

TOWER HILL

BOTANIC GARDEN

11 French Drive, P. O. Box 598, Boylston, MA 01505

School & Youth Group Programs

Tower Hill Botanic Garden offers a wide range of educational programs to engage children of all ages in hands-on experiential learning. From gardens to trails, there is so much to discover in our outdoor classroom. Whether you are a school or youth group, your visit to Tower Hill will be memorable, educational, and fun! All programs are 90 minutes in length and are grouped by grade to align with Next Generation Science and Massachusetts Science and Technology/Engineering curriculum standards.

To schedule a guided program, email youtheducation@towerhillbg.org or call 508.869.6111. For more information and a full program description please visit our website at towerhillbg.org/school-and-youth-group-programs/.

GRADES K-2

Seasons in Nature

Learn how plants, animals, and people change throughout the seasons and explore the weather and climate of New England. Together we will investigate how plants and animals prepare for winter, uncover the secrets to plant and animal survival, observe the colors of spring blooms, and more!

- 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.
- 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.
- 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.
- 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.

Be a Botanist

Explore the world of botany at Tower Hill as we observe and dissect flowering plants to understand how they function. We will study plants of all shapes and sizes and learn how they grow and change while observing different species in the gardens and on the trails. Students will become budding botanists as we practice making scientific observations and pot up our own seeds to care for in the classroom.

- PreK-LS1-1(MA). Compare, using descriptions and drawings, the external body parts of plants and explain functions of some of the observable parts.
- PreK-LS2-2(MA). Using evidence from the local environment, explain how familiar plants and animals meet their needs where they live.
- 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.
- 1-LS1-1. Use evidence to explain that plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.
- 1-LS3-1. Use information from observations (first-hand and from media) to identify similarities and differences among individual plants or animals of the same kind.
- 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.
- 2-LS4-1. Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.

Go Gardening!

Dig, plant, water, or harvest in our garden beds in preparation for the season. Together we will discover the ways plants grow and change in the spring, summer, and fall. We will search for the different plant parts we eat and use our senses to explore the gardens. Each child will pot up their own seed to grow and care for at home.

**Not offered October through March; Maximum group size of 25*

- PreK-LS1-1(MA). Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.
- 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.
- 1-LS1-1. Use evidence to explain that plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.
- 1-LS3-1. Use information from observations (first-hand and from media) to identify similarities and differences among individual plants or animals of the same kind.
- 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.
- 2-LS4-1. Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.

At Home in the Rainforest

Our conservatories are brimming with plant life in the winter months. Come explore these unique and interesting plants up close and learn how these species are adapted to life in the rainforest or the desert. We will uncover the connection between humans and plants as we learn how they are used for medicine, food and more.

**Not offered April through September*

- PreK-LS1-1(MA). Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.
- 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.
- 1-LS1-1. Use evidence to explain that plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.
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- 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.
- 2-LS4-1. Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.

Garden Detectives

Join us for a guided tour of Tower Hill's gardens and trails. Students will become scientists as we connect with nature by making observations and getting up close and personal with resident plant and animal life.

- PreK-LS1-2(MA). Explain that most animals have five senses they use to gather information about the world around them.
- PreK-LS1-3(MA). Use their five senses in their exploration and play to gather information.
- 1-LS3-1. Use information from observations (first-hand and from media) to identify similarities and differences among individual plants or animals of the same kind.
- 2-ESS2-2. Map the shapes and types of landforms and bodies of water in an area.
- 2-LS4-1. Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.

GRADES 3-5

Ecosystem Explorations

Join us as we explore the trails and gardens in search of local plant and animal species. We will investigate how living and non-living things interact within different ecosystems and learn what these organisms need to survive and reproduce. Students will collect data to observe and define these relationships in a forest, meadow, aquatic and cultivated garden habitat.

**Also offered for 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.
- 2-LS4-1. Use texts and local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.
- 3-LS4-3. Construct an argument with evidence that in a particular environment some organisms can survive well, some survive less well, and some cannot survive.
- 3-LS4-4. Analyze and interpret given data about changes in a habitat and describe how the changes may affect the ability of organisms that live in that habitat to survive and reproduce.
- 5-LS2-1. Develop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil.

Be a Botanist

Explore the world of botany at Tower Hill as we observe and dissect flowering plants to understand how they function. Students will investigate the lifecycle of a flowering plant, from seed to fruit, and will learn how plants make their own food. We will compare and contrast different species in the gardens and on the trails and students will become budding botanists as we practice making scientific observations and practice the art of botanical sketching.

- 3-LS1-1. Use simple graphical representations to show that different types of organisms have unique and diverse life cycles. Describe that all organisms have birth, growth, reproduction, and death in common but there are a variety of ways in which these happen.
- 4-LS1-1. Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.
- 5-LS1-1. Ask testable questions about the process by which plants use air, water, and energy from sunlight to produce sugars and plant materials needed for growth and reproduction.
- 5-PS3-1. Use a model to describe that the food animals digest (a) contains energy that was once energy from the Sun, and (b) provides energy and nutrients for life processes, including body repair, growth, motion, body warmth, and reproduction.

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**Not offered October through March; Maximum group size of 25*

- 3-LS1-1. Use simple graphical representations to show that different types of organisms have unique and diverse life cycles. Describe that all organisms have birth, growth, reproduction, and death in common but there are a variety of ways in which these happen.
- 3-LS4-3. Construct an argument with evidence that in a particular environment some organisms can survive well, some survive less well, and some cannot survive.

- 3-LS3-2. Distinguish between inherited characteristics and those characteristics that result from a direct interaction with the environment. Give examples of characteristics of living organisms that are influenced by both inheritance and the environment.
- 4-LS1-1. Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.
- 5-PS3-1. Use a model to describe that the food animals digest (a) contains energy that was once energy from the Sun, and (b) provides energy and nutrients for life processes, including body repair, growth, motion, body warmth, and reproduction.

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- 3-ESS2-2. Obtain and summarize information about the climate of different regions of the world to illustrate that typical weather conditions over a year vary by region.
- 3-LS1-1. Use simple graphical representations to show that different types of organisms have unique and diverse life cycles. Describe that all organisms have birth, growth, reproduction, and death in common but there are a variety of ways in which these happen.
- 4-LS1-1. Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.

GRADES 6-8

Adaptation Fascinations

Join us as we explore the trails and gardens in search of local flora and fauna. Together we will explore the amazing adaptations that increase a plant's chance of survival and reproduction as well as the various symbiotic relationships these adaptations support and create. Students will discover and categorize these relationships in a forest, pond, meadow, and cultivated garden habitat.

- 7MS-LS1-4: Construct an explanation based on evidence for how characteristic animal behaviors and specialized plant structures increase the probability of successful reproduction of animals and plants.
- 7MSLS2-2: Describe how relationships among and between organisms in an ecosystem can be competitive, predatory, parasitic, and mutually beneficial and that these interactions are found across multiple ecosystems.
- 7MS-LS2-3: Develop a model to describe that matter and energy are transferred among living and non living parts of an ecosystem and that both matter and energy are conserved through these processes.
- 8MS-LS1-5: Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms.

- 8MS-LS1-7: Use informational text to describe that food molecules, including carbohydrates, proteins, and fats, are broken down and rearranged through chemical reactions forming new molecules that support cell growth and/or release of energy.

Succulent Terrarium Workshop

Learn the basics of succulent care by getting your hands dirty and creating your own miniature terrarium. Discover how these plants are adapted to their environments and practice the art of scientific observation by getting up close and personal with unique cacti and succulent species. Get creative and use rock, sea glass, moss, and more to decorate your terrarium.

- 7.MS-LS1-4. Construct an explanation based on evidence for how characteristic animal behaviors and specialized plant structures increase the probability of successful reproduction of animals and plants.
- 8.MS-LS1-5. Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms.

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- 8MS-LS1-5: Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms.