

TOWER HILL

BOTANIC GARDEN



SEASONS IN NATURE

Teacher Guide

OVERVIEW

Thank you for registering for the *Seasons in Nature* field trip. During this guided program your students will use scientific tools to record and understand weather patterns. Students will be introduced to plant and animal adaptations and explore how plants and animals change appearance and behavior throughout the seasons. We recommend you complete the pre- and post-visit activities on the following pages to enhance your visit and support the PreK to 2nd grade classroom integration of the concepts addressed during this trip. Please note all trips are 90 minutes in length and will take place outdoors in rain or shine over areas of rough, uneven terrain. Please ensure students are dressed appropriately.

LEARNING OBJECTIVES

- Students will understand how weather changes through the seasons and how people, plants and animals respond to those changes.
- Students will be able to identify relationships among seasonal patterns of change.
- Students will be able to use scientific tools to collect and record data.

NARRATIVE

Scientists use many different instruments to understand and predict weather patterns. Scientists use this information and study the natural world and associated seasonal patterns of change. We are able to link these changes with a particular season or time of year. People, plants and animals respond to the weather and the changing seasons in different ways and have developed physical and behavioral *adaptations* in order to survive and reproduce.

During the trip Teacher Naturalists will guide small working groups of 10 to 15 students to two to three different habitats; cultivated garden, aquatic, forest, and meadow. Students will be encouraged to make observations, explore, investigate, and ask questions throughout. Teacher Naturalists will challenge students to act as scientists while collecting data and making observations in a natural environment. During the field trip, Teacher Naturalists will engage students in the following teaching points using a combination of stories, investigations, experiments, and games.

- Local weather changes from day to day and throughout the seasons. Scientists use different instruments to study weather patterns and changes.
- Animals and plants prepare for the seasons in many different ways and depend on their surroundings and other living things to meet their needs in the places they live.
- As scientists, we study plants and animals in nature to identify the seasons and understand changes between.

STANDARDS

Pre-Kindergarten

- PreK-ESS2-4(MA). Use simple instruments to collect and record data on elements of daily weather, including sun or clouds, wind, snow or rain, and higher or lower temperature.
- PreK-ESS2-5(MA). Describe how local weather changes from day to day and over the seasons and recognize patterns in those changes.
- PreK-ESS2-6(MA). Provide examples of the impact of weather on living things.
- PreK-LS2-2(MA). Using evidence from the local environment, explain how familiar plants and animals meet their needs where they live.

Kindergarten

- K-LS1-1. Observe and communicate that animals (including humans) and plants need food, water, and air to survive. Animals get food from plants or other animals. Plants make their own food and need light to live and grow.
- K-LS1-2(MA). Recognize that all plants and animals grow and change over time.
- K-ESS2-1. Use and share quantitative observations of local weather conditions to describe patterns over time.
- K-ESS3-2. Obtain and use information about weather forecasting to prepare for, and respond to, different types of local weather.

Grade 1

- 1-ESS1-2. Analyze provided data to identify relationships among seasonal patterns of change, including relative sunrise and sunset time changes, seasonal temperature and rainfall or snowfall patterns, and seasonal changes to the environment.

Grade 2

- 2-LS2-3(MA). Develop and use models to compare how plants and animals depend on their surroundings and other living things to meet their needs in the places they live.

VOCABULARY

Students will be introduced to the following vocabulary words during their trip. Reviewing these terms beforehand will serve to enhance the group's experience during your visit.

**Grade 2 only*

- **Temperature:** How hot or cold it is
 - **Weather:** The current conditions outside
 - **Thermometer:** A tool used to measure temperature
 - **Season:** A time of year (spring, summer, fall, winter) marked by patterns in weather and hours of daylight
 - **Precipitation:** Rain, snow, hail, or sleet that falls to the ground*
 - **Climate:** The usual weather in a particular location*
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SEASONS IN NATURE

Pre & Post Activity Guide

The following pre- and post-visit activity ideas and recommended resources are designed to support the PreK to 2nd grade classroom integration of the concepts addressed in *Seasons in Nature*. We love to see you students' work and continued learning experiences. Please send drawings, photos, poems, and other student work examples to the Manager of Youth Education at 11 French Drive, P.O. Box 598, Boylston MA, 01505.

PRE-VISIT ACTIVITIES

What's the Weather?

Students will collect data to track weather patterns.

Materials:

- Daily paper
- Halved paper
- Stapler
- Magazines

Begin by creating a KWL chart based on prior student knowledge about weather. Discuss as a class different types of weather we might observe. Use magazine clippings to create a 'weather collage'. Have students practice vocabulary by including basic weather words along with the corresponding pictures. Next have students create their own weather journals by stapling together halved paper. For a week or two have the class spend a few minutes each day discussing and recording the weather. Encourage the use of descriptive weather words and introduce meteorological tools used to obtain specific data. Challenge students to read the paper or research the weather online together. Revisit data throughout the year to study patterns across months and seasons.

What's the Season?

Students will be able to identify the four seasons and their associated weather patterns.

Materials:

- Paper
- Magazines
- Glue
- Clothing

Begin by asking students what seasons it is now. Review the different types of weather discussed during the first activity and use the pictures from the class 'weather' collage to create a 'seasons' collage. Split a piece of chart paper into four categories and have students help to label each square as 'winter, spring, summer, and fall'. Split the class into small working groups and provide each group with an assortment of weather pictures. Have groups sort their pictures into one of the four seasonal categories and present their work to the class before adding to the larger 'seasons' collage. Review the completed collage as a class and ask students to point out similarities and differences between each season. Explain that as the earth moves around the sun, we have four different seasons. Each season has its own pattern of weather.

Next have students pick their favorite season to report on. Have students communicate how they would dress themselves to prepare for a day during their favorite season by drawing a picture, creating a collage, dressing up, or writing a short sentence. Hang students' work around the classroom and group by season to create a gallery walk. Have students find a partner who reported on a different season and share their work with each other to compare and contrast.

***Extension:** Introduce the terms *climate* and *equator*. Explain how the distance to the equator affects the climate of different locations on the globe. Repeat the activity using different locations *and* seasons.

POST-VISIT ACTIVITIES

A Tree for All Seasons

Students will reinforce their understanding of seasonal changes in deciduous trees through art.

Materials:

- Seasonal tree template
- Crayons
- Tissue paper
- Glue

Begin by reviewing what students learned during the *Seasons in Nature* trip and make a list on the board or add to the class KWL chart. Lead a discussion focused on the seasonal changes of *deciduous* trees. Review how these trees change throughout the seasons by discussing or reading *Little Tree* by Loren Long or *The Seasons of Arnold's Apple Tree* by Gail Gibbons. Provide each student with a blank seasonal tree template and have students use crumpled tissue paper squares and glue sticks to decorate each part of the tree to match each season. Ask students to communicate what color tissue paper they should use to decorate their tree throughout the year.

***Extension:** Have students write a short sentence on the back explaining the changes their tree experiences throughout the year.

Adopt a Tree

Students will practice scientific observation and data collection by tracking seasonal changes in local flora.

Materials:

- Halved paper
- Stapler
- Crayons
- Pencils

As a class pick a tree in the schoolyard or local green space to 'adopt' for the school year. Begin by reviewing what students learned during the *Seasons in Nature* trip and focus on the seasonal changes of *deciduous* trees. Create a tree journal by stapling together 5 to 10 pieces of halved paper. Have students decorate with a picture of their tree and split their notebook into four sections; 'winter, spring, summer, fall'. Visit the tree once or twice each season and have students add to their journal using pictures, labels and descriptive words to create entries.

***Extension:** Adopt an *evergreen* tree. Have students track seasonal changes and compare to their *deciduous* tree.

Ch-ch-ch-changes

Students will practice language and writing skills to reinforce their understanding of how plants, animals, and people change throughout the seasons.

Materials:

- Crayons
- Pencils

Have students turn and talk to their neighbor and share some of the experiences they had during the *Seasons in Nature* trip. Explain that they will use what they learned to create a collage, poem, short story or comic strip about how plants, animals, or people change through the seasons. Challenge students to practice the vocabulary they learned by requiring the inclusion of a set amount of words in their work.

ADDITIONAL RESOURCES

- *The Big Book of Nature Activities* by Drew Monkman & Jacob Rodenburg
- *Project Seasons* by Deborah Parrella
- *Exploring Weather* by Marie Cecchini

RECOMMENDED BOOKS

- *Oh Say Can You Say, What's the Weather Today?* by Tish Rabe
 - *Weather!* by Rebecca Rupp
 - *Weather Words and What They Mean* by Gail Gibbons
 - *National Geographic Little Kids First Big Book of Weather* by Karen de Seve
 - *Winter Dance* by Marion Dane Bauer
 - *Little Tree* by Loren Long
 - *The Seasons of Arnold's Apple Tree* by Gail Gibbons
 - *What Will the Weather Be Like Today?* by Paul Rogers
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For more information, contact the Youth Education Manager at 508.869.6111 or youtheducation@towerhillbg.org