

A YEAR OF LEARNING

*Monthly Unit Study
Themes for Curious Kids*



*3 Themed Unit Study Overviews for
Each Month of the Year.*

WINTER WILDLIFE

Unit Study Overview

UNIT OBJECTIVES

- Understand how animals adapt to survive in cold winter climates.
- Learn about the various survival strategies such as migration, hibernation, and food storage.
- Explore local wildlife and their winter behaviors.

KEY CONCEPTS

- Animal adaptations to cold environments (e.g., hibernation, migration, insulation).
- How food sources change in winter and how animals respond.
- Examples of winter wildlife from different regions (e.g., Arctic vs. temperate zones).
- Human impact on wildlife during winter.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to winter survival strategies (hibernation, migration, insulation).
- [] **Week 2:** Focus on local wildlife and adaptations (activities like the animal track hunt).
- [] **Week 3:** Research and diorama building.
- [] **Week 4:** Presentations, journal reflections, and assessments.

EXTENSIONS & ADAPTATIONS

Advanced learners: Research lesser-known winter survival strategies (e.g., animals that freeze solid and thaw in spring) and present findings.

Adaptations: For younger students, focus on hands-on activities like the bird feeder and animal track hunt. For visual learners, use more videos and wildlife photography.

SUGGESTED ACTIVITIES

- [] **Animal Track Hunt:** Go on a nature walk to find and identify animal tracks in the snow or mud.
- [] **Blubber Experiment:** Use shortening and gloves to simulate how fat insulates animals like seals or polar bears in cold water.
- [] **Build a Bird Feeder:** Create a simple bird feeder to help local birds during winter.
- [] **Winter Wildlife Journal:** Keep a journal of observed wildlife behaviors, including sketches or photos.
- [] **Create a Habitat Diorama:** Build a diorama depicting the winter habitat of an animal, focusing on how they survive.

RECOMMENDED RESOURCES



Over and Under the Snow by Kate Messner

The Mitten by Jan Brett

Animals in Winter by Henrietta Bancroft and Richard G. Van Gelder



Frozen Planet (BBC Series, narrated by David Attenborough)

March of the Penguins (Documentary)

Bear Snores On (Animated short film based on the book by Karma Wilson)



National Geographic Kids – “Animals in Winter” section:
<https://kids.national-geographic.com/animals/>

ASSESSMENT METHODS

- [] **Winter Wildlife Report:** Write a short report on one animal, explaining how it survives winter, including its habitat, diet, and any adaptations.
- [] **Diorama Presentation:** Present the habitat diorama to the class, explaining how the chosen animal is adapted for winter.
- [] **Wildlife Tracking Journal:** Keep a journal of wildlife observed during the winter, tracking their behaviors and identifying any adaptations.

REFLECTION PROMPTS

1. How do animals know when to hibernate or migrate?
2. What was the most interesting adaptation you learned about, and why?
3. How can humans help wildlife survive during winter?

NEW YEAR TRADITIONS AROUND THE WORLD

Unit Study Overview

UNIT OBJECTIVES

- Explore how different cultures celebrate the New Year.
- Understand the history and significance of New Year traditions across various regions.
- Compare and contrast New Year celebrations globally, recognizing similarities and unique practices.

KEY CONCEPTS

- Cultural symbolism in New Year celebrations (e.g., fireworks, foods, customs).
- The connection between the lunar calendar and New Year celebrations (e.g., Lunar New Year).
- The role of family, community, and rituals in welcoming the New Year.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to New Year's history and traditions.
- [] **Week 2:** Cultural research and map activity.
- [] **Week 3:** Food traditions around the world, cooking or sampling traditional New Year foods.
- [] **Week 4:** Presentations and reflection on what was learned.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research the role of the lunar calendar and how it influences festivals like Lunar New Year or Diwali.

Adaptations: Visual learners can use multimedia presentations, while kinesthetic learners may enjoy more hands-on activities like cooking or creating crafts associated with New Year traditions.

SUGGESTED ACTIVITIES

- [] **World Map Activity:** Mark countries and their New Year traditions (e.g., China, Scotland, Brazil, Japan).
- [] **Cultural Research Projects:** Assign students different countries to research and present how they celebrate New Year.
- [] **New Year Foods Around the World:** Try making traditional New Year foods like 12 grapes from Spain or black-eyed peas from the Southern U.S.
- [] **Create Your Own New Year Tradition:** Encourage students to invent a unique tradition for welcoming the New Year.

RECOMMENDED RESOURCES



Happy New Year Everywhere! by Arlene Erlbach

Chinese New Year Wishes by Jillian Lin

Shante Keys and the New Year's Peas by Gail Piernas-Davenport



New Year's Eve (2011)

Disney's Mulan (1998)

Kung Fu Panda Holiday (2010)



Time Kids - <https://www.timeforkids.com/k1/new-years-traditions/>

Britannica Kids - <https://kids.britannica.com/kids/article/New-Years-Day/353529>

ASSESSMENT METHODS

- [] **Cultural Research Presentations:** Each student presents a poster or digital slideshow about a country's New Year traditions.
- [] **New Year Recipe Book:** Compile recipes from different New Year celebrations around the world, with students contributing dishes they've learned about.
- [] **Reflection Essay:** Students write about the New Year tradition that resonated most with them and why.

REFLECTION PROMPTS

1. What is the most interesting New Year tradition you learned about, and why?
2. How do different cultures express their hopes for the New Year through their traditions?
3. Are there any traditions that are similar to your family's New Year celebrations?

THE SCIENCE OF SNOW

Unit Study Overview

UNIT OBJECTIVES

- Understand how snow forms and the different types of snow.
- Explore the impact of snow on the environment, animals, and humans.
- Learn about famous snowstorms and their effects throughout history.

KEY CONCEPTS

- The water cycle and how precipitation turns into snow.
- The science behind snowflakes: formation, shapes, and types.
- The role of snow in ecosystems and weather patterns.
- Famous blizzards and their environmental/social impact.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the water cycle and how snow forms.
- [] **Week 2:** Snowflakes – observation, types, and unique formations.
- [] **Week 3:** Snowstorms and their historical significance.
- [] **Week 4:** Snow in ecosystems – its effects on plants, animals, and humans.

EXTENSIONS & ADAPTATIONS

For Advanced Learners: Dive deeper into the physics of snow formation, the role of altitude and temperature, and weather forecasting.

Adaptation for Younger Learners: Focus on simpler concepts such as "What is snow?" and "How do animals stay warm?"

SUGGESTED ACTIVITIES

- [] **Snowflake Observations:** If snow is available, observe snowflakes under a magnifying glass, noting their shapes and differences.
- [] **Make Your Own Snowflakes:** Cut paper snowflakes and discuss symmetry.
- [] **Snowstorm Simulation:** Create a mini snowstorm experiment using baking soda and vinegar to simulate snow formation and weather conditions.
- [] **Famous Snowstorm Case Study:** Research the Great Blizzard of 1888 or other historical snowstorms and present findings.

RECOMMENDED RESOURCES



The Story of Snow: The Science of Winter's Wonder by Mark Cassino

The Secret Life of a Snowflake by Kenneth Libbrecht

Snowflake Bentley by Jacqueline Briggs Martin



Frozen Planet (BBC Series, narrated by David Attenborough)

The Science of Snow (National Geographic short video)

Frozen (Disney)

Nature: Snowbound: Animals of Winter (PBS)



Ducksters: <https://www.ducksters.com/science/weather.php>

We Are Teachers: <https://www.weareteachers.com/how-does-snow-form/>

ASSESSMENT METHODS

- [] **Snowflake Design Presentation:** Students will create a snowflake model and present the science behind snowflake shapes and formation.
- [] **Historical Snowstorm Report:** Write a report or create a multimedia presentation on the effects of a famous snowstorm.
- [] **Reflection Journal:** After completing the activities, students will reflect on the importance of snow in their environment and how it impacts the world.

REFLECTION PROMPTS

1. How is snow different from other forms of precipitation?
2. Why are no two snowflakes exactly alike?
3. What impact do snowstorms have on people and the environment?

BLACK HISTORY MONTH

Unit Study Overview

UNIT OBJECTIVES

- Explore the impact of the Civil Rights Movement and its relevance today.
- Understand the contributions of Black leaders, inventors, and changemakers in history.
- Celebrate the cultural contributions of Black artists, musicians, and writers.

KEY CONCEPTS

- Key figures in Black history such as Martin Luther King Jr., Rosa Parks, and Harriet Tubman.
- The history and significance of Black History Month.
- Cultural contributions in music, literature, art, and beyond.
- The struggle for civil rights and social justice.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to Black History Month and its significance. Begin research projects.
- [] **Week 2:** Learn about key Civil Rights events; work on timelines.
- [] **Week 3:** Music, poetry, and culture studies; begin creative projects.
- [] **Week 4:** Present research projects and creative works; reflection essays.

EXTENSIONS & ADAPTATIONS

Extension for Advanced Learners: Investigate global Black history and contributions outside the U.S., such as Nelson Mandela or the Haitian Revolution.

Adaptations: Offer biographies or documentaries with varying complexity for different reading levels.

SUGGESTED ACTIVITIES

- [] **Biography Research Project:** Students choose a notable Black historical figure to research and present on their contributions.
- [] **Civil Rights Timeline:** Create a timeline of significant events in the Civil Rights Movement, such as the Montgomery Bus Boycott and the March on Washington.
- [] **Music & Poetry Study:** Explore the influence of Black musicians (e.g., jazz, blues, hip-hop) and writers (e.g., Langston Hughes) on American culture. Students can write their own poem or song inspired by the themes of equality and justice.

RECOMMENDED RESOURCES



Martin's Big Words: The Life of Dr. Martin Luther King, Jr. by Doreen Rappaport

Hidden Figures: The True Story of Four Black Women and the Space Race by Margot Lee Shetterly

The Autobiography of Malcolm X by Malcolm X and Alex Haley



Selma (PG-13)

Hidden Figures (PG)

Eyes on the Prize (PBS Documentary)



Smithsonian National Museum of African American History & Culture: <https://nmaahc.si.edu/>

ASSESSMENT METHODS

- [] **Presentation:** Students present their research on a historical figure.
- [] **Reflection Essay:** Write a short essay on how the Civil Rights Movement impacts their lives today.
- [] **Creative Project:** Students create an original poem, song, or artwork inspired by Black history or culture.

REFLECTION PROMPTS

1. What was the most surprising thing you learned about Black history this month?
2. How do the struggles and triumphs of historical figures influence us today?
3. In what ways can you contribute to promoting equality and justice?

WINTER SPORTS

Unit Study Overview

UNIT OBJECTIVES

- Learn about the history and evolution of popular winter sports.
- Understand the science behind winter sports, including physics and body mechanics.
- Explore the cultural significance of winter sports in different parts of the world.

KEY CONCEPTS

- The physics of motion, friction, and balance in winter sports (e.g., skiing, snowboarding, ice skating).
- The development and modern-day popularity of the Winter Olympics.
- How climate and geography influence the types of winter sports practiced in different regions.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to winter sports and exploration of their history.

[] **Week 2:** Physics of winter sports – friction, balance, and motion.

[] **Week 3:** Research and cultural study of winter sports in different countries.

[] **Week 4:** Student presentations, reflection on learning.

EXTENSIONS & ADAPTATIONS

Advanced learners can research the evolution of winter sports equipment (e.g., skis, snowboards) and their impact on performance.

Adaptations for kinesthetic learners could include balance and coordination activities, such as rollerblading or skateboarding (if winter sports access is limited).

SUGGESTED ACTIVITIES

[] **Science Experiment:** Build a small sled and explore how surface friction impacts speed.

[] **Winter Sports History Research:** Choose a winter sport and create a timeline of its development.

[] **Physical Activity:** Practice balance by doing simple ice skating or sledding.

[] **Cultural Study:** Investigate winter sports traditions in countries like Canada, Norway, or Japan, and how these activities reflect the culture.

RECOMMENDED RESOURCES



Tacky and the Winter Games by Helen Lester

Snowman Paul at the Winter Olympics by Yossi Lapid

The Winter Athlete by Steve Ilg



Cool Runnings (1993)

Eddie the Eagle (2016)

Miracle (2004)

First Descent (2005)



WinterKids.org

ASSESSMENT METHODS

[] **Project:** Create a presentation or poster on a winter sport, detailing its history, how it works, and famous athletes.

[] **Experiment Analysis:** Write a short reflection on the science experiment, explaining how friction affects winter sports like skiing or snowboarding.

[] **Physical Activity Log:** Keep a log of winter sports activities (or related balance exercises) completed during the month.

REFLECTION PROMPTS

1. How do winter sports use the concepts of friction and balance?
2. What is one winter sport you'd like to try, and why?
3. How have winter sports brought people together during events like the Winter Olympics?

THE NIGHT SKY

Unit Study Overview

UNIT OBJECTIVES

- Identify and explore prominent constellations visible during February.
- Learn about the importance of astronomy and its influence on cultures throughout history.
- Understand the movement of celestial objects and the phases of the moon.

KEY CONCEPTS

- Basic star identification and constellations (e.g., Orion, Taurus).
- The phases of the moon and how they change over the month.
- The importance of stargazing and early astronomical discoveries.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the night sky and constellations.
- [] **Week 2:** Moon phases and their effect on the night sky.
- [] **Week 3:** Observation activities and journaling.
- [] **Week 4:** Presentations and assessments.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Can research and present on celestial phenomena like nebulae, black holes, or the life cycle of stars.

For Younger Students: Simplify by focusing only on 1-2 prominent constellations and basic moon phases.

SUGGESTED ACTIVITIES

- [] **Star Map Creation:** Have students create their own star maps to track constellations visible in February.
- [] **Phases of the Moon Calendar:** Students can create a calendar to track the moon's phases throughout the month.
- [] **Night Sky Observation:** Organize a nighttime field trip or an at-home activity for students to observe the sky (use a telescope or binoculars if available).
- [] **Astronomy Journal:** Encourage students to keep an observation journal of the stars and moon over the course of the month.

RECOMMENDED RESOURCES



The Darkest Dark by Chris Hadfield

There's No Place Like Space: All About Our Solar System by Tish Rabe

The Sky Is Full of Stars by Franklyn M. Branley



One Strange Rock (2018, National Geographic)

Earth to Luna! - Night Sky Episode

Cosmic Voyage (1996, IMAX)



NASA's Space Place - <https://spaceplace.nasa.gov/>

National Geographic Kids: Space - <https://kids.national-geographic.com/space>

ASSESSMENT METHODS

- [] **Constellation Project:** Have students present a project on a constellation, including its mythological background and when it is visible.
- [] **Moon Phase Tracking:** Students can be assessed on their completed moon phase calendars.
- [] **Night Sky Presentation:** Students can give a presentation on their observations of the night sky, detailing what constellations or celestial objects they identified.

REFLECTION PROMPTS

1. How does observing the night sky make you feel? What did you notice about the stars and moon this month?
2. Why do you think humans have studied the stars for so many centuries?

SPRING EQUINOX (MARCH 20)

Unit Study Overview

UNIT OBJECTIVES

- Understand the scientific explanation of the spring equinox, focusing on the Earth's orbit and axial tilt.
- Explore the cultural significance of the spring equinox in various traditions and how it marks the beginning of spring.
- Learn how the balance of day and night during the equinox affects both natural phenomena and human activities.

KEY CONCEPTS

- Earth's axial tilt and its role in changing seasons.
- Equinox as the point when day and night are approximately equal.
- The importance of the equinox in agricultural, cultural, and religious practices.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the Earth's tilt, orbit, and how seasons are created.
- [] **Week 2:** Sun path experiment and tracking day length changes.
- [] **Week 3:** Research and preparation for cultural presentations on equinox traditions.
- [] **Week 4:** Reflection on personal observations and completion of seasonal wheels.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Explore how ancient civilizations built monuments like Stonehenge and Chichen Itza to align with equinoxes and solstices.

Younger Students: Create a "Spring Garden" craft by planting seeds and discussing how the change in daylight helps plants grow.

SUGGESTED ACTIVITIES

- [] **Sun Path Experiment:** Track the sun's path at different times of the day to observe changes as the equinox approaches.
- [] **Create a Seasonal Wheel:** Have students design a wheel that shows the Earth's position during each season and explains how the tilt of the axis causes different climates.
- [] **Cultural Research Project:** Students research and present how different cultures celebrate the arrival of spring during the equinox, such as Nowruz (Persian New Year) or Japan's Shunbun no Hi.
- [] **Nature Walk:** Observe signs of spring like budding trees, flowers, and returning birds. Record observations in a journal.

RECOMMENDED RESOURCES



The Reasons for Seasons by Gail Gibbons

Sunshine Makes the Seasons by Franklyn M. Branley

The Spring Equinox: Celebrating the Greening of the Earth by Ellen Jackson



Sid the Science Kid: Weather Kid Sid (PBS Kids)

The Magic School Bus: Season 1, Episode 13 - Kicks Up a Storm

Happy Equinox (SciShow Kids)



NASA Climate Kids - <https://climatekids.nasa.gov/>

National Geographic Kids: Earth Facts - <https://www.nat-geokids.com/uk/discover/science/space/facts-about-the-earth/>

ASSESSMENT METHODS

- [] **Project Presentations:** Students will present their findings on cultural spring celebrations, highlighting the role of the equinox.
- [] **Observation Journal:** Students will document changes in nature as the equinox approaches, including day length, temperatures, and plant/animal activity.
- [] **Seasonal Wheel Project:** Completion of the seasonal wheel with clear explanations for each season and the equinox.

REFLECTION PROMPTS

1. How does the spring equinox affect plants, animals, and human activities?
2. Why do you think so many cultures celebrate the arrival of spring?
3. What changes did you notice in nature as the equinox approached?

WEATHER PATTERNS

Unit Study Overview

UNIT OBJECTIVES

- Understand how different weather patterns are formed.
- Identify common weather phenomena (rain, storms, wind, etc.) and their impact on the environment.
- Explore tools used to predict weather, such as weather maps and meteorological instruments.

KEY CONCEPTS

- Extreme weather phenomena, including tornadoes, hurricanes, and blizzards.
- The water cycle and its role in weather formation.
- Types of weather patterns: storms, fronts, winds, and precipitation.
- How weather forecasting works and the technology involved.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to weather patterns and the water cycle.

[] **Week 2:** Exploration of precipitation types and weather instruments.

[] **Week 3:** Studying extreme weather (tornadoes, hurricanes, etc.).

[] **Week 4:** Weather forecasting and final presentations.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Investigate climate vs. weather and how long-term patterns influence global climate.

Adaptations: Use visual aids like weather videos for auditory and visual learners; incorporate tactile learning through weather-related crafts and models.

SUGGESTED ACTIVITIES

[] **Weather Journal:** Students observe and record daily weather conditions over a week, noting temperature, precipitation, and wind.

[] **Make a Rain Gauge:** Hands-on activity where students create and use their own rain gauge to measure rainfall.

[] **Weather Map Exploration:** Use real-time weather maps to understand weather fronts, high and low pressure systems, and storms.

[] **Severe Weather Research Project:** Students pick a type of extreme weather (e.g., tornado, hurricane) and research its causes and effects.

RECOMMENDED RESOURCES



National Geographic Kids Everything Weather: Facts, Photos, and Fun that Will Blow You Away
By Kathy Furgang

The Cloud Book
By Tomie dePaola

Weather Words and What They Mean
By Gail Gibbons



Wild Weather (PBS Kids)

Frozen II (2019)

Cloudy with a Chance of Meatballs (2009)

Ice Age: The Meltdown (2006)



SciJinks Created by NASA and NOAA - <https://scijinks.gov/>

Weather Wiz Kids - https://www.weather-wizkids.com/#-google_vignette

ASSESSMENT METHODS

[] **Weather Report Presentation:** Students prepare and present a weather report using maps and learned concepts.

[] **Quiz on Weather Instruments:** A quiz covering weather tools like thermometers, barometers, and anemometers.

[] **Research Project:** Present findings on a type of severe weather, including prevention and safety tips.

REFLECTION PROMPTS

1. What did you learn about how weather patterns form?
2. How do weather forecasts impact daily life and decisions?
3. What surprised you the most about severe weather and how we predict it?

WOMEN IN SCIENCE

Unit Study Overview

UNIT OBJECTIVES

- Explore the contributions of notable women in various scientific fields.
- Understand the challenges women have faced in science throughout history.
- Inspire students to consider careers in science and related fields.

KEY CONCEPTS

- The historical and contemporary roles of women in science.
- The impact of gender bias and discrimination in scientific fields.
- The importance of diversity and representation in science.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the unit; overview of significant women in science; choose research topics.

[] **Week 2:** Research and create presentations; read assigned book.

[] **Week 3:** Present research projects and invite guest speaker (if possible).

[] **Week 4:** Reflect on learning; group discussion and assessment.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research lesser-known women scientists and their contributions.

Visual Learners: Create infographics highlighting key women in science and their achievements.

SUGGESTED ACTIVITIES

[] **Research Project:** Choose a woman scientist and create a presentation or poster about her life, contributions, and impact.

[] **Guest Speaker:** Invite a local female scientist to talk about her work and experiences in the field.

[] **Timeline Creation:** Create a timeline of significant milestones for women in science, highlighting key figures and discoveries.

[] **Book Club:** Read and discuss a book that features women in science, focusing on themes and contributions.

RECOMMENDED RESOURCES



Women in Science: 50 Fearless Pioneers Who Changed the World by Rachel Ignatofsky

Ada Lovelace, Poet of Science: The First Computer Programmer by Diane Stanley



Hidden Figures (2016, PG)

The Mars Generation (2017, PG)



SciGirls - <https://pbskids.org/sci-girls/>

BrainPOP - <https://www.brain-pop.com/unit/womens-history/>

ASSESSMENT METHODS

[] **Presentation:** Students will present their research projects on women scientists to the class.

[] **Reflection Journal:** Students will write journal entries reflecting on what they learned about women in science and how it has influenced their perception of science careers.

[] **Group Discussion:** Facilitate a discussion on the importance of diversity in science and its impact on innovation.

REFLECTION PROMPTS

1. Who is a woman in science that inspires you, and why?
2. How have women's contributions to science changed the world?
3. In what ways do you think science can benefit from more diverse perspectives?

EARTH DAY (APRIL 22)

Unit Study Overview

UNIT OBJECTIVES

- Understand the significance of Earth Day and its role in promoting environmental awareness.
- Learn about the importance of sustainability, conservation, and taking action to protect our planet.
- Explore the effects of pollution and climate change on ecosystems and wildlife.

KEY CONCEPTS

- The history and purpose of Earth Day.
- The impact of human activities on the environment.
- Solutions to environmental issues like recycling, reducing waste, and renewable energy.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to Earth Day and its significance.

[] **Week 2:** Exploring environmental problems (pollution, climate change).

[] **Week 3:** Solutions and actions for a healthier Earth.

[] **Week 4:** Final projects and presentations.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research a local environmental issue and propose a community solution.

Adaptations: Provide visual aids (videos, infographics) for students who benefit from visual learning or offer hands-on projects for kinesthetic learners.

SUGGESTED ACTIVITIES

[] **Trash Cleanup Challenge:** Organize a local cleanup in a park or neighborhood and track how much trash is collected.

[] **Recycling Craft:** Use recycled materials to create art projects, such as bottle planters or paper mâché Earth models.

[] **Nature Walk & Observation:** Take students on a nature walk to observe the local ecosystem, identifying plants, animals, and environmental concerns like litter.

[] **Eco-Pledge Poster:** Have students create posters with eco-friendly pledges, such as reducing plastic use or conserving water.

RECOMMENDED RESOURCES



The Lorax by Dr. Seuss

The Earth Book by Todd Parr

Here We Are: Notes for Living on Planet Earth by Oliver Jeffers



The Lorax (2012)

Our Planet (Netflix)

Wall-E (Disney/Pixar)

The Biggest Little Farm (2018)



Earth Day Network (www.earthday.org)
– Activities, history, and current initiatives for Earth Day

ASSESSMENT METHODS

[] **Eco-Friendly Project:** Have students develop a small project that showcases an eco-friendly solution (e.g., creating a compost bin or a water conservation system).

[] **Reflection Journals:** Ask students to write daily reflections during the unit about what they've learned and how they can personally help the environment.

[] **Group Presentation:** Students can work in groups to create a presentation on one environmental issue (e.g., plastic pollution, deforestation) and propose solutions.

REFLECTION PROMPTS

1. How has Earth Day made an impact since its creation?
2. What can I do each day to help protect the environment?
3. What changes would I like to see in my community to make it more eco-friendly?

GARDENING AND PLANT GROWTH

Unit Study Overview

UNIT OBJECTIVES

- Understand the basic needs and stages of plant growth.
- Learn about the importance of gardening for the environment and food production.
- Explore different types of plants and their roles in ecosystems.

KEY CONCEPTS

- The life cycle of plants (seed, sprout, growth, flower, fruit).
- The role of sunlight, water, soil, and nutrients in plant health.
- Types of plants: vegetables, flowers, trees, and their functions in nature.
- The importance of pollination and how it impacts plant growth.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to plant growth, plant seed activity, and first garden journal entry.

[] **Week 2:** Explore plant needs (sunlight, water, soil) and conduct the pollination experiment.

[] **Week 3:** Focus on different types of plants (vegetables, flowers, trees) and garden design project.

[] **Week 4:** Complete the final garden journal entry and prepare group presentations.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research different gardening methods like hydroponics or vertical gardens and create a presentation or model.

Adaptations: For hands-on learners, emphasize planting activities and care of plants in a home or school garden. For visual learners, use plant growth time-lapse videos to enhance understanding.

SUGGESTED ACTIVITIES

[] **Plant a Seed:** Each student plants a seed in a small pot or garden space, observing and recording its growth over the course of the month.

[] **Create a Garden Journal:** Keep track of plant growth, weather conditions, and care routines.

[] **Leaf and Flower Pressing:** Collect leaves and flowers from a garden or nature area and press them in books. Study their shapes and parts.

[] **Pollination Experiment:** Use a cotton swab to simulate how bees pollinate flowers by transferring pollen from one flower to another.

[] **Virtual Garden Tour:** Explore famous gardens online, like the New York Botanical Garden.

RECOMMENDED RESOURCES



From Seed to Plant by Gail Gibbons

The Curious Garden by Peter Brown

Plant the Tiny Seed by Christie Matheson



The Magic School Bus: Gets Planted (Episode)

Life by BBC Earth (Plant episode)

The Biggest Little Farm (Movie, 2018)



National Geographic Kids: Plants - <https://www.nat-geokids.com/ie/teacher-category/plants/>

Kew Gardens Virtual Tour - <https://www.kew.org/about-us/virtual-kew-wake-hurst>

ASSESSMENT METHODS

[] **Plant Growth Observation Report:** Students document their seed's progress throughout the month, including measurements, photos, and written observations.

[] **Group Presentation:** Each student presents their gardening journal and what they learned about caring for their plant.

[] **Garden Design Project:** Students design their own garden on paper, labeling different plant types and their roles (flowers for pollinators, vegetables for food, etc.).

REFLECTION PROMPTS

1. What surprised you about the way plants grow?
2. How does taking care of a plant help you understand what all living things need to survive?
3. How would the world be different without plants?

THE WATER CYCLE

Unit Study Overview

UNIT OBJECTIVES

- Explore how the water cycle affects weather patterns and ecosystems.
- Understand the stages of the water cycle: evaporation, condensation, precipitation, and collection.
- Investigate human impact on water systems and the importance of water conservation.

KEY CONCEPTS

- The stages of the water cycle: evaporation, condensation, precipitation, collection.
- The role of the sun in driving the water cycle.
- How the water cycle connects to rivers, lakes, oceans, and groundwater.
- Water conservation and human impact on the hydrosphere.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the water cycle, focusing on vocabulary (evaporation, condensation, precipitation).

[] **Week 2:** Conduct experiments (water cycle in a bag, cloud in a jar) and discuss their results.

[] **Week 3:** Explore weather patterns and how they relate to the water cycle. Weather tracking activity.

[] **Week 4:** Complete assessments (models, quiz) and reflect on the unit.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Explore the role of water in global climate patterns and how it connects to weather phenomena such as hurricanes or monsoons.

Adaptations: Use multimedia resources (like videos) to engage visual learners. Incorporate hands-on activities (like water models) for kinesthetic learners.

SUGGESTED ACTIVITIES

[] **Water Cycle in a Bag:** Create a mini water cycle by sealing water in a plastic bag and observing the processes of evaporation and condensation on a sunny window.

[] **Cloud in a Jar Experiment:** Explore condensation by creating a cloud using warm water and ice in a jar.

[] **Water Cycle Poster:** Have students draw and label the different stages of the water cycle on a large poster.

[] **Weather Tracking:** Use a weather app or journal to track precipitation over a month and discuss how it fits into the water cycle.

[] **Field Trip:** Visit a local body of water (pond, lake, river) to observe the water cycle in action.

RECOMMENDED RESOURCES



The Magic School Bus Wet All Over: A Book About the Water Cycle by Joanna Cole

A Drop Around the World by Barbara Shaw McKinney

The Water Cycle by Bobbie Kalman



The Magic School Bus S1E1: "Wet All Over"

Planet Earth II: "Fresh Water"

Bill Nye the Science Guy: Water Cycle



National Geographic Kids – Water Cycle - <https://kids.national-geographic.com/science/article/water-cycle>

NASA Climate Kids – Water Cycle - <https://climatekids.nasa.gov/water-cycle/>

ASSESSMENT METHODS

[] **Water Cycle Model:** Students create a 3D model or diorama of the water cycle, labeling key stages.

[] **Quiz on Key Concepts:** A short quiz covering the stages of the water cycle, water conservation, and the importance of water in ecosystems.

[] **Reflection Journal:** Students write a short essay or journal entry on the importance of water conservation and how they can conserve water in their daily lives.

CONNECTING THEMES

1. How does the water cycle impact the weather in your area?
2. Why is water conservation important, and what are some ways we can reduce water waste?
3. How does human activity affect the water cycle?

MIGRATION OF BIRDS

Unit Study Overview

UNIT OBJECTIVES

- Understand why and how birds migrate.
- Explore the challenges birds face during migration and how conservation efforts help.
- Learn about key migratory bird species and their unique migration patterns.

KEY CONCEPTS

- **Why Birds Migrate:** Understanding food scarcity, climate, and breeding cycles.
- **Migration Routes:** Learn about flyways and the paths birds take globally.
- **Adaptations for Migration:** Explore physical and behavioral adaptations that enable long flights.
- **Conservation of Migratory Birds:** Discuss threats like habitat loss and climate change, and learn about conservation efforts.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to bird migration (why and how).
- [] **Week 2:** Migration routes and key species (mapping activities).
- [] **Week 3:** Conservation challenges and guest speaker/field trip.
- [] **Week 4:** Final projects and assessments.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research different gardening methods like hydroponics or vertical gardens and create a presentation or model.

Adaptations: For hands-on learners, emphasize planting activities and care of plants in a home or school garden. For visual learners, use plant growth time-lapse videos to enhance understanding.

SUGGESTED ACTIVITIES

- [] **Birdwatching Journal:** Take nature walks to observe and document local bird species. Note seasonal changes.
- [] **Map the Flyways:** Have students map out major migratory routes (Pacific Flyway, Atlantic Flyway, etc.).
- [] **Bird Feeder Project:** Build bird feeders and learn about how migration patterns are affected by food availability.
- [] **Film Viewing & Discussion:** Watch bird migration documentaries, followed by group discussions.
- [] **Guest Speaker/Field Trip:** Invite a local ornithologist or arrange a field trip to a bird sanctuary.

RECOMMENDED RESOURCES



The Beak of the Finch: A Story of Evolution in Our Time by Jonathan Weiner

Bird Migration: A General Survey by Peter Berthold

Hoot by Carl Hiaasen (Children's Fiction)



Winged Migration (2001)

The Secret Life of Birds (BBC Series)



eBird (Cornell Lab of Ornithology) - <https://e-bird.org/home>

Audubon Society - <https://www.audubon.org/>

ASSESSMENT METHODS

- [] **Migration Research Project:** Have students choose a specific migratory bird species and create a research poster, including maps of migration routes, the reasons for migration, and the challenges faced.
- [] **Birdwatching Reflection:** Students will maintain a birdwatching journal and reflect on the seasonal patterns they observe.
- [] **Group Presentation:** Small groups present findings on how climate change is impacting bird migration.

REFLECTION PROMPTS

1. What surprised you the most about bird migration?
2. How do you think climate change might impact migration in the future?
3. What actions can we take to help protect migratory birds?

ASTRONOMY: METEOR SHOWERS

Unit Study Overview

UNIT OBJECTIVES

- Understand what meteor showers are and how they occur.
- Identify the key meteor showers visible in August (Perseids).
- Learn about the history and cultural significance of meteor showers.

KEY CONCEPTS

- Meteors, meteoroids, and meteorites: definitions and differences.
- The origin of meteor showers and their relationship with comets.
- The Perseids meteor shower: characteristics and when/how to observe it.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to meteor showers, terminology (meteors, meteoroids, meteorites), and their connection to comets.

[] **Week 2:** Research and create models explaining meteor shower occurrences. Begin observation journal.

[] **Week 3:** Plan and participate in a Perseids viewing night. Continue journal entries.

[] **Week 4:** Reflection, project presentations, and final assessments.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Advanced learners can research the role of meteors in planetary formation or investigate historical meteor impacts and their effects on Earth.

Adaptations: Provide simplified observation logs or pre-planned constellation maps for younger learners or those needing extra support. Use tactile models of the solar system and comets for hands-on learning.

SUGGESTED ACTIVITIES

[] **Observation Night:** Organize a night viewing of the Perseids meteor shower (peak mid-August) using a sky map or astronomy app.

[] **Meteor Shower Model:** Create a 3D model or infographic explaining how meteor showers happen, using visual aids like string, paper, and labels.

[] **Meteorite Lab:** Examine real or simulated meteorite samples and discuss their origin, characteristics, and impact on Earth.

[] **Create a Star Journal:** Track observations of the night sky over several days, recording weather, visible stars, and meteors.

RECOMMENDED RESOURCES



National Geographic Kids: Meteors by Melissa Stewart

Observing Meteor Showers by David Levy



The Magic School Bus: Sees Stars

Meteor: Fire in the Sky (Smithsonian Channel)



NASA's Space Place: Meteor Showers - <https://spaceplace.nasa.gov/meteor-shower/en/>

American Meteor Society (AMS) - <https://www.amsmeteors.org/>

ASSESSMENT METHODS

[] **Observation Log:** Students will maintain a journal documenting their observations of the night sky during the Perseids meteor shower.

[] **Meteor Shower Report:** Each student will write a brief report on a famous meteor shower (e.g., Leonids, Geminids, Perseids) and present their findings to the class.

[] **Creative Project:** Create a visual or artistic representation of a meteor shower (e.g., paintings, digital art, or a diorama).

REFLECTION PROMPTS

1. What surprised you the most about meteor showers?
2. How do meteor showers help scientists learn about space and our solar system?
3. What did you notice about the timing and frequency of meteors during your observation?

FLOWERS & POLLINATORS

Unit Study Overview

UNIT OBJECTIVES

- Understand the role of flowers and pollinators in ecosystems.
- Explore the relationship between different types of flowers and the insects, birds, and animals that pollinate them.
- Recognize the importance of pollinators in food production and biodiversity.

KEY CONCEPTS

- Parts of a flower and their functions.
- The process of pollination and fertilization in plants.
- Types of pollinators (bees, butterflies, birds, etc.) and how they interact with flowers.
- The ecological importance of pollinators and the challenges they face (e.g., habitat loss, pesticides).

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to flowers (structure and function), flower dissection.

[] **Week 2:** Focus on pollinators and their role in ecosystems.

[] **Week 3:** Activities like garden planning and pollinator observation.

[] **Week 4:** Assessment activities and reflection.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Explore the effects of pesticides and climate change on pollinator populations and research current conservation efforts.

Adaptations: Use visual aids, videos, and hands-on activities for learners who need additional support in grasping abstract concepts.

SUGGESTED ACTIVITIES

[] **Flower Dissection:** Students dissect a flower and label its parts (petals, stamen, pistil, etc.).

[] **Pollinator Observation:** Visit a garden or park and observe different pollinators in action. Record observations in a nature journal.

[] **Pollinator-Friendly Garden:** Plan and create a small garden with flowers that attract pollinators like bees and butterflies.

[] **Bee Dance Simulation:** Learn how bees communicate through a "waggle dance" and simulate it to understand how they locate flowers.

RECOMMENDED RESOURCES



The Reason for a Flower by Ruth Heller

What If There Were No Bees? by Suzanne Slade

The Bee Book by Charlotte Milner



Wings of Life (DisneyNature, 2013)

The Secret Life of Plants (BBC)

Bee Movie (2007)



National Geographic Kids: Pollinators - <https://kids.national-geographic.com>

ASSESSMENT METHODS

[] **Pollinator Field Guide:** Students create their own guidebook with drawings and descriptions of various pollinators observed during the unit.

[] **Flower and Pollinator Matching Game:** Match flowers with their ideal pollinators based on characteristics like shape, color, and scent.

[] **Reflective Writing:** Write a journal entry answering: "Why are pollinators essential for life on Earth?" and "What can we do to protect them?"

REFLECTION PROMPTS

1. How do flowers and pollinators depend on each other for survival?
2. What can you do to help protect pollinators in your community?

SUMMER SOLSTICE (JUNE 21)

Unit Study Overview

UNIT OBJECTIVES

- Understand the scientific explanation behind the summer solstice.
- Explore how different cultures celebrate the summer solstice.
- Investigate the impact of the solstice on weather, agriculture, and daily life.

KEY CONCEPTS

- The tilt of the Earth and its effect on seasons.
- The significance of the summer solstice as the longest day of the year.
- Historical and cultural traditions tied to the solstice (e.g., Stonehenge, Midsummer festivals).
- The effects of the solstice on ecosystems (longer daylight, growth cycles in plants, etc.).

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to Earth's axial tilt and its impact on seasons.
- [] **Week 2:** Focus on scientific experiments (sun tracking, sundial making).
- [] **Week 3:** Research on cultural celebrations and their significance.
- [] **Week 4:** Final presentations and creative projects, reflection on the solstice.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research ancient solstice sites (e.g., Stonehenge, Newgrange) and investigate how ancient civilizations tracked celestial events.

Adaptations: Use multimedia resources, such as documentaries or apps that simulate the Earth's tilt and orbit, for students who are visual learners.

SUGGESTED ACTIVITIES

- [] **Sun Tracking Experiment:** Have students observe the position of the sun at different times of the day and track the shadows.
- [] **Create a Sundial:** Build a simple sundial and use it to track time during the week of the solstice.
- [] **Midsummer Festival Roleplay:** Research various cultural celebrations and have students recreate one (e.g., Swedish Midsummer dance, Native American solstice ceremonies).
- [] **Outdoor Nature Walk:** Observe how plants and animals are impacted by the longer days and warmer temperatures.

RECOMMENDED RESOURCES



The Longest Day: Celebrating the Summer Solstice by Wendy Pfeffer

The Reasons for Seasons by Gail Gibbons

Midsummer: Magical Celebrations of the Summer Solstice by Anna Franklin



NOVA: Earth's Seasonal Cycles

How the Earth Works: Season 1, Episode 3

The Secret of Kells



NASA's Earth Science Site - <https://science.nasa.gov/earth-science/>

ASSESSMENT METHODS

- [] **Presentation or Report:** Have students create a presentation or write a report on a cultural solstice celebration, explaining its significance and traditions.
- [] **Creative Project:** Students can design and present a model or piece of artwork that explains the science behind the solstice.
- [] **Quiz:** Assess knowledge with a short quiz on the Earth's tilt, the solstice, and related scientific concepts.

REFLECTION PROMPTS

1. How does the Earth's tilt affect our weather and seasons?
2. Why do you think different cultures celebrate the solstice in different ways?
3. How does the extra daylight during the summer solstice impact the natural world around us?

OCEAN EXPLORATION

Unit Study Overview

UNIT OBJECTIVES

- Investigate the importance of ocean ecosystems and conservation efforts.
- Learn about famous ocean explorers and advancements in marine technology.
- Understand the physical and biological characteristics of the ocean and its zones.

KEY CONCEPTS

- Ocean zones (sunlight zone, twilight zone, deep ocean) and their unique ecosystems.
- The history of ocean exploration, from early explorers to modern technology (submarines, ROVs).
- The importance of the ocean in regulating Earth's climate, and its role in the global ecosystem.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the water cycle, focusing on vocabulary (evaporation, condensation, precipitation).

[] **Week 2:** Conduct experiments (water cycle in a bag, cloud in a jar) and discuss their results.

[] **Week 3:** Explore weather patterns and how they relate to the water cycle. Weather tracking activity.

[] **Week 4:** Complete assessments (models, quiz) and reflect on the unit.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Advanced learners can dive deeper into topics like oceanography or the study of hydrothermal vents and deep-sea creatures.

Adaptations: For younger students, simplify the content by focusing on ocean animals and basic facts about ocean layers. Use picture books and age-appropriate documentaries.

SUGGESTED ACTIVITIES

[] **Ocean Zone Layering Experiment:** Create a model using liquids with different densities (e.g., colored water, oil) to represent the ocean's layers.

[] **Explorer Research Project:** Have students research and present on a famous ocean explorer like Jacques Cousteau, Sylvia Earle, or Robert Ballard.

[] **Virtual Dive:** Use online resources (e.g., National Geographic or the Smithsonian) to take a virtual dive and explore coral reefs, deep-sea trenches, or shipwrecks.

[] **Build an ROV (Remotely Operated Vehicle):** Create a simple ROV model using materials like motors, propellers, and waterproof containers to simulate underwater exploration.

RECOMMENDED RESOURCES



The Brilliant Deep: Rebuilding the World's Coral Reefs by Kate Messner

Manfish: A Story of Jacques Cousteau by Jennifer Bern



Blue Planet II (BBC)

Mission Blue (Netflix) (2014)

Oceans (DisneyNature) (2009)

Finding Nemo (2003)



NOAA Ocean Explorer - <https://oceanexplorer.noaa.gov/>

Kids' Ocean Day - <http://www.kidsoceanday.org/>

ASSESSMENT METHODS

[] **Presentation:** Students give a presentation on an ocean explorer, including their discoveries and impact on modern ocean science.

[] **Ocean Zones Quiz:** Assess understanding of the different layers of the ocean and the creatures that live in each.

[] **Poster/Art Project:** Create posters about ocean conservation, showcasing key facts about threats to the oceans and solutions for protecting them.

REFLECTION PROMPTS

1. What surprised you most about the ocean and its ecosystems?
2. How have advancements in technology changed how we explore the ocean?
3. Why is ocean conservation important, and what can we do to help protect it?

INSECTS AND THEIR HABITATS

Unit Study Overview

UNIT OBJECTIVES

- Understand the diversity of insect species and their roles in ecosystems.
- Explore different habitats where insects thrive and how they adapt to their environments.
- Investigate the relationship between insects and other living organisms (e.g., plants, animals, humans).

KEY CONCEPTS

- The characteristics of insects (body structure, life cycle, etc.).
- Types of insect habitats (forest, wetland, desert, garden, etc.).
- The importance of insects in pollination, decomposition, and the food chain.
- Insect adaptations and survival strategies (camouflage, mimicry, etc.).
- The impact of human activities on insect populations and their habitats.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to insects – structure, classification, and life cycles.

[] **Week 2:** Explore different insect habitats (e.g., forest, wetland, desert).

[] **Week 3:** Focus on specific roles of insects in ecosystems (pollinators, decomposers).

[] **Week 4:** Final projects and presentations (insect hotel, research, or diorama).

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research the ecological impact of endangered insect species and human-caused habitat destruction.

Adaptations: For visual learners, create a large wall chart of the insect life cycle or use multimedia tools to watch insect behavior.

SUGGESTED ACTIVITIES

[] **Insect Safari:** Take a nature walk or explore your backyard to observe and identify local insects. Use a magnifying glass to study them up close.

[] **Build an Insect Hotel:** Create a shelter for beneficial insects using natural materials like wood, leaves, and straw.

[] **Insect Observation Journal:** Keep a daily journal to sketch and document insects you find, including their habitat, behavior, and characteristics.

[] **Butterfly Life Cycle Project:** Raise caterpillars at home or in class to observe the metamorphosis into butterflies.

RECOMMENDED RESOURCES



The Big Book of Bugs
by Yuval Zommer

The Backyard Bug Book for Kids
by Lauren Davidson

Insectopedia by Hugh Raffles

National Geographic Kids Everything Insects
by Carrie Gleason



Microcosmos (1996)

Life in the Undergrowth (2005, BBC)

A Bug's Life (1998)



National Geographic Kids website - <https://kids.national-geographic.com/>

Insect Identification website - <https://www.insectidentification.org/>

ASSESSMENT METHODS

[] **Insect Research Presentation:** Students create a poster or digital presentation about their chosen insect, focusing on its habitat, lifecycle, and ecological role.

[] **Insect Hotel Reflection:** Write a reflection or report on the insect hotel project, including what materials were used and what insects were attracted.

[] **Insect Habitat Diorama:** Create a diorama representing an insect habitat, showcasing the environment and the insect's adaptations.

REFLECTION PROMPTS

1. How do flowers and pollinators depend on each other for survival?
2. What can you do to help protect pollinators in your community?

4TH OF JULY HISTORY

Unit Study Overview

UNIT OBJECTIVES

- Analyze how Independence Day is celebrated and its meaning today.
- Understand the historical significance of the 4th of July and its role in American independence.
- Explore key events, figures, and documents that led to the Declaration of Independence.

KEY CONCEPTS

- The causes and effects of the American Revolution.
- Key figures such as George Washington, Thomas Jefferson, and John Adams.
- The drafting and signing of the Declaration of Independence.
- The significance of patriotism and how it has evolved over time.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the causes of the American Revolution.
- [] **Week 2:** Focus on key historical figures and their contributions to independence.
- [] **Week 3:** Analyze the Declaration of Independence and its meaning.
- [] **Week 4:** Celebrate and reflect on the 4th of July through projects and activities.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Advanced students can research and compare independence movements from other countries and how the American Revolution influenced global events.

Adaptation: For younger or struggling learners, focus more on the celebrations of 4th of July and patriotic symbols, using visual aids and simplified texts.

SUGGESTED ACTIVITIES

- [] **Historical Timeline Project:** Create a visual timeline of events leading up to the 4th of July, from the Boston Tea Party to the signing of the Declaration of Independence.
- [] **Declaration of Independence Analysis:** Read and dissect key parts of the Declaration of Independence, discussing its core principles.
- [] **Role-Playing Activity:** Students can role-play a debate between Loyalists and Patriots leading up to the Revolutionary War.
- [] **Create a 4th of July Celebration:** Research how different states and communities celebrate the 4th of July. Plan a class celebration incorporating historical elements.
- [] **Movie Day:** Watch a historically accurate movie or documentary, followed by a discussion.

RECOMMENDED RESOURCES



The Night Before the Fourth of July by Natasha Wing

The 4th of July Story by Alice Dalgliesh

Apple Pie 4th of July by Janet S. Won



Liberty's Kids (TV Series)

A Capitol Fourth (Annual Concert)



PBS LearningMedia: 4th of July - <https://www.pbs.org/education/blog/liberty-and-the-pursuit-of-great-resources-to-understanding-american-independence>

ASSESSMENT METHODS

- [] **Essay Assignment:** Write an essay on the importance of the Declaration of Independence and how it shaped American values.
- [] **Group Presentation:** Each group presents on a specific Revolutionary event or figure, using both historical context and modern-day relevance.
- [] **Patriotism Poster:** Create a poster or infographic on what patriotism means in today's society compared to 1776.

REFLECTION PROMPTS

1. How do the values expressed in the Declaration of Independence apply today?
2. What does the 4th of July mean to you and your community?

WEATHER AND STORMS

Unit Study Overview

UNIT OBJECTIVES

- Understand the formation of different types of weather patterns, including storms.
- Learn about the water cycle and its role in weather.
- Explore the impact of severe weather on the environment and communities.

KEY CONCEPTS

- The Water Cycle (evaporation, condensation, precipitation, collection).
- Types of Weather (sunny, cloudy, windy, rainy, etc.).
- Severe Weather Events (thunderstorms, hurricanes, tornadoes, blizzards).
- How to prepare for and stay safe during severe weather.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the water cycle and basic weather patterns.

[] **Week 2:** Study of different types of clouds and their formation.

[] **Week 3:** Deep dive into severe weather types (hurricanes, tornadoes, thunderstorms).

[] **Week 4:** Safety in severe weather and culminating projects (presentations and models).

EXTENSIONS & ADAPTATIONS

Advanced Learners: Advanced learners can track and analyze real-time weather data using online meteorology tools and create predictions.

Adaptation: For visual learners, use diagrams, videos, and weather apps to demonstrate key concepts.

SUGGESTED ACTIVITIES

[] **Weather Journal:** Students record daily weather observations, noting changes and patterns.

[] **Water Cycle Model:** Create a simple model demonstrating the stages of the water cycle using household items.

[] **Storm Safety Plan:** Research and create a safety plan for hurricanes, tornadoes, or other severe weather.

[] **Cloud Identification Walk:** Go outside and observe clouds, learning to identify different types (cumulus, cirrus, stratus, etc.).

RECOMMENDED RESOURCES



The Everything Kids' Weather Book by Joe Snedeker

The Magic School Bus: Inside a Hurricane by Joanna Cole



Wild Weather (PBS)

Storm Chasers (Discovery Channel)

Cloudy with a Chance of Meatballs (2009)

Twister (1996)



NASA's Climate Kids - <https://climatekids.nasa.gov/>

National Weather Service Kids Page - <https://www.weather.gov/cae/justforkids.html>

ASSESSMENT METHODS

[] **Weather Report Presentation:** Students research a specific type of weather or storm and present their findings as a "weather reporter."

[] **Storm Simulation Project:** Create a model or diorama that simulates how different weather patterns form.

[] **Quiz on Weather Terms:** Assess knowledge on key terms (e.g., precipitation, evaporation, hurricane, thunderstorm).

REFLECTION PROMPTS

1. What surprised you most about the way storms form?
2. How do you think weather impacts daily life, both locally and globally?
3. Which weather phenomenon do you find the most interesting and why?

THE SOLAR SYSTEM

Unit Study Overview

UNIT OBJECTIVES

- Understand the structure and components of the solar system.
- Learn key facts about each planet, moons, and other celestial bodies like asteroids and comets.
- Explore the relationship between the sun and the planets, and how gravity holds the solar system together.

KEY CONCEPTS

- The sun as the central star and its role in the solar system.
- The eight planets, their characteristics, and their orbits.
- Dwarf planets (e.g., Pluto), moons, asteroids, and comets.
- Gravity and its influence on planetary motion.
- Space exploration and its contributions to our understanding of the solar system.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the solar system and overview of planets.
- [] **Week 2:** Research and activities on individual planets and moons.
- [] **Week 3:** Space exploration and the role of gravity.
- [] **Week 4:** Presentations and assessment activities.

EXTENSIONS & ADAPTATIONS

Advanced learners can explore space missions like Voyager or study space probes and their discoveries.

For visual learners, use interactive simulations and videos to help visualize the size and scale of the solar system.

Kinesthetic learners can build models or engage in hands-on experiments related to gravity and orbit.

SUGGESTED ACTIVITIES

- [] **Ocean Zone Layering Experiment:** Create a model using liquids with different densities (e.g., colored water, oil) to represent the ocean's layers.
- [] **Solar System Model:** Create a 3D or 2D model of the solar system, showing the relative sizes and distances of the planets from the sun.
- [] **Planet Research Project:** Assign each student (or group) a planet to research and present to the class, including facts like size, atmosphere, number of moons, and interesting phenomena (e.g., Jupiter's Great Red Spot).
- [] **Night Sky Observation:** If possible, plan a stargazing night or visit a planetarium to observe planets visible during July, such as Mars, Jupiter, or Saturn.

RECOMMENDED RESOURCES



The Solar System by Emily Bone

The Planets by Dava Sobel

National Geographic Kids First Big Book of Space by Catherine D. Hughes



Cosmos: A Space-time Odyssey

The Universe (TV series)

Apollo 13



NASA's Solar System Exploration - <https://solarsystem.nasa.gov/>

Solar System Scope (Interactive Simulation) - <https://www.solarsystem-scope.com/>

ASSESSMENT METHODS

- [] **Group Presentation:** Each group presents their research on a planet, including visual aids like posters or models.
- [] **Quiz:** A short quiz on the order of the planets, their distinguishing features, and the role of the sun.
- [] **Creative Assignment:** Design a travel brochure for a hypothetical vacation to one of the planets, including important facts and "must-see" features.

REFLECTION PROMPTS

1. How do the sun and gravity shape the solar system?
2. What is the most surprising fact you learned about a planet or moon?
3. How has space exploration changed our understanding of the solar system?

THE SCIENCE OF SOUND

Unit Study Overview

UNIT OBJECTIVES

- Understand how sound is produced, transmitted, and heard.
- Explore the properties of sound waves (frequency, amplitude, pitch).
- Investigate the role of sound in communication and technology.

KEY CONCEPTS

- Sound is a type of energy produced by vibrations.
- Sound travels through different mediums (air, water, solids).
- The characteristics of sound waves affect how we perceive sound (loudness, pitch).
- Technology uses sound in various applications (music, communication, sonar).

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to sound waves and vibration activities.
- [] **Week 2:** Experiments on sound transmission and echoes.
- [] **Week 3:** Investigating sound in technology (microphones, sonar, etc.).
- [] **Week 4:** Reflection, presentations, and assessment.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Explore the Doppler effect or how sound is used in medical imaging (ultrasound).

Adaptations: Visual learners can benefit from sound wave diagrams, while kinesthetic learners will enjoy the hands-on instrument and vibration activities.

SUGGESTED ACTIVITIES

- [] **Vibration Exploration:** Create simple instruments (like rubber band guitars or shakers) to explore how vibrations produce sound.
- [] **Sound Wave Experiments:** Use tuning forks or apps to visualize sound waves and compare different pitches and frequencies.
- [] **Echoes and Reflections:** Experiment with echoes by shouting in different environments and learning how sound reflects off surfaces.
- [] **DIY Telephone:** Make a string-and-cup telephone to explore how sound travels through solids.
- [] **Sound Mapping:** Go on a sound walk and create a sound map of the different noises in your environment.

RECOMMENDED RESOURCES



Sounds All Around by Wendy Pfeffer

The Listening Walk by Paul Showers

Zin! Zin! Zin! A Violin by Lloyd Moss



Curiositystream - The Science of Sound

Sound: A Journey through the Universe (YouTube)



NASA Sound Wave Resources - <https://www3.nasa.gov/specials/Quest/-science-of-sound.html>

ASSESSMENT METHODS

- [] **Sound Presentation:** Have students create and present a sound experiment, explaining the science behind what they did.
- [] **Sound Reflection Journal:** Students keep a journal, reflecting on the different sounds they encounter during the unit and what they learned about sound waves and vibrations.
- [] **Create a Musical Instrument:** Students design their own instrument, demonstrating understanding of how sound is created and modified (pitch, volume).

REFLECTION PROMPTS

1. How does sound change depending on the material it travels through?
2. What did you notice about how loudness and pitch affect the way we hear sounds?
3. How is sound used in technology, and why is it important?

THE SCIENCE OF FIRE

Unit Study Overview

UNIT OBJECTIVES

- Explore the role of fire in ecosystems and its uses in human history.
- Understand the basic science of fire, including the fire triangle (heat, fuel, oxygen).
- Learn about fire safety and the importance of controlled burns in nature.

KEY CONCEPTS

- **Fire's Role in Nature:** How wildfires contribute to forest regeneration and affect wildlife habitats.
- **The Fire Triangle:** Heat, fuel, and oxygen are the three elements required for fire to ignite and sustain.
- **Human Interaction with Fire:** Fire's use in cooking, heating, and industry, as well as its dangers.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the science of fire and the fire triangle.

[] **Week 2:** Understanding wildfires and their role in nature.

[] **Week 3:** Fire safety lessons and activities.

[] **Week 4:** History of fire use and student presentations.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Advanced learners can research the chemical reactions in different types of fires (e.g., wildfires vs. industrial fires) and how different materials burn.

Adaptations: Visual learners can benefit from videos and hands-on fire safety demonstrations, while kinesthetic learners may enjoy activities like the fire triangle experiment.

SUGGESTED ACTIVITIES

[] **Fire Triangle Experiment:** Set up a safe experiment demonstrating the fire triangle using candles, water, and glass jars.

[] **Controlled Burns Research:** Study how controlled burns help maintain ecosystems by preventing larger wildfires.

[] **History of Fire:** Create a timeline of fire's use by humans, from prehistoric times to modern-day technologies.

[] **Field Trip or Virtual Tour:** Visit a fire department or take a virtual tour of a forest management area that conducts controlled burns.

[] **Art Project:** Create a poster or infographic on fire safety tips and prevention methods.

RECOMMENDED RESOURCES



Fire: Friend or Foe?
by Dorothy Hinshaw
Patent

**The Fire Engine
Book** by Tibor
Gergely



Fire Chasers (Netflix
Series)

The Science of Fire
(YouTube)



Sparky the Fire Dog -
Sparky.org

ASSESSMENT METHODS

[] **Fire Safety Poster:** Students create a fire safety poster demonstrating key fire safety tips and how to prevent fires.

[] **Science Experiment Report:** After conducting the fire triangle experiment, students submit a short report on their observations and conclusions.

[] **Research Presentation:** Each student presents a project on the ecological impact of wildfires or the history of fire use in human culture.

REFLECTION PROMPTS

1. What did you learn about the role of fire in nature?
2. How can fire be both helpful and harmful?
3. What are some important fire safety tips you will always remember?

BACK TO SCHOOL PREP

Unit Study Overview

UNIT OBJECTIVES

- Learn strategies for effective time management and organization.
- Set academic and personal goals for the upcoming school year.
- Build routines for healthy study habits and self-care.

KEY CONCEPTS

- Importance of goal setting and tracking progress.
- Effective time management and the use of planners.
- Building and maintaining a healthy school-life balance.
- The importance of organization in learning and daily life.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to goal setting and creating a vision board.
- [] **Week 2:** Time management activities and creating personal planners.
- [] **Week 3:** Developing morning/evening routines and reflecting on habits.
- [] **Week 4:** Final presentations and reflections on personal goals.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Can research productivity techniques such as the Pomodoro Technique or Eisenhower Matrix and apply them.

Adaptations: For younger students, simplify time management with shorter activities and use visual planners (like sticker charts or illustrated routines).

SUGGESTED ACTIVITIES

- [] **Create a Personal Planner:** Students design or customize their own planner for the school year, incorporating academic, personal, and extracurricular goals.
- [] **Time Management Challenge:** Assign a week where students log their activities and analyze how they spend their time. Discuss strategies to maximize productivity.
- [] **Vision Board Creation:** Students gather images, quotes, and goals to create a vision board representing what they want to achieve this year.
- [] **Morning and Evening Routines:** Develop routines for a smooth start and end to each day. Students can create checklists and practice these routines.

RECOMMENDED RESOURCES



The 7 Habits of Highly Effective Teens by Sean Covey

The Night Before First Grade by Natasha Wing

David Goes to School by David Shannon



Back to School (1986)

School of Rock (2003)

A Kid's Life: Back to School (2017)



PBS Kids - Back to School - <https://pbskids.org/games/back-to-school>

Scholastic - Back to School Resource Center - <https://education.scholastic.com/education/solutions/back-to-school.html>

ASSESSMENT METHODS

- [] **Personal Planner Completion:** Students submit their personalized planners, explaining how they've set up their schedules and goals.
- [] **Presentation:** Students present their vision boards, discussing their goals for the year and how they plan to achieve them.
- [] **Routine Reflection:** After practicing their morning and evening routines, students write a reflection on what worked, what didn't, and how they plan to stick with it.

REFLECTION PROMPTS

1. What are three goals you have for the upcoming school year, and how do you plan to achieve them?
2. How does having a daily routine affect your productivity and mindset?

AUTUMN EQUINOX (SEPTEMBER 22)

Unit Study Overview

UNIT OBJECTIVES

- Understand the scientific principles behind the autumn equinox, including Earth's tilt and its impact on day length and seasons.
- Explore cultural celebrations and traditions related to the autumn equinox.
- Recognize the effects of seasonal changes on nature, agriculture, and human activities.

KEY CONCEPTS

- The tilt of Earth's axis and how it affects seasonal changes.
- The concept of balance between day and night during the equinox.
- Cultural significance of autumn harvest festivals and celebrations.
- Changes in nature, including plant life, animal behavior, and weather patterns as fall begins.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the science of the autumn equinox, focusing on Earth's orbit and axis.
- [] **Week 2:** Activities exploring the cultural and historical significance of the equinox, including research on harvest festivals.
- [] **Week 3:** Outdoor nature walk and observations of seasonal changes, followed by discussions and art projects.
- [] **Week 4:** Final project presentations and assessment.

EXTENSIONS & ADAPTATIONS

Advanced learners: Explore how equinoxes vary across hemispheres and why some regions don't experience all four seasons equally.

For Different Learning Styles: Visual learners can create a seasonal wheel. Kinesthetic learners can build models or do hands-on experiments.

SUGGESTED ACTIVITIES

- [] **Science Experiment:** Use a globe and light to model how Earth's tilt causes seasons and why the equinox means equal day and night.
- [] **Nature Walk:** Observe seasonal changes like leaf color, animals preparing for winter, and crop harvesting. Collect leaves for identification.
- [] **Harvest Feast:** Research harvest festivals (e.g., Thanksgiving, Sukkot, Mabon) and host a potluck with autumn-themed dishes and facts.

RECOMMENDED RESOURCES



The Reasons for Seasons by Gail Gibbons

Autumn: An Alphabet Acrostic by Steven Schnur



Autumnwatch (BBC)

Planet Earth: Seasonal Forests

Over the Hedge



NASA's educational page on the Autumn Equinox for kids - https://blogs.nasa.gov-/Watch_the_Skies/tag/autumnal-equinox/

ASSESSMENT METHODS

- [] **Project:** Create a visual (poster, diagram, or model) showing how Earth's tilt causes the equinox and affects seasons.
- [] **Presentation:** Research and present a cultural festival or tradition related to the autumn equinox (e.g., Thanksgiving, Sukkot, Mabon).
- [] **Creative Writing:** Write a story or poem from the perspective of a tree or animal experiencing the onset of autumn.

REFLECTION PROMPTS

1. How do changes in the Earth's tilt and orbit affect the length of day and night throughout the year?
2. Why is the equinox a time of balance, and what does that mean scientifically and culturally?
3. How do different cultures celebrate the beginning of autumn, and why is this time important for agriculture?

APPLES AND ORCHARDS

Unit Study Overview

UNIT OBJECTIVES

- Understand the life cycle of an apple tree from seed to fruit.
- Explore the history and significance of apples in agriculture and culture.
- Learn about the process of growing, harvesting, and the uses of apples.

KEY CONCEPTS

- The life cycle of apple trees: seed, sprout, tree, flower, fruit.
- Pollination and the role of bees in orchards.
- The different varieties of apples and their uses (cooking, eating, cider making).
- Orchard management and the science of growing apples.
- The history of apples in different cultures, including Johnny Appleseed.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to apple trees and their life cycle.

[] **Week 2:** Activities on apple varieties and taste testing.

[] **Week 3:** Orchard field trip and Johnny Appleseed activity.

[] **Week 4:** Reflection, assessment, and creative projects.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Can research apple production in different regions and its economic importance, or study how grafting is used in apple farming.

Adaptations: For visual learners, emphasize the use of diagrams and videos. For kinesthetic learners, hands-on activities like planting apple seeds or making applesauce can be beneficial.

SUGGESTED ACTIVITIES

[] **Apple Dissection:** Cut open an apple to explore the parts: seeds, core, flesh, and skin. Draw and label each part.

[] **Life Cycle Chart:** Create a diagram showing the stages of an apple tree's growth.

[] **Apple Taste Test:** Compare different apple varieties (e.g., Granny Smith, Fuji, Honeycrisp) and discuss their textures, flavors, and best uses.

[] **Field Trip to an Orchard:** Visit a local apple orchard to learn about tree care, pollination, and harvesting.

RECOMMENDED RESOURCES



How Do Apples Grow? by Betsy Maestro

The Apple Orchard Riddle by Margaret McNamara

Johnny Appleseed: The Legend and the Truth by Jane Yolen



Johnny Appleseed (Disney's 1948 short film)

The Magic School Bus Gets Planted (TV Show)



Kids Gardening - Apples - <https://kids-gardening.org/?s=apples>

ASSESSMENT METHODS

[] **Apple Tree Life Cycle Quiz:** A short quiz on the stages of an apple tree's growth.

[] **Apple Varieties Poster:** Students will create a poster showcasing different apple varieties, highlighting their origins and uses.

[] **Orchard Visit Reflection:** After visiting an orchard, students will write a reflection or create a presentation on what they learned about apple farming.

REFLECTION PROMPTS

1. What did you learn about the life cycle of an apple tree?
2. How do bees help apples grow, and why is pollination important?
3. What are the differences between apple varieties, and how can they be used in cooking?

SOLAR ENERGY

Unit Study Overview

UNIT OBJECTIVES

- Understand how solar energy works and its applications.
- Learn about renewable energy sources and their importance in sustainability.
- Explore real-world uses of solar energy in daily life and industry.

KEY CONCEPTS

- The science behind solar energy and the sun as a power source.
- How solar panels work to convert sunlight into electricity.
- The role of solar energy in reducing carbon footprints and combating climate change.
- Comparing renewable vs. non-renewable energy sources.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to solar energy – what it is and how it works.
- [] **Week 2:** Experimentation and hands-on projects (DIY solar oven, solar panel activity).
- [] **Week 3:** Research and exploration of how solar energy is used globally and locally.
- [] **Week 4:** Student presentations, energy audit results, and reflection on the importance of renewable energy.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Advanced students can research cutting-edge solar technologies like solar-powered cars or space-based solar power.

Adaptations: For kinesthetic learners, prioritize hands-on experiments and building solar-powered models. For auditory learners, focus on documentaries and group discussions.

SUGGESTED ACTIVITIES

- [] **DIY Solar Oven:** Build a simple solar oven to understand how solar energy can generate heat.
- [] **Solar Panel Experiment:** Use a small solar panel to power a device (e.g., a small fan or light) and track energy output based on sunlight exposure.
- [] **Energy Audit:** Conduct a home energy audit to identify how much energy your household uses and discuss how solar energy could make a difference.
- [] **Field Trip:** Visit a solar farm or a building powered by solar energy.
- [] **Poster Project:** Research and create a poster on how different countries are implementing solar power.

RECOMMENDED RESOURCES



The Boy Who Harnessed the Wind by William Kamkwamba

Renewable Energy: Discover the Fuel of the Future with 20 Projects by Joshua Sneiderman



PBS NOVA: "Power Surge"

National Geographic: "Renewable Energy 101"

WALL-E (2008)



Energy Kids by the U.S. Energy Information Administration - <https://www.eia.gov/kids/>

ASSESSMENT METHODS

- [] **Solar Energy Presentation:** Students can create and present a PowerPoint or video on the benefits of solar energy.
- [] **Quiz:** A short quiz on how solar energy works, renewable energy sources, and key terms like "photovoltaic cells."
- [] **Solar Project Reflection:** Write a reflection on the solar panel or solar oven experiment, focusing on what was learned and potential real-world applications.

REFLECTION PROMPTS

1. What are some of the benefits of using solar energy over fossil fuels?
2. How could solar energy be used more effectively in your home or community?
3. What challenges do we face in making solar energy widely accessible?

THE MOON AND TIDES

Unit Study Overview

UNIT OBJECTIVES

- Understand the relationship between the Moon, Earth, and tides.
- Learn how the Moon's phases affect ocean tides.
- Explore how tides impact ecosystems and human activities.

KEY CONCEPTS

- The gravitational pull of the Moon and its effect on tides.
- The difference between high tides, low tides, spring tides, and neap tides.
- The lunar phases (New Moon, Full Moon, Quarter Moons) and their connection to tides.
- The impact of tides on coastal ecosystems and marine life.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the Moon and its gravitational pull. Begin tracking local tides.

[] **Week 2:** Study Moon phases and their impact on tides. Complete the Moon Phases Art Project.

[] **Week 3:** Explore how tides affect coastal ecosystems. Watch a documentary or show.

[] **Week 4:** Final assessment through creative project or report.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Investigate how tides differ across various geographical locations and seasons.

Adaptations for Younger Learners: Use more hands-on models to explain gravity and simplify tidal terminology with visuals.

SUGGESTED ACTIVITIES

[] **Tide Tracking Journal:** Over the course of a week, observe and record local tidal changes using tide charts or apps.

[] **Moon Phases Art Project:** Create a visual representation of the lunar phases using paper, paint, or clay.

[] **Field Trip (Optional):** Visit a coastal area or an aquarium with a focus on tidal zones to see the effect of tides in action.

[] **Gravitational Force Experiment:** Use objects of different masses and distances to simulate how the Moon's gravity pulls on the Earth's oceans.

RECOMMENDED RESOURCES



The Moon Book by Gail Gibbons

The Science of the Ocean by DK

High Tide for Horseshoe Crabs by Lisa Kahn Schnell

The Tides and the Ocean by William Thomson



BBC Earth - The Moon: Our Natural Satellite

Bill Nye the Science Guy: Ocean Tides

Tidal Seas from The Blue Planet (BBC)



NASA's Moon Portal - <https://science.nasa.gov/moon/>

NOAA Tides and Currents - <https://tidesandcurrents.noaa.gov/>

ASSESSMENT METHODS

[] **Tide and Moon Phase Report:** Students will prepare a report on how the Moon influences tides, with illustrations of phases and tide types.

[] **Creative Assignment:** Create a model or a visual timeline that shows the connection between the Moon's phases and the occurrence of high and low tides.

[] **Quiz:** A short quiz covering key terms (spring tide, neap tide, gravitational pull, lunar phases).

REFLECTION PROMPTS

1. How does the Moon influence our daily lives through its effect on tides?
2. What surprised you about the relationship between the Earth, Moon, and ocean?
3. How might changing tides impact life on Earth, both for humans and marine life?

HALLOWEEN TRADITIONS

Unit Study Overview

UNIT OBJECTIVES

- Explore the history and origins of Halloween.
- Understand how different cultures celebrate or observe similar festivals.
- Discuss how traditions evolve over time and influence modern celebrations.

KEY CONCEPTS

- The origins of Halloween in Celtic festivals (Samhain) and its evolution through history.
- Global celebrations similar to Halloween (e.g., Día de los Muertos, All Saints' Day).
- The role of costumes, pumpkins, and "trick-or-treating" in Halloween traditions.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the history of Halloween and ancient Celtic festival origins.
- [] **Week 2:** Research different global traditions similar to Halloween.
- [] **Week 3:** Activities: pumpkin carving, creative writing, and cultural comparison.
- [] **Week 4:** Presentations, assessments, and reflective activities.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research how Halloween traditions vary within different regions of the same country (e.g., the U.S. or Canada).

Adaptations for Different Learning Styles: Visual learners can create Halloween-related art projects. Kinesthetic learners can participate in the pumpkin carving and decoration activities. Auditory learners can listen to Halloween-themed audiobooks or podcasts.

SUGGESTED ACTIVITIES

- [] **Historical Timeline Project:** Create a timeline of Halloween from its roots in ancient Celtic culture to modern times.
- [] **Pumpkin Science:** Carve pumpkins and discuss the biology of pumpkins (life cycle, growth).
- [] **Cultural Comparison:** Research and present on a tradition similar to Halloween from another culture (e.g., Mexico's Día de los Muertos).

RECOMMENDED RESOURCES



Halloween: An American Holiday, An American History by Lesley Pratt Bannatyne

Halloween Is... by Gail Gibbons



Hocus Pocus (1993)

The Nightmare Before Christmas (1993)

It's the Great Pumpkin, Charlie Brown (1966)



National Geographic Kids - Halloween - <https://kids.national-geographic.com/pages/topic/halloween-hangout>

ASSESSMENT METHODS

- [] **Research Presentation:** Students will present on the history of Halloween or a similar tradition from another culture.
- [] **Creative Assessment:** Write a reflective essay or journal entry on how Halloween traditions have changed from their historical roots.
- [] **Project Submission:** Create a poster or diorama representing different global Halloween traditions or festivals.

REFLECTION PROMPTS

1. How do you think Halloween traditions reflect the history and beliefs of the people who celebrate it?
2. What are some similarities and differences between Halloween and other festivals like Día de los Muertos?
3. How have modern Halloween traditions changed from their original meaning?

AUTUMN LEAVES AND TREES

Unit Study Overview

UNIT OBJECTIVES

- Understand the science behind why leaves change color in autumn.
- Identify different types of trees and their leaves.
- Explore the role of trees in ecosystems and seasonal cycles.

KEY CONCEPTS

- Photosynthesis and chlorophyll.
- Why leaves change color and fall in autumn.
- Different types of deciduous and evergreen trees.
- The importance of trees to wildlife and the environment.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to photosynthesis and leaf color changes.
- [] **Week 2:** Leaf identification and nature walk.
- [] **Week 3:** The role of trees in ecosystems and tree species study.
- [] **Week 4:** Art and writing projects to wrap up the unit.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research how climate change is affecting tree species and fall leaf colors.

Adaptations: Use tactile leaf models or sensory activities (like feeling tree bark) for students with different sensory needs.

SUGGESTED ACTIVITIES

- [] **Leaf Collection and Identification:** Gather leaves from various trees and use a guidebook to identify them. Create a leaf scrapbook or display.
- [] **The Science of Leaf Color:** Conduct an experiment to see how chlorophyll breaks down in leaves by using rubbing alcohol to extract pigments.
- [] **Tree Walk and Observation:** Visit a local park or forest to observe trees and their changes. Sketch or photograph trees and their leaves.
- [] **Create a Leaf Art Collage:** Make art by pressing colorful leaves or doing leaf rubbings.

RECOMMENDED RESOURCES



Leaf Man by Lois Ehlert

Why Do Leaves Change Color? by Betsy Maestro

Trees, Leaves, Flowers and Seeds by DK



The Private Life of Plants (BBC)

Planet Earth II (Forests episode)



KidZone - Autumn Leaves - <https://www.kidzone.ws/plants/index.htm>

Natural Learning Initiative - Autumn Leaves - <https://naturalearning.org/autumn-leaves-for-play-and-learning/>

ASSESSMENT METHODS

- [] **Leaf Identification Quiz:** Students identify leaves from various trees based on appearance or key characteristics.
- [] **Create a Tree Report:** Write a report on a chosen tree species, including its features, seasonal changes, and ecological importance.
- [] **Reflection Journal:** Students write about their experiences with trees and what they learned during nature walks and experiments.

REFLECTION PROMPTS:

1. What do you think is the most interesting thing about why leaves change color?
2. How do trees help the environment during autumn and other seasons?

THANKSGIVING & HARVEST TRADITIONS

Unit Study Overview

UNIT OBJECTIVES

- Understand the historical origins and significance of Thanksgiving.
- Explore harvest traditions from different cultures and their importance in food and community.
- Develop an appreciation for gratitude and its role in cultural celebrations.

KEY CONCEPTS

- The history of the first Thanksgiving in America.
- Harvest celebrations in other cultures (e.g., Harvest Moon Festival, Sukkot).
- The concept of gratitude and how it is expressed through food, traditions, and community.
- The impact of harvest festivals on community bonding and food sustainability.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the history of Thanksgiving and harvest festivals.

[] **Week 2:** Research different harvest traditions and assign student presentations.

[] **Week 3:** Craft and cooking projects focused on gratitude and traditional meals.

[] **Week 4:** Final presentations and reflection essays on gratitude.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research modern sustainability practices in farming and how harvest traditions have evolved to support local agriculture.

Adaptations: For younger learners, use more visual or tactile activities like making traditional Thanksgiving decorations (e.g., cornucopias, wreaths).

SUGGESTED ACTIVITIES

[] **Gratitude Tree Craft:** Students create a "gratitude tree" where they write down things they are thankful for on leaves and add them to a classroom tree.

[] **Thanksgiving Feast Simulation:** Plan a simple feast where students bring in traditional foods (or research and share dishes from other harvest festivals around the world).

[] **Harvest Traditions Research:** Assign students a harvest festival from another culture to research and present (e.g., Pongal in India, Thanksgiving in Canada, or Yam Festival in Ghana).

[] **Cooking Project:** Cook or bake a traditional Thanksgiving dish or a meal from another culture's harvest festival.

RECOMMENDED RESOURCES



Thanksgiving Is for Giving Thanks by Margaret Sutherland

Turkey Trouble by Wendi Silvano

A Turkey for Thanksgiving by Eve Buntin



A Charlie Brown Thanksgiving (1973)

The Real Story of Thanksgiving (2011)



Scholastic's Thanksgiving Resources - <https://teachables-scholastic.com/teachables/theme/holidays-and-celebrations/thanksgiving.html>

ASSESSMENT METHODS

[] **Presentations:** Each student will present on a harvest festival from a culture of their choice.

[] **Reflective Essay:** Students will write an essay on what they are most grateful for and how that gratitude is expressed in their daily lives.

[] **Cooking Project:** Students can submit a short reflection or recipe on the dish they created or shared during the cooking activity.

REFLECTION PROMPTS

1. Why is gratitude such a central part of harvest traditions around the world?
2. How do the foods we eat during harvest celebrations reflect the history and culture of the people who grow them?
3. What role do community and sharing play in the Thanksgiving and harvest festivals you've learned about?

THE PHASES OF THE MOON

Unit Study Overview

UNIT OBJECTIVES

- Understand the different phases of the moon and why they occur.
- Explore the moon's cycle and how it affects life on Earth (tides, calendars, etc.).

KEY CONCEPTS

- How the moon orbits the Earth and why we see different phases.
- The eight phases of the moon (new moon, waxing crescent, first quarter, waxing gibbous, full)
- The impact of the moon on Earth's tides and timekeeping systems (lunar calendar).

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the moon and lunar phases.
- [] **Week 2:** Hands-on activities and moon observation.
- [] **Week 3:** Deep dive into how the moon affects tides and calendars.
- [] **Week 4:** Presentations, reflection, and assessment.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Investigate how ancient civilizations used lunar calendars or how astronauts have studied the moon's surface.

For younger learners: Use simple crafts like Oreo cookies to visually represent moon phases.

SUGGESTED ACTIVITIES

- [] **Lunar Observation Chart:** Students observe the moon over the course of a month and chart its phases.
- [] **Moon Phase Models:** Create a model of the moon phases using a lamp and a ball (to represent the sun and the moon).
- [] **Tide and Moon Experiment:** Explore how the moon's gravitational pull creates tides using water and small objects.

RECOMMENDED RESOURCES



The Moon Book by Gail Gibbons

Faces of the Moon by Bob Creli

Phases of the Moon by Gillia M. Olson



The Universe: The Moon (History Channel)

One Strange Rock (Episode 5: "Survival")

The Magic School Bus: Gets Lost in Space



Moon Phase Calendar - <https://www.timeand-date.com/moon/phases/>

National Geographic Kids: Moon - <https://www.nat-geokids.com/uk/discover/science/space/facts-about-the-moon/>

ASSESSMENT METHODS

- [] **Lunar Observation Journal:** Students track the phases of the moon for 28 days and reflect on their observations.
- [] **Moon Phase Model Presentation:** Students create and present a model explaining the phases of the moon.
- [] **Tide and Moon Quiz:** A short quiz on the relationship between the moon and tides.

REFLECTION PROMPTS

1. How do the moon's phases affect the way we perceive time?
2. What would life on Earth be like without the moon?

ENDANGERED ANIMALS

Unit Study Overview

UNIT OBJECTIVES

- Understand the causes and effects of animal endangerment.
- Learn about global conservation efforts to protect endangered species.
- Explore ways that individuals and communities can help endangered animals.

KEY CONCEPTS

- The meaning of "endangered" and "extinct" species.
- Human impact on animal habitats (e.g., deforestation, climate change).
- Conservation methods (e.g., wildlife reserves, breeding programs).
- Conservation methods (e.g., wildlife reserves, breeding programs).

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to the concept of endangered species; choose an animal to research.

[] **Week 2:** Explore human impact on animal habitats and global conservation methods.

[] **Week 3:** Complete the diorama and research report.

[] **Week 4:** Present research and watch a documentary, followed by group discussion.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Explore how climate change specifically impacts various ecosystems and endangered animals, or compare conservation strategies in different countries.

Adaptations for Young Learners: Use picture books and hands-on activities like animal masks or simple games about the food chain.

SUGGESTED ACTIVITIES

- [] **Create a Habitat Diorama:** Students choose an endangered animal and build a model of its habitat, explaining the threats it faces and how conservation efforts are helping.
- [] **Research a Local Endangered Species:** Students investigate an endangered animal native to their country or region and present findings.
- [] **Adopt an Endangered Animal Program:** Encourage participation in symbolic adoption programs offered by organizations like WWF.

RECOMMENDED RESOURCES



We Are All Earthlings
by Karen Morgan

**The Great Kapok Tree:
A Tale of the Amazon
Rain Forest** by Lynne
Cherry

The Last Wild by Piers
Today



Born to be Wild (2011)

The Elephant Queen
(2019)

My Life as a Zucchini
(2016)



**National Geographic
Kids - Endangered
Animals -**

<https://kids.national-geographic.com/history/article/endangered-species-act>

ASSESSMENT METHODS

[] **Endangered Species Research Report:** Students write a detailed report on an endangered animal, focusing on why it's endangered and what efforts are being made to protect it.

[] **Creative Poster or Infographic:** Design an awareness campaign poster for a specific endangered species and what actions can be taken to save it.

[] **Presentation:** Students give an oral presentation on their research, including key facts, threats, and conservation efforts.

REFLECTION PROMPTS

1. Why is it important to protect endangered species?
2. How does the loss of one species affect the entire ecosystem?
3. What can you personally do to help protect animals in danger of extinction?

WINTER SOLSTICE (DECEMBER 21)

Unit Study Overview

UNIT OBJECTIVES

- Understand the science behind the Winter Solstice and its significance as the shortest day of the year.
- Explore how different cultures have celebrated and marked the Winter Solstice throughout history.
- Investigate the impact of the Winter Solstice on ecosystems and human activities.

KEY CONCEPTS

- The tilt of the Earth's axis and its relationship to the solstices.
- The concept of daylight hours and how they change throughout the year.
- Winter Solstice traditions across various cultures (e.g., Yule, Dongzhi Festival).
- The effect of seasonal changes on plants, animals, and human society.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the Earth's axis and the science of the solstice.
- [] **Week 2:** Cultural exploration of Winter Solstice celebrations and traditions.
- [] **Week 3:** Nature walks, experiments, and observations about the impact of the solstice on the environment.
- [] **Week 4:** Presentations, reflection activities, and assessments.

EXTENSIONS & ADAPTATIONS

Advanced Learners can investigate how ancient cultures used astronomical knowledge to create structures like Stonehenge to mark the Winter Solstice.

For younger students, adapt the science experiments to simpler observations about how the sun's position changes throughout the day.

SUGGESTED ACTIVITIES

- [] **Solstice Science Experiment:** Use a globe and a flashlight to demonstrate how the Earth's tilt causes the solstice and how daylight hours vary.
- [] **Create a Yule Log:** Learn about the Yule tradition by creating a decorative Yule log using natural materials.
- [] **Winter Nature Walk:** Take a walk to observe changes in the environment due to the solstice, discussing how plants and animals adapt to shorter days.
- [] **Solstice Reflection Writing:** Have students write or discuss how the shift from the darkest day towards increasing daylight has been symbolized in different cultures.

RECOMMENDED RESOURCES



The Shortest Day: Celebrating the Winter Solstice by Wendy Pfeffer

The Return of the Light: Twelve Tales from Around the World for the Winter Solstice by Carolyn McVickar Edwards



Cosmos (2014) by Neil deGrasse Tyson

The Blue Planet: Frozen Seas (BBC)

The Secret of Kells (2009)



NASA's Solar System Exploration website - <https://science.nasa.gov/solar-system/>

ASSESSMENT METHODS

- [] **Solstice Presentation:** Students can create a presentation or a poster on Winter Solstice traditions from a specific culture (e.g., Norse Yule, Dongzhi in China, or Native American observances).
- [] **Daylight Tracking Journal:** Track the length of daylight over the month leading up to and after the solstice to observe changes firsthand.
- [] **Creative Writing:** Have students write a myth or story about how ancient cultures might have explained the Winter Solstice.

REFLECTION PROMPTS:

1. How does the Winter Solstice affect the way people live, both today and in the past?
2. What is the significance of celebrating light and renewal during the darkest time of the year?
3. How do animals and plants adapt to the shorter days and colder temperatures?

GLOBAL HOLIDAY TRADITIONS

Unit Study Overview

UNIT OBJECTIVES

- Explore and understand different cultural and religious celebrations around the world during the winter season.
- Compare and contrast various global holiday traditions and their historical origins.

KEY CONCEPTS

- Holidays as cultural expressions of values, history, and religion.
- The diversity of holiday celebrations across different countries and cultures.
- Common themes such as light, family, and renewal during winter holidays.

TIMELINE/SCHEDULE

[] **Week 1:** Introduction to global holiday traditions, creating a holiday map, starting research.

[] **Week 2:** Explore specific holiday traditions like Diwali, Hanukkah, and Kwanzaa, focusing on their cultural significance.

[] **Week 3:** Engage in activities (cooking, crafting, and storytelling).

[] **Week 4:** Presentations and assessment through creative projects.

EXTENSIONS & ADAPTATIONS

Advanced learners can investigate historical conflicts and how holidays promote unity (e.g., the Christmas Truce of 1914).

Adaptations for different learning styles: Use videos, hands-on crafts, and interactive storytelling for kinesthetic and visual learners.

SUGGESTED ACTIVITIES

[] **Create a World Holiday Map:** Research and plot different winter holidays on a world map (e.g., Hanukkah, Kwanzaa, Christmas, Diwali, Winter Solstice, Yule).

[] **Holiday Cooking:** Pick a traditional recipe from a different culture and make it together as a family or class.

[] **Cultural Presentations:** Each student can research a holiday tradition from a country of their choice and present it, focusing on the history, symbols, and customs.

[] **Holiday Crafting:** Create DIY crafts or decorations tied to different holidays (e.g., paper lanterns for Diwali, Christmas ornaments, Kwanzaa candles).

RECOMMENDED RESOURCES



Holidays Around the World by Deborah Heiligman

The Shortest Day: Celebrating the Winter Solstice by Wendy Pfeffer



The Star (2017)

Hanukkah: The Festival of Lights (PBS Special)

Joyeux Noël (2005)



National Geographic Kids - <https://kids.nationalgeographic.com/celebrations>

ASSESSMENT METHODS

[] **Cultural Comparison Chart:** Students will create a chart that compares various holiday traditions by examining their symbols, foods, dates, and customs.

[] **Presentation/Poster Project:** Research and create a poster or digital presentation about a holiday tradition from a specific culture, including its origins, significance, and how it is celebrated today.

[] **Reflection Journal:** Students will write a reflection on what they learned about a holiday from another culture and how it differs or relates to holidays they celebrate.

REFLECTION PROMPTS

1. What similarities do you see between the holidays we've studied? How do these holidays celebrate light, family, or renewal?
2. How do these global holidays reflect the cultures and values of the people who celebrate them?
3. If you could celebrate a new holiday from another culture, which one would it be and why?

THE NORTHERN LIGHTS

Unit Study Overview

UNIT OBJECTIVES

- Understand the scientific causes of the Northern Lights (auroras).
- Explore the cultural and mythological significance of the Northern Lights in various societies.
- Identify the regions of the world where the Northern Lights are most commonly observed.

KEY CONCEPTS

- Solar wind and its interaction with Earth's magnetic field.
- The difference between the Aurora Borealis (Northern Hemisphere) and Aurora Australis (Southern Hemisphere).
- Cultural myths and legends surrounding auroras, including Norse, Indigenous, and Sami traditions.

TIMELINE/SCHEDULE

- [] **Week 1:** Introduction to the science behind the Northern Lights (solar winds, magnetic fields).
- [] **Week 2:** Cultural and mythological significance of auroras.
- [] **Week 3:** Hands-on activities and creative projects (science experiments, art).
- [] **Week 4:** Final presentations and reflections.

EXTENSIONS & ADAPTATIONS

Advanced Learners: Research the specific particles involved in auroras (electrons, protons) and the role of Earth's atmosphere in filtering the light.

Adaptations: For visual learners, use time-lapse videos of auroras and digital simulations to demonstrate the process. For hands-on learners, incorporate more tactile activities like magnetic field experiments.

SUGGESTED ACTIVITIES

- [] **Aurora Simulation Experiment:** Create a simple magnetic field experiment to demonstrate how solar particles interact with Earth's magnetic field.
- [] **Mythology Research:** Have students research and present on a legend or myth about the Northern Lights from different cultures.
- [] **Northern Lights Art Project:** Use pastels, watercolors, or digital art tools to create artwork that represents the vibrant colors and patterns of auroras.
- [] **Virtual Northern Lights Tour:** Watch online timelapses or virtual reality videos of the aurora from places like Norway, Alaska, or Iceland.

RECOMMENDED RESOURCES



The Northern Lights: The True Story of the Aurora Borealis by Helen Frost

Aurora: A Child's Book About the Northern Lights by Alisa Valdes



The Polar Express (2004)

The Secret of Kells (2009)



National Geographic - Northern Lights - <https://education.nationalgeographic.org/resource/aurora/>

ASSESSMENT METHODS

- [] **Research Project:** Students present on a scientific aspect of auroras or a cultural myth.
- [] **Creative Writing:** Write a short story or poem inspired by the Northern Lights.
- [] **Art Display:** Showcase students' artwork of the aurora, along with short explanations of how they interpreted the natural phenomenon.

REFLECTION PROMPTS:

1. What did you learn about the science behind the Northern Lights?
2. How do different cultures explain the Northern Lights? What similarities or differences did you notice?
3. Why do you think people have been fascinated by the Northern Lights throughout history?