



Investigate two distinct habitats within the Arboretum landscape and discover what organisms live there. Students will discuss and record the living, non-living, and once-living things they find in separate areas. They will wrap up their visit by comparing the two habitats explored and discuss how each place meets the basic needs of the plants and animals that inhabit them.

Standards: 1-LS1-1, 1-LS1-2, 1-LS3-1, 2-LS4-1

What's Included

Self-guided field trip program overview including tips on how to navigate the arboretum, pre/post-visit activities, teacher background information and suggested resources for continued learning.

A **guiding map** with suggested locations, guiding questions and timing. Print one per chaperone or group. You are welcome to explore any part of the Arboretum.

A **Know Before You Go** sheet with Arboretum rules and detailed landscape map. Print one for all chaperones.

Habitat Cards. Print one set (single-sided) to use with small groups for sorting and discussion during the pre-visit lesson. Also useful for post-visit reflection.

Student recording sheet. Print one per student to fill out when investigating each habitat.

A **post-visit Venn diagram** for students to complete back in the classroom and reflect on their learning. Print on the reverse of the student recording sheet.

Group recording sheet that teacher uses to help students determine if the habitat has all the components necessary for animal and plant survival. This can be used in a wrap-up discussion towards the end of the visit.

Navigating the Arboretum

Pathways – This visit can be done completely by staying on the main paved roads labeled Meadow Road and Bussey Hill Road on your map. There are mulch and gravel paths off this main road that you are welcome to use. Please note that the mulch and gravel are not accessible for wheelchair users and can be difficult for strollers. Plan your path accordingly.

Timing – The Arboretum is a big place, it takes time to walk from spot to spot. Each stop on the guiding map includes suggested time frames for investigation.

Bathrooms & Water Fountains – There are bathrooms inside the Visitor Center in the Hunnewell Building. There are portable restrooms in a few places throughout the landscape, they are labeled on your map. Water fountains are placed in various locations, though they are shut down by the city mid-October through mid-April.

Pre-Visit

Guiding Questions:

- What is an Arboretum?
- What makes something living, non-living, or once-living?
- What is a habitat?

Activity:

Introduce what an Arboretum is and emphasize that we are filled with all sorts of living things, especially plants. While we are not a zoo, there are animals that make the Arboretum their home because it provides what they need to grow, live and reproduce. Discuss what makes a place a good habitat for living things. Then, use the **Habitat Cards** to help students differentiate between things that are living (plants and animals), things that were once-living (dead logs and leaves, feathers) and things that are never-living (sun, water, air, rock). Challenge students to list some of the habitats they might find at the Arboretum.

Post-Visit

Wrap Up Question:

- How do two habitats compare and contrast?

Activity:

Give pairs of students the **Venn Diagram page** to fill out with information from their habitat explorations. Challenge them to consider what belongs in the shared space, likely the non-living components, but also animals that can be found in both such as squirrels or hawks. Students could have access to the **Habitat Cards** to jog their memories or help round out their inventories. As a class, students could re-visit their definition and understanding of what a habitat is to include new insights and learning

Additional Learning

Visit UC Marin Master Gardeners YouTube channel to view their Exploring Habitats series to learn more about woodland, pond, garden and soil habitats.

Teacher Background Information

Content

A young student's standard definition of habitat is "a home or place where an animal lives and provides what the animal needs to survive." Further, the needs of animal living things include food, water, air, and shelter/protection/space. Rarely do children consider plants as also having to exist in a habitat that must provide for its needs which, although like animals, has its own list: light, water, air, nutrients, and space.

Students also should understand that living things can die, or become once-living/dead, which is **not** the same as being non-living. A non-living thing can be understood as never-living and includes air, water, sunlight, and earth minerals. These never-living things are fundamental needs of all living things.

When conducting the field trip, adults should engage students in discovering all these components of a habitat. Guiding questions, such as "where is the water in this habitat?", "where should we look to find worms?", or "what is a nest made out of?" can help students focus more carefully on the landscape features. Making lists (via the **student recording sheet**) and keeping track of all living things found in one area can help students visualize and internalize that habitat as a "pond habitat" or "the woods" or "a meadow habitat." Asking students to use the **group recording sheet** to evaluate whether a habitat is healthy or not – by checking to see if it provides the minimum requirements of plant and animal needs – is another way to deepen student understanding of the complexity of a habitat.

Key Vocabulary

Habitat: a place that provides living things what they need to survive.

Living things: organisms that are alive – they grow, need energy, breathe and reproduce to make more of their kind. Living things have senses, move on their own, and respond to their environment.

Once-Living: a living thing that has died; useful as a way to differentiate from non-living

Non-Living: a thing that has never been alive and won't die; ex: light, water, air, rocks.

Never-Living: a thing that has never been alive and won't die; ex: light, water, air, rocks. This is often easier for children to understand.



Suggested Location 1 - 15 min
MAGNOLIAS

Before venturing into the landscape, review what a habitat is. Close your eyes and use senses to identify what is around you. Can you feel the breeze and moisture on the grass? Can you hear animal sounds? Are there any food sources for the animals nearby?

Suggested Location 2 - 15 min
GOLDSMITH BROOK

Look around you, what critters can you find? Look up at the tops of trees, and in the sky. Don't forget to search the ground. What non-living things are part of this habitat? Who might live here?

Suggested Location 5 - 30 min
NORTH WOODS

Find an entrance to the woods behind the portable restrooms. Follow the mulched path slightly uphill and look for an entry point on the left. How does this wooded habitat feel to you? Where is there moisture and sunlight? Carefully look for critters in the leaf litter or under logs. Be sure to leave everything as you found it!

Suggested Location 3 - 30 min
MEADOW ALONG WILLOW PATH

Use your eyes and ears to discover this habitat. Do you see flowers and pollinators? What do you hear? How many different types of plants can you find? Is there evidence that animals are eating the plants? Where are there good hiding spots for birds and turtles?

Suggested Location 4 - 30 min
BRADLEY ROSACEOUS COLLECTION

As you enter this collection you'll notice the ponds. Find a spot near the pond to observe carefully. Listen for sounds of frogs, birds, and pollinators. Listen for the splashes of fish and turtles in the water. How does this open space make you feel? How many different types of plants can you find?



Remember! Be respectful of other groups and visitors enjoying the Arboretum. Please help us take care of our plants by not stepping in plant beds, pulling leaves or flowers off of plants, and not climbing trees.



General Arboretum Rules

- Be respectful of other visitors enjoying the space.
- To preserve the health and beauty of the trees, please **do not** pick, pull, or climb on the trees. You **may** gently touch plant parts to feel texture and smell scents. You **may** collect plant material that has fallen to the ground.
- Walking in plant beds or mulched areas is **not** allowed. Be aware of what you are stepping on.
- Balls, frisbees, and other sports equipment are **not** allowed.

Arrival and Parking

Buses

- Buses are not allowed to enter the gates into the landscape or drive through unless you've been given permission in advance by youth education staff.
- When arriving, drive past the gates and unload students in the designated bus drop-off zone along Arborway. Buses can park further down Arborway or on Flora Way. (see map on reverse)
- If you need special accommodation, please contact us at least a week before your visit: childrensed@arnarb.harvard.edu

Public Transportation

- The Arboretum is easily accessible from the Forest Hills T stop, and by Bus #35, #38, #39, and #51.

Visitor Center and Restrooms

The Visitor Center

- Open 10:00am – 4:00pm daily, located inside the Hunnewell Building.
- Here you will find a scale model of the Arboretum, seasonal highlight displays, and friendly staff who can answer questions.
- If you would like to bring students inside, plan to enter in staggered groups of 10 or less, always accompanied by a supervising adult using indoor voices.

Bathrooms

- Open 10:00am - 4:00pm daily, located inside the Hunnewell Building.
- There are portable restrooms along Meadow Road, near the Dana Greenhouses, on Hemlock Hill Road, and on Peters Hill.

Picnicking

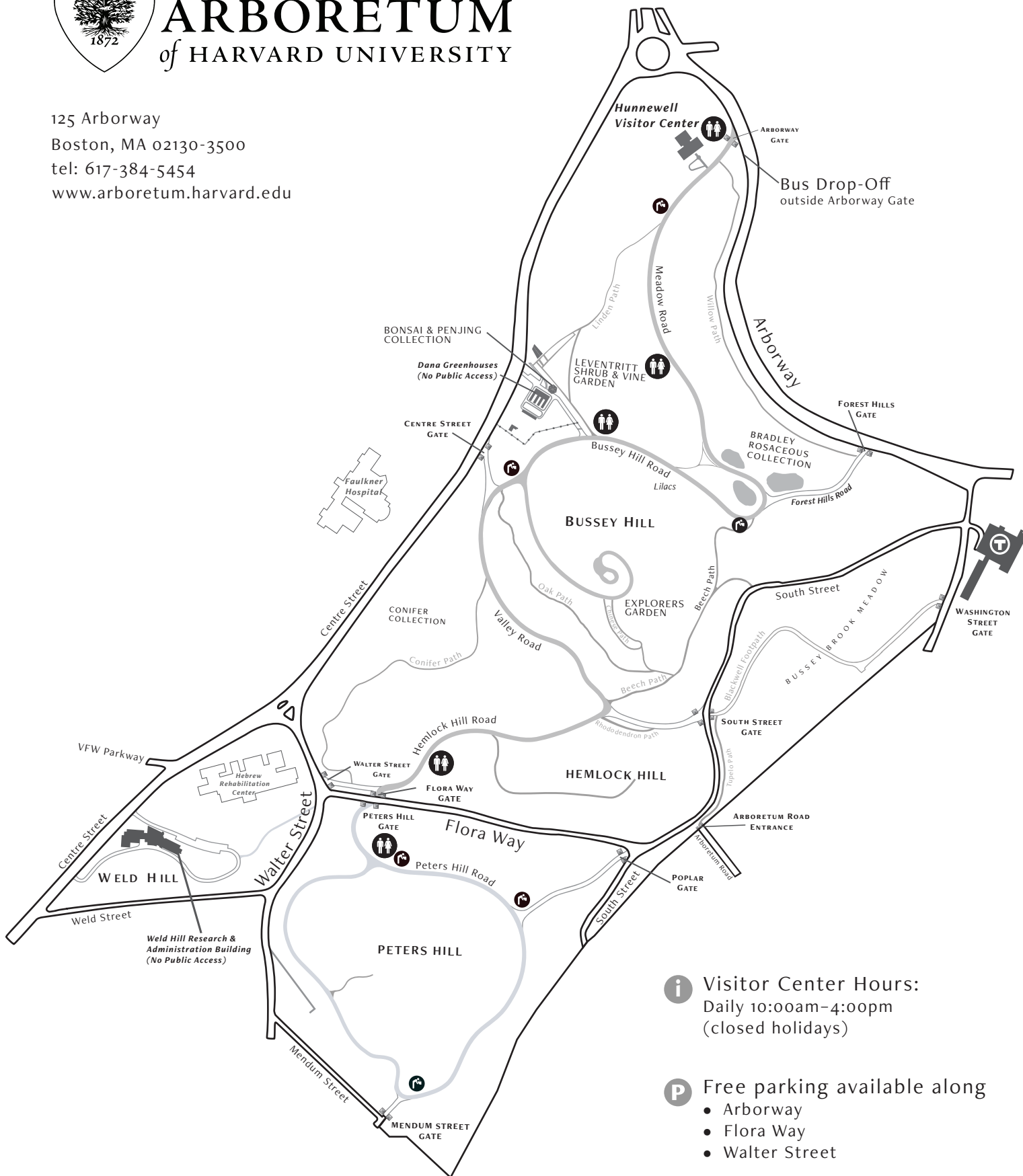
- School groups may picnic on the grounds, as a special exception to our no-picnicking policy.
- Groups must carry out all trash.
- We do not have storage for lunches, nor do we have any indoor space in case of rain.



The ARNOLD ARBORETUM

of HARVARD UNIVERSITY

125 Arborway
 Boston, MA 02130-3500
 tel: 617-384-5454
 www.arboretum.harvard.edu



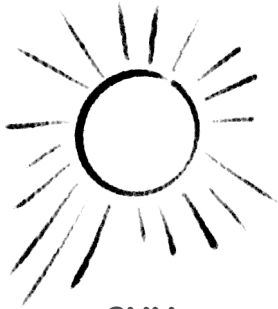
i Visitor Center Hours:
 Daily 10:00am-4:00pm
 (closed holidays)

- P** Free parking available along
- Arborway
 - Flora Way
 - Walter Street



Living and Non-Living Things - HABITAT CARDS

Picture Sorting Cards - cut along dotted lines



SUN



BICYCLE



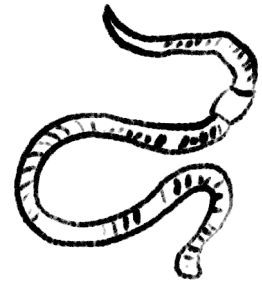
PILLBUG



ROBIN



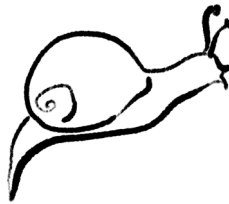
SQUIRREL



EARTHWORM



SNAPPING TURTLE



LAND SNAIL



CLOUD



WOODPECKER



CHIPMUNK



CANADA GEESE



Living and Non-Living Things - HABITAT CARDS

Picture Sorting Cards - cut along dotted lines



ACORN



FUNGI



TRASH CAN



GRASS



ROCKS



OAK + MAPLE LEAVES



LOG



TREE



DRAGONFLY



POND SNAIL



WIND

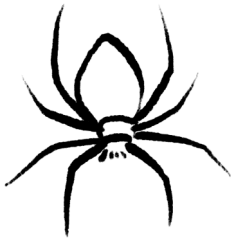


MAPLE SAPLING



Living and Non-Living Things - HABITAT CARDS

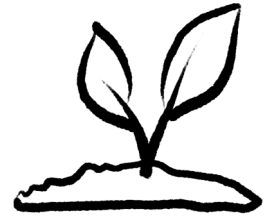
Picture Sorting Cards - cut along dotted lines



SPIDER



BUMBLEBEE



SOIL



FROG



HAWK



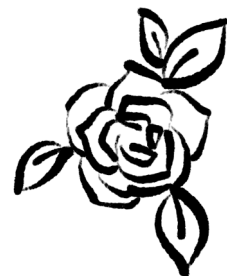
FISH



MOSS



WATER



ROSE



Name: _____

A WOODLAND Habitat

Draw the habitat.

The habitat has living and non-living things like:

Sounds and smells found in the habitat:

A POND Habitat

Draw the habitat.

The habitat has living and non-living things like:

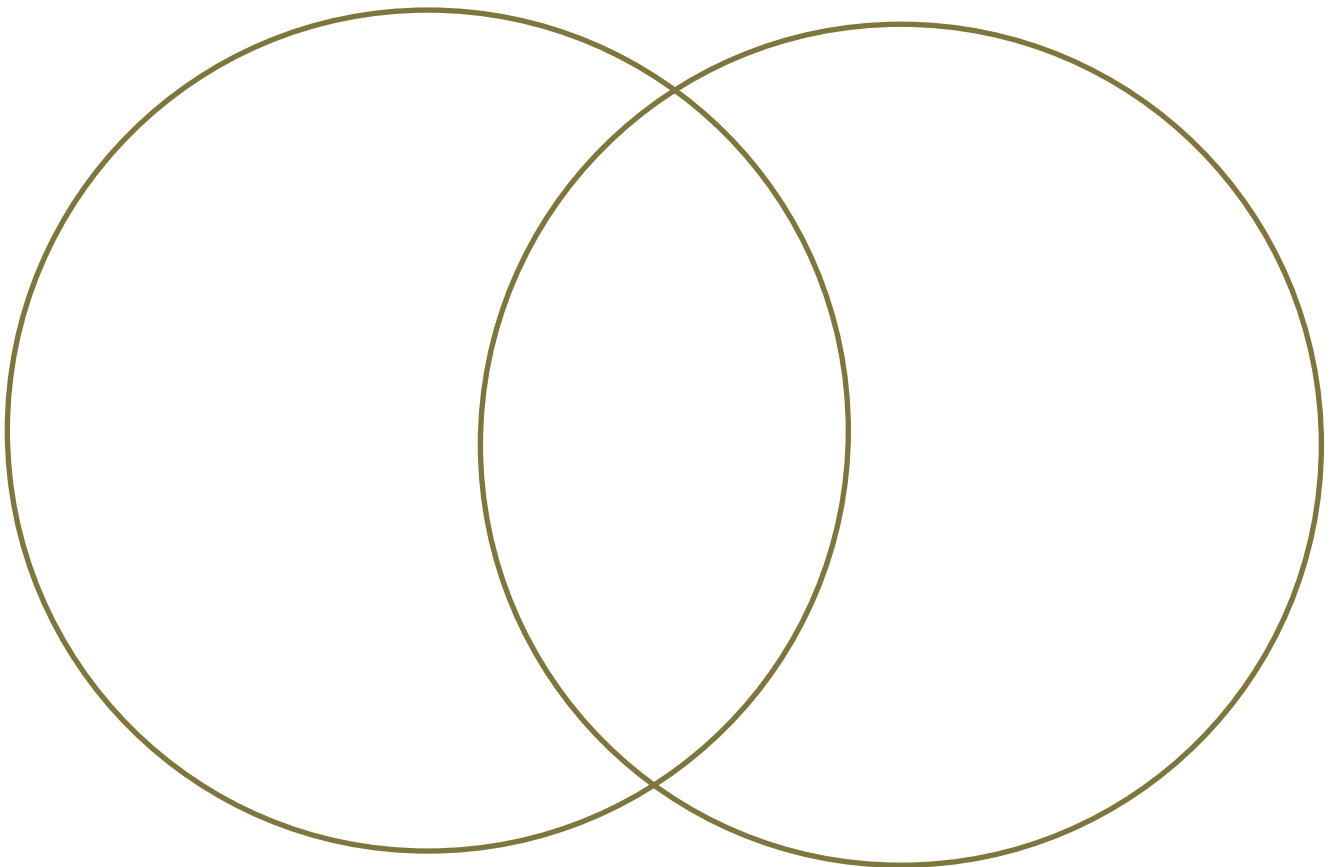
Sounds and smells found in the habitat:



Name: _____

HABITATS

Compare and contrast two different types of habitats.





Is this a good habitat?

Sources of Food: needs 3

- Seeds from a plant
- Berries
- Nectar
- Foliage/twigs
- Fruits
- Sap
- Pollen
- Nuts

Sources of Water: needs 1

- Stream/river
- Seasonal pools
- Wetland/puddle areas
- Pond
- Fountain/bird bath

Places for Shelter/Cover: needs 2

- Wooded area
- Bramble patch
- Ground cover
- Rock wall or rock pile
- Evergreens
- Brush or log pile
- Burrow
- Tall grass meadow or prairie
- Dense shrubs/thicket

Places to Raise Young: needs 1

- Mature trees
- Meadow or prairie
- Wetland
- Burrow
- Cave
- Dead trees or snags
- Dense shrubs/thicket
- Host plants for caterpillars
- Nesting Box

What wildlife lives here? _____