.11(b)(2)(E) communicate observations about simple descriptive investigations.
§112.11(b)(5)(B) observe, record, and discuss how materials can be changed by heating or cooling.
§117.103(b)(3)(A) sing songs and play musical games, including rhymes, folk music, and seasonal music.

Materials

- one clear 16- to 32-ounce glass jar with lid
- one-third to one-half cup of hot water (not boiling)
- microwave-safe pitcher/measuring cup
- aerosol hairspray*
- ice
- paper towels
- blue food coloring (optional)

*hairspray must be aerosol

Preparation

Before doing this activity with children, read through the teacher background information, try the activity, and practice the song with hand gestures.

Background information for teachers:

For a cloud to form you need three things:

- warm, moist air or water vapor
- a cooling process
- a cloud condensation nucleus or something for a water droplet to condense onto like a dust particle (a place for a water droplets to land)

How this activity works:

- The warm moist air or water vapor is created when you trap the hot water in the jar. Because warm air rises, the water vapor rises to the top of the jar and meets up with the cool air made by the ice cubes.
- The ice cubes represent the cooling process. The top of the jar is like the colder temperatures in the upper atmosphere. As the air gets colder, the tiny droplets of water in the air move slower.
- The tiny water droplets attach to or land on even tinier particles of dust, smoke, pollution etc. The microscopic particles in the aerosol hairspray provide a place for water droplets to collect and form cloud droplets. When you have enough cloud droplets, you can see a cloud!

Directions

“Did you know that every cloud you see in the sky is made of very tiny droplets of water that attach to even tinier things high up in the sky like dust, smoke, and pollen? But how do those tiny droplets make a cloud?”

“First, let’s learn a song about how those water droplets form, or make, a cloud.” See the hand gestures that follow. Teach the song with the hand gestures and sing it several times with the children.

“The Cloud Song”

Sung to the tune of “Are You Sleeping?”/“Frère Jacques”

Warm air rises, warm air rises

(Are you sleeping, are you sleeping)

With water in it, with water in it.

(Brother John, Brother John)

As the air gets cooler, droplets land on dust

(Morning bells are ringing, Morning bells are ringing)

To form a cloud. To form a cloud.

(Ding ding dong, ding ding dong)

“This song tells us a little about how a cloud is made. But let’s think like scientists now. As scientists, we can *investigate* or look closely at things to learn about them. Before scientists investigate something, they have a question they try to answer. Today, as

scientists, we will ask this question: How does a cloud form? Say that question with me: How does a cloud form?”

“To help us answer our question of how a cloud forms, we will make a cloud in a jar.”

Before beginning the investigation, explain what happens in real life when a cloud forms. Use the verses from the song and the hand gestures to make this connection.

You might say	Song verse	Hand gestures
“The cloud that will form in the jar is like what happens in real life. But it’s very hard to see a real cloud form. In the real world, warm air is carrying water droplets up into the sky every day.”	<i>Warm air rises, warm air rises</i> <i>With water in it, with water in it</i>	hands palm down gently sway back and forth at hip level and rise slowly as hands reach chest level, wiggle fingers as hands sway left to right to represent the water droplets in the air
“As the warm air rises higher and higher, it starts to cool off because the sky is cold.”	<i>As the air gets cooler</i>	cross arms and shiver
“As the warm air cools, the droplets of water start to land on even tinier bits of things floating in the air like smoke and dust.”	<i>Droplets land on dust</i>	with hands slightly above head level, pinch index finger tip and thumb together forming an okay sign; alternate one hand and then the other doing this randomly in the air
“At first you can’t really see a cloud forming. But as more and more water droplets attach to more and more bits of things like smoke and dust in the sky, we begin to see a cloud forming and getting bigger as more droplets of water attach to those tiny bits of things in the air.”	<i>To form a cloud, to form a cloud</i>	with hands still above head level, cup hands as if holding a beach ball; make slow, exaggerated movements as if the ball is getting blown bigger breath by breath

“Now let’s do the investigation!”

- **“First, I’ll put some water in this jar. This water is very hot so that the water droplets can rise in the jar. If the water were cold, it would stay at the bottom of the jar.”**
- **“Next, I’ll quickly spray hairspray inside the jar and put the lid on. The hairspray will be like the smoke or dust on which tiny droplets of water will form.”**
- **“Then, we will put ice on the top of the jar. The ice will make the air in the top of the jar cold like the cold air up high in the sky where we see clouds.”**

“As we make the cloud in a jar, things will happen quickly. We need to look closely and talk about what we see happening.”

Investigation Steps:

- Pour hot water into the jar.
- Quickly spray in hairspray for a count of two seconds and screw on the lid.
- Allow children to place several cubes of ice on the lid. Encourage children to make observations. Remind children that as the warm air gets cooler, the water droplets in the air can land on the tiny bits of hairspray.

You might ask:

- **“What do you think the air in the jar near the water feels like?”**
- **“What do you think the air in the jar near the lid covered in ice feels like?”**
- **“What is moving up from the water?”**
- **“As the water droplets get cooler, what can they land on?”**
- **“Do you see anything moving in the jar? Tell me what you see.”**
- **“What do you notice about the cloud forming?”**

After about one minute, open the lid and release the cloud. Allow children to touch the cloud. Avoid blowing on it as it will dissipate quickly.

“We just saw a cloud form in a jar! This helped us learn about how clouds form in the sky. Let’s sing the song again to help us remember how a cloud is made.” Lead children in singing “The Cloud Song.”

Scaffolding

Provide the “just right” amount of help to make it possible for the child to get to the next skill level. Based on a child’s response, you can adjust your level of assistance by simplifying or adding challenge.

Upward scaffold: **“What do you think would happen if we used cold water instead of hot water in this investigation?”**

Upward scaffold: **“What do you think would happen if we didn’t put any ice on top of the jar?”**

Downward scaffold: If the child does not know what a cloud is, point to one outside the window or show a picture on a computer.

Downward scaffold: If a child has difficulty with the concept that warm air rises, pour hot water into one cup and room temperature water in another cup. Have the child put their hands over the openings and feel the difference. Explain that the hand over the hot water feels wet because the warm air rose and stuck to their hand.

Teacher Tips

How does this model of a cloud forming work? Some of the warm water that you poured into the jar turned to water vapor and rose to the top of the jar. The top of the jar is cool because of the ice on top. This mimics the cold atmosphere in the sky. As the water vapor cools, it condenses. A cloud can form if the tiny droplets of condensation have a particle to attach to, like the tiny particles in the hairspray. Outside of this experiment, water droplets would condense onto microscopic particles of dust, pollen, volcanic ash, pollution, etc.

We recommend doing this investigation during small group time so that all children get an opportunity to see the cloud form. You could sing the song in whole group before moving

to small groups. You could do the investigation in whole group if you have help from other adults to pour the water, spray the hairspray, and facilitate the discussion.

Consider reading aloud a book about clouds during a different part of the day or the day before this activity.

El ciclo del agua/The Water Cycle by Helen Frost

Clouds by Marion D. Bauer

Water is Water by Miranda Paul

Consider setting up a smartphone or tablet with a camera and recording what happens inside the jar. This way, children can watch it multiple times as you discuss or before they draw what happened in the jar.

You may choose to repeat the investigation. You can pour the old water back in the measuring cup and reheat it or heat fresh water. For differing results, use cold water or just slightly warmed water. Using warm water or cold water will result in little to no cloud formation. Allow children to experience this and compare the different results.

Warn children that the jar will get hot at the bottom. Explain that you will pour the hot water and handle the jar. Encourage the children to stay still while you are handling the hot water. Cup your hand around the mouth of the jar as you spray the hairspray in order to keep it aimed inside the jar and away from the children. Also, place your hand over the mouth of the jar after spraying until you can quickly put the lid to the jar. Screw the lid securely but not too tightly. At this time, children can help place ice cubes on top of the lid.

If the cloud does not form in the jar, you have either not enough water or too much water, the water is not hot enough, or you did not use enough hairspray.

Head in the Clouds

Children will observe clouds and recreate the cloud shapes they see.

Head Start Alignment	PreK Guidelines Alignment	Kindergarten TEKS Alignment
Goal P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events).	VI.C.2. Child identifies, observes, and discusses objects in the sky. VIII.A.1. Child uses a variety of art materials and activities for sensory experience and exploration.	§111.2(b)(2)(C) count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order. §112.11(b)(8)(C) observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.

Materials

- paper or science journals
- pencils
- blue or black construction paper
- white paint
- paintbrushes
- glue
- cotton balls

Preparation

Prepare tables or the art center with materials. If children do not have journals for daily writing, make them a science journal with a few sheets of paper. Become familiar with clouds by reading the table.

Common cloud types		
<i>Cirrus</i>	<i>Cumulus</i>	<i>Stratus</i>
<ul style="list-style-type: none"> • thin and wispy sheets • look white because they are made of ice crystals • a clue that bad weather is coming 	<ul style="list-style-type: none"> • large • fluffy like cotton • bright white • can be thick and tall • flat bottoms 	<ul style="list-style-type: none"> • thick • gray • look like fog • produce light, drizzly rain or snow

Note: The prefix nimbo and suffix nimbus indicate a rain cloud (for example, cumulonimbus clouds are large, fluffy rain clouds).

Children have many misconceptions about clouds.

Clouds are made of cotton, wool, or smoke. (They are made of water droplets.)

Rain comes out of holes in clouds.

Rain is clouds sweating.

It rains when clouds melt.

Clouds move because we move.

Clouds come from above the sky.

Directions

On a day with many cumulus clouds, take children outside to observe clouds. If children do not know what a cloud is, point to one and explain to that clouds are the white fluffy things that we see in the sky. Then talk about clouds: **“Look at the clouds! Sometimes we see white fluffy clouds in the sky, but other times we see dark and stormy clouds. Every cloud you see is made of tiny droplets of water. When clouds get too full of water, the water falls from the clouds. We call that falling water *rain*. Clouds are very important because they bring people, plants, and animals water to drink. Sometimes when you look at clouds, you can see shapes that look like animals or people! Let’s look at the clouds. When you see an interesting cloud, draw it in your science journal. Good scientists always write down or draw what they see. When we get back inside, we’ll do an art project to recreate what you saw!”**

Give children time to look at the clouds, but watch carefully to make sure children aren’t staring into the sun. Model describing what you see using words like *fluffy, thin, feathery, layered, big, small, flat, white, gray*. Circulate and support children as they observe and draw. Even if you don’t see the figure the child is describing, show interest in their ideas. Have children record their observations in their science journals.

Back inside, have children recreate the cloud shapes. Allow time for children to draw and paint, or make a picture with cotton balls. Encourage children to describe the clouds using some of the vocabulary words you modeled. You might ask, **“Elora, is your cloud fluffy or flat? Is it white or gray?”**

While children work, ask questions such as:

“What do you think makes the clouds move?”

“If a cloud keeps getting darker, what do you think will happen next?”

“What are clouds made of?”

“What does it mean when there are no clouds?”

“What happens to clouds at night?”

Allow time for children to share their observations and artwork in the Author’s Chair. Compare their journal drawing to their final project.

Scaffolding

Provide the “just right” amount of help to make it possible for the child to get to the next skill level. Based on a child’s response, you can adjust your level of assistance by simplifying or adding challenge.

Upward scaffold: “If there are no clouds in the sky, could it rain?”

Downward scaffold: “Can you point to the clouds you are looking at? Does it look like a shape you know?” or “Do your clouds look like an animal or person?”

Teacher Tips

Read a book to engage children in learning about clouds.

Shapes in the Sky by Josepha Sherman

It Looked Like Spilt Milk by Charles G. Shaw

Carefully shredding cotton balls will give the appearance of cirrus clouds.

Recording the Weather

Children will collect data to create a picture graph.

Head Start Alignment

Goal P-MATH 3. Child understands the relationship between numbers and quantities.
Goal P-MATH 4. Child compares numbers.

PreK Guidelines Alignment

V.A.5. Child counts up to 10 items and demonstrates that the last count indicates how many items were counted.
V.E.2. Child collects data and organizes it in a graphic representation.

Kindergarten TEKS Alignment

§111.2(b)(8)(B) use data to create real-object and picture graphs.
§111.2(b)(8)(C) draw conclusions from real-object and picture graphs.

Materials

- chart/butcher paper
- markers

Preparation

Before presenting this activity, be sure that the children have collected one to three weeks, worth of data for the type of weather that you would like to graph.

Introduce

“For the past few weeks we have been keeping track of our sunny days. Today we are going to use that information to create a picture graph based on the sunny weather that we recorded.”

Model and Explain

“Let’s look at the data we collected on the weather and count how many sunny days we had for each week.” Count the number of sunny days and list them on a chart.

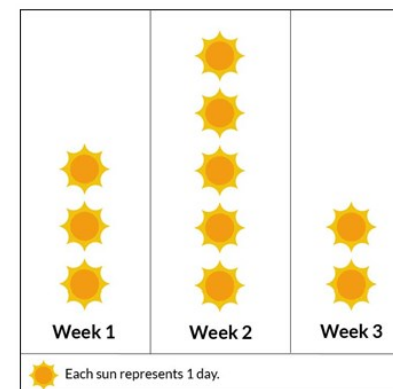
Guide Practice

“Now we will make a graph of our sunny days.”

Think out loud as you create the picture graph and ask the children questions throughout the process while the graph is created.

“I am going to write the weeks in one column, and I will draw a picture of the sun in the other to show the number of sunny days for that week. I will make a key at the bottom to let my friends know what each sun represents when it is shown on the graph.” Fill out this information on the picture graph.

“Now let’s see how many suns I will need to draw for Week 1/Week 2/Week 3.” Draw the suns based on the weather data shown on the chart.



Summarize

“You did a wonderful job collecting data to create a picture graph and then answering the questions using the information. The picture graph will be displayed on the bulletin board. After school you can show your parents what we created and talk to them about the sunny days we have had for the past three weeks.”

Scaffolding

Downward scaffold: Have children recount the number of sunny days to determine which week had the greatest, least, same amount of sunny days.

Teacher Tips

Some variations on this activity include:

Graphing rainy or cloudy days.

Graphing the different types of weather across several weeks.



The Sunny Sky

Essential Ideas:

- The sun is a bright star that brings the Earth light and heat.
- The sun is seen in different parts of the sky in the morning, afternoon, and evening, but it is not seen at night.
- Shadows are created when the sun's light is blocked. Shadows change depending on where the sun is in the sky.
- Rainbows are created in the sky when sunlight shines through rain/water droplets in the air.

Whole Group & Small Group Theme Lessons

Select from these whole and small group lessons to supplement those indicated on the *Scope and Sequence*.

Science

- **What's in the Sky?**
- **Tracking Shadows in the Sun:** This activity is weather-dependent, so check forecasts to identify days likely to be sunny.
- Expand on **Tracking Shadows in the Sun** by further exploring shadows: Use a small flashlight to represent the sun. Shine the light on different objects at different angles. Encourage children to describe how the shadow changes depending on where the "sun" is in the "sky." For instance, the higher the sun, the smaller the shadow; the lower the sun, the longer the shadow. Consider selecting different children to sketch the observations on chart paper.
- ★ Prior to beginning this activity, take a moment to discuss appropriate ways to use a flashlight.

- Investigate and discuss what happens to things exposed to the sun's heat and light.
Examples: people/objects get warm/hot, colors on fabric or paper fade, ice melts, people can get sunburns
- ★ See Theme Extenders for possible read alouds.

TPG V.D.1., VI.A.4., VI.C.2., VI.C.3.

Social Studies

- Brainstorm different activities that people do when it is sunny.
Examples: play at the park, walk a dog, ride a bike, mow the grass
- Discuss routines that occur during the day. Point out that the sun also follows a routine each day.
Examples: morning—sun rises,

people wake up and eat breakfast; noon—sun is high in the sky, people eat lunch, young children take naps; evening—sun sets, people eat dinner and spend time at home with family

- ★ Provide pictures of each of the three time points for children to see the sequence of activities/position of the sun. If class is bilingual, provide names for time points in both Spanish and English.

TPG VI.C.2., VII.A.3.
EL TPG II.D.6.

Theme Extenders

Consider ways to use theme-related materials and vocabulary during whole group and small group lessons from the *Scope and Sequence*. Suggestions are included below.

Book & Print Reading

Suggested Read Aloud Titles:

- *Moonbear's Shadow* by Frank Asch
- *Rainbow* by Marion Dane Bauer
- *Sky Color* by Peter H. Reynolds
- *Sun* by Marion Dane Bauer
- *Sunlight* by Erin Edison
- *What Makes a Shadow?* by Clyde Robert Bulla
- ★ See Book Club list for a more expansive selection of theme-related books.

Read Together:

- 📖 Copy “Mister Sun” onto chart paper. Read and reread it over several days, having children act it out. Use a pointer to track the words while reading.

TPG II.A.1., II.B.1., II.D.5., III.A.1., III.A.3., III.D.3.
EL TPG II.D.6.

Phonological Awareness

Use theme-related vocabulary with the activities from the *Scope and Sequence* to practice PA skills.

Children can:

- Blend onset and rime
Examples: l-ight, h-eat, d-ay

- Blend phonemes
Examples: d-ay, l-igh-t, h-ea-t

TPG III.B.8., III.B.9.
EL TPG II.C.3

Language & Communication

Vocabulary:

sunlight	sunset
shadow	heat
sunrise	Earth
light	day
rainbow	

🎵 Songs, Rhymes, & Chants:

- “Good Morning, Merry Sunshine”
- “Merry Sunshine”
- “Mister Sun”
- “My Shadow”

TPG II.D.5.
EL TPG II.D.6.

Alphabet Knowledge

- Sun Roll and Write: Draw a sun on yellow construction paper and place it inside a sheet protector. Write uppercase and lowercase feature letters on an empty die. Have children roll the die, name the

letter, and write it on the sun using a dry erase marker.

- ★ Encourage verbalization of letter names and sounds as children write letters.

TPG III.C.1., III.C.2., III.C.3., IV.A.1

Writing

Use sun-related topics for modeled/shared writing lessons.

Examples:

- Playing outside on a sunny day
- Chasing shadows outside in the sun
- Observing the colors in the sky during sunset/sunrise or viewing a rainbow
- Waking up to bright sunlight in the morning

TPG IV.B.1., IV.B.2.

Mathematics

Provide theme-related opportunities to practice target math skills from the *Scope and Sequence*. For example, children can:

- Count and clip appropriate number of rays onto the sun
- ★ Color small paper plates yellow and label each with a numeral. Color clothespins yellow to represent the sun's rays.
- Count colors onto a rainbow workmat
- ★ Create color cards using construction paper to correspond with 4-5 snap cube colors. Write a numeral on each. Choose a color card and count that number of cubes onto the rainbow.
Example: If you choose a green card with the number 5, count 5 green snap cubes onto the rainbow.
- Sort paper suns with shapes glued to them
- ★ Encourage children to verbalize the names of shapes as they sort.

TPG V.A.1., V.A.3., V.A.5., V.A.9., V.C.1., V.E.1.

Learning Centers

Suggestions are included below to assist with adding to or replacing current center choices. Any activities from the *Scope and Sequence* may also be added to centers.

ABC

- Add Sun Roll and Write (see Theme Extenders for description) after it is introduced to the class.
- Provide sun-shaped letters to be used in playing name games and practicing alphabet activities from the *Scope and Sequence*.

TPG III.C.1., III.C.2., III.C.3., IV.C.1.

Classroom Library/Listening

- Provide a variety of narrative and informational texts about the sun, shadows, and rainbows. Be sure to include books from read alouds.
- 📖 Place the chart of “Mister Sun” in the center so children can read and act it out. Provide a pointer to track print.

TPG II.A.3., II.B.1., II.D.5., III.A.1., III.A.3.
EL TPG II.A.3., II.D.6.

Construction

Sunny Day Scenes:

- Add rainbow-colored snap cubes or small blocks to construct rainbows.
- Provide pictures or books about rainbows and the sun to use as references while building.
- Add people, cars, and pets to role-play sunny-day activities at home or in the community.
Examples: Build a park to role-play walking a dog; build a house to role-play mowing the grass

TPG I.C.2., I.C.7., II.B.2., VII.C.1., IX.B.1., IX.B.2.

Creativity

- Coffee Filter Sun: Show children how to make a sun by coloring a coffee filter with orange and yellow markers, placing it on a piece of construction paper, and lightly spraying it with a small water bottle to allow the colors to run together.
- Sky Colors: Provide water colors and white paper for children to paint the sky at sunrise or sunset. Provide sky pictures for children to reference for ideas.
- Rainbow Art: Provide markers, crayons, and paint for children to create rainbows.

TPG VIII.A.1., VIII.A.2., IX.B.1.

Math

Add math activities from Theme Extenders once they have been introduced to the class.

TPG V.A.1., V.A.3., V.A.5., V.A.9., V.C.1., V.E.1.

Pretend & Learn

Add the following props to the television station:

- sunglasses
- sun hat/visor
- empty sunscreen bottle

- sunny and partly-sunny weather icons to attach to map and forecast board

Activities:

Children can continue to role-play as meteorologists. Possibilities include:

- Dressing in sunglasses or sun visor/hat
- Sharing recommendations for sunny days with the audience
Examples: "It is going to be a sunny day today. Don't forget to put on your sun hat and sunglasses to keep the bright sun out of your eyes. You may want to put on some sunscreen so your skin doesn't get burned."

TPG I.C.4., I.C.7., II.B.2., III.A.3., VII.B.3.

Science

- Add materials from shadow investigations (see Whole Group and Small Group Theme Lessons) after introducing them to the class.
- Provide writing materials for children to sketch/draw observations.

TPG VI.C.2., VI.C.3.

Writer's Corner

- Prompt children to draw and write about sunny-day activities.
 - ★ Add topic word cards with pictures to use as references for drawing and adding labels, as appropriate.
 - ★ Writings can be assembled into a class book for the library.

TPG IV.A.1., IV.A.2., IV.C.2., IV.C.3.

Tracking Shadows in the Sun

Children will observe and describe how shadows change throughout the day.

Head Start Alignment

Goal P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events).

PreK Guidelines Alignment

VI.C.2. Child identifies, observes, and discusses objects in the sky.

Kindergarten TEKS Alignment

§112.11(b)(8)(C) observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.

Materials

- chalk or markers/crayons
- blacktop, concrete, or butcher paper
- camera or cell phone

Preparation

Familiarize yourself with some common astrological misconceptions and be prepared to correct them during this investigation. Many children think:

Earth is the center of the solar system (the Sun is the center)

Earth is the biggest object in the solar system (the Sun is the biggest)

The Sun is a ball of fire (the Sun is a star)

Seasons are a result of how close Earth is to the Sun (they are caused by the Earth's tilt towards the Sun, not the distance from it)

Directions

This activity works best on sunny days! Try to trace shadows at least two times during the school day (for example, at 9:00 AM and 1:00 PM), but three times would be best. After observing the shadows, be prepared to discuss why the shadows changed by describing how the Earth spins on its axis.

"Today we're going to carefully trace our shadows to see how they change during the day."

Take children outside to the same flat surface three times.

Mark a spot where children will stand for all data collection points.

Choose one or two children whose shadows you will trace.

After each tracing is complete, write the time beside each shadow. Allow all children to color in the shadows.

After the second shadow, have children predict where the next shadow will be and see if they're right!

If you can, take a picture of the shadows from that day.

After the third data collection, compare the three shadows. Talk about children's observations and data by asking some questions.

"Why do you think the shadows changed?"

"How are the shadows different? How are they the same?"

"Which shadow is the longest/shortest? Why do you think it's longer/shorter than the others?" Use footsteps or another method to measure how long the shadows are.

"What do you think the shadow would look like if we came outside to trace it again later?"

"It's hard to see a shadow on a cloudy day. Why do you think that happens?"

"What else can sunlight change?"

At the end of the discussion, explain the scientific concept. **"When the Sun shines on you, your body makes a shadow by blocking a small area of light in the shape of your body. Remember, a shadow happens when we block the light. By seeing how the shadows changed, we know the Earth is slowly moving. When the Earth spins, it makes the Sun shine on a different part of the Earth. That makes the shadows look different in the morning, at midday, and in the afternoon."**

Summarize what children did that day. **"Today you saw how shadows change as the Sun shines on the Earth while the Earth slowly spins. We will do this again another day to see what happens!"**

Scaffolding

Provide the "just right" amount of help to make it possible for the child to get to the next skill level. Based on a child's response, you can adjust your level of assistance by simplifying or adding challenge.

Upward scaffold: **"What else do you think changes as the Earth moves around the Sun?"**

Downward scaffold: **"A shadow is made when something blocks the light. What did we use to block the light and make a shadow?"**

Teacher Tips

- It is recommended that you repeat this activity so that children can collect data and notice patterns.
- To build children's knowledge about other objects in the sky, teach [What's in the Sky?](#), [Head in the Clouds](#), [Shapes of the Moon](#), and [Count the Stars](#).

- To engage children in learning about astronomy, read a book about the Sun.
 - *What Is the Sun?/¿Qué es el sol?* by/por Reeve Lindbergh
 - *What Makes Day and Night?* by Franklyn M. Branley (English only)
 - *The Sun: Our Nearest Star* by Franklyn M. Branley (English only)

What's in the Sky?

Children will identify celestial bodies, natural phenomena, animals, and man-made objects in the sky.

Head Start Alignment

Goal P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events).

PreK Guidelines Alignment

VI.C.2. Child identifies, observes, and discusses objects in the sky.

Kindergarten TEKS Alignment

§112.11(b)(8)(C) observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun

Materials

- chart paper/white board
- marker

Preparation

Label the chart paper "Things We Can See in the Sky."

Common Earth and space misconceptions in young children:

- The Sun disappears at night
- Earth is sitting on something
- We do not live on Earth, it's in the sky
- Rain comes from holes in clouds
- Clouds are made from cotton, wool, or smoke
- Clouds move because we move
- Gods/angels make thunder and lightning

Many children think the sky is just the space above their heads. As children name things in the sky, acknowledge their responses while gently redirecting them to celestial bodies or natural phenomena.

Celestial bodies	Natural phenomena	Animals	Man-made objects
Examples: Sun Moon Star Planet	Examples: Cloud Lightning/thunder Rain Rainbow	Examples: Bird Bat Bug/insect	Examples: Plane Helicopter Rocket/spacecraft (Hot air) balloon
Extension: “Yeah! The Sun is in the sky. What do you know about the Sun?”	Extension: “Good thinking! Rain does fall from the sky. Where does rain come from?”	Extension: “Good! Birds <i>do</i> fly in the sky. Where do birds live?”	Extension: “That’s right! (Planes) <i>do</i> fly in the sky. I’ve seen a (plane) disappear into the clouds. What do you know about clouds?”

Directions

“When you’re outside standing on the ground, and you look up, you can see the sky. What does the sky look like during the day? What does the sky look like at night?”

Guide children to sky being light and blue during the day, and dark or black at night.

“When you look at the sky, what do you see?”

Write children’s responses on the chart paper. Draw a little picture next to each response to help pre-readers and English learners. Consider writing/drawing each response according to how far it is from the ground (for example, insects fly around closer to the ground, planes fly higher than them, and the Sun is even higher).

Invite children to ask questions they have about what they see in the sky and try to answer them. Remember, it’s okay to tell a child you don’t know and will find out! Write down children’s questions about the sky to answer later.

Scaffolding

Provide the “just right” amount of help to make it possible for the child to get to the next skill level. Based on a child’s response, you can adjust your level of assistance by simplifying or adding challenge.

Upward scaffold: **“What in the sky makes a (rainbow)?”** or **“What does the Sun do?”**

Downward scaffold: Take the children outside and allow children who have not contributed to observe something in the sky.

Downward scaffold: **“What did you see in the sky last night?”** or **“What did you see in the sky on your way to school this morning?”**

Teacher Tips

Consider conducting part of the activity outside so that children can make observations in real time. Keep in mind that during some times of the year the moon is visible in the morning.

Read a book about the sky to engage children or correct misconceptions.

How High Is the Sky? by Anna Millbourne (English only)

Sorting their observations into manmade, celestial, and natural categories is not necessary, but you can help them make connections. Children should not be expected to know what each classification means.

After this discussion, follow up with another science activity such as [Head in the Clouds](#), [Tracking Shadows in the Sun](#), [Shapes of the Moon](#), or [Pictures in the Stars](#).