

"BEE" A FRIEND TO POLLINATORS

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BEE'S WRAP®
SUSTAINABLE FOOD STORAGE

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CLEMSON
COOPERATIVE EXTENSION



"BEE" A FRIEND TO POLLINATORS LESSON

LESSON OBJECTIVES:

- The student will locate, identify, and observe pollinators in their habitat.
 - The student will conduct a site assessment of their school or community space using the provided "Bee Friendly" Habitat Assessment worksheet.
 - The student will create a map of the school or community space using information from the "Bee Friendly" Habitat Assessment worksheet.
 - The students will create a "Bee Friendly" Action Plan that addresses areas for improvement to attract and support pollinators.
- Teacher should pose the question, "What are pollinators?"
 - Teacher should pose the question, "What would our world be like if we did not have pollinators?"
 - Teacher should pose the question, "Does our school or community space have everything that pollinators need to survive?"

MATERIALS:

- Clipboard (1 per student)
- Pencils, colored pencils
- Measuring tape or a ruler
- Copy of graph paper for "Bee Friendly" Action Plan (1 per student)
- Copy of the "Bee Friendly" Habitat Assessment (1 per student)

BACKGROUND:

- Students should understand what types of pollinators can be found in their area and the important role that they play in our everyday lives, especially in our ability to grow food.

ENGAGEMENT:

- View 1 video to learn more about pollinators
 1. *Like Fruit? Thank a Bee!*
<https://tinyurl.com/vqlzhhk>
 2. *The Beauty of Pollination—Wings of Life:*
<https://tinyurl.com/y8xu3f5u>
- Teacher should pose the question, "What types of pollinators can you name?"

EXPLORATION:

- Explain that during this lesson and throughout the year students will be working to generate solutions to improve their community or school space for pollinators.
- Students will begin researching the needs of pollinators and the different components of their habitats.
- Students will think-pair-share their ideas on what pollinators need to survive and thrive in their environments.

EXPLANATION:

- Each student should have a clipboard or something to write on, scrap paper to take notes and measurements, and a copy of the "Bee Friendly" Habitat Assessment. Teacher should lead the class or group to a community space or the area surrounding their school.
- Using the "Bee Friendly" Habitat Assessment, teachers will guide students on an exploration walk around their school or community space. The teacher and students will complete each section of the "Bee Friendly" Habitat Assessment based on their observations that they note during their time in the school or community space.
- Teacher will guide the group and take measurements (in feet) of important features, such as lengths and widths of buildings,

parking lots, playgrounds, and flower beds for their school or community action plan map. If measuring tapes are not available, non-traditional measuring methods, like counting the number of footsteps, can be used instead.

- Students will take their measurements from the important features from their site assessment and transfer them to the provided graph paper. Maps should be made to scale and can be completed using colored pencils or pencils.

ELABORATION:

- After completing the "Bee Friendly" Habitat Assessment, students should work in groups of 4-5 to create a "Bee Friendly" Action Plan. Use the information learned along with tips provided on map to create a plan that improves overall habitat quality for pollinators.

EVALUATION:

- Each group should present their "Bee Friendly" Action Plan to their peers.
- Students will be assessed on accuracy and completion based on the pollinator habitat improvement strategies that are recommended.
- Teachers should continue to encourage students to monitor their school or community space monthly or quarterly using the "Bee Friendly" Habitat Assessment sheet. This will help determine if quality habitat and food options are available for pollinators year-round.

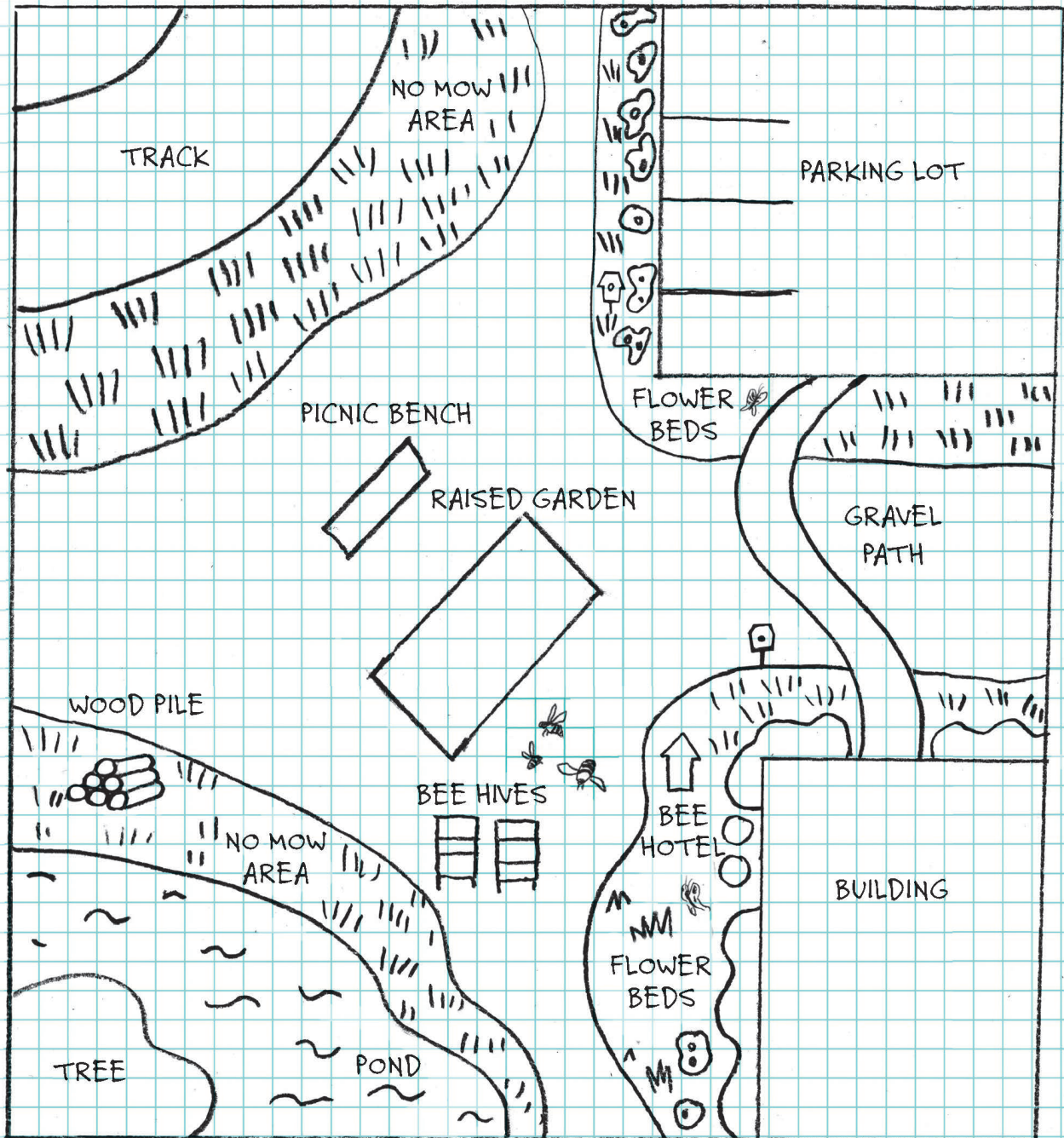


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BEE FRIENDLY HABITAT AREA MAP

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Take a walk around outside your school or community space. Use the worksheet provided to determine how the landscape may already provide for pollinators. Next, draw a map of the area, include features such as water sources, food and shelter. Discuss ways you and your community can make your space even more pollinator friendly. Create an action plan to help support pollinators. Put your plan into action and you will "bee" a friend to pollinators!



EXAMPLE OF AN AREA MAP



"BEE" A FRIEND TO POLLINATORS

COMMON CORE STANDARDS

www.corestandards.org

3RD GRADE:

CCSS.MATH.CONTENT.3.MD.B.4

Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

CCSS.MATH.CONTENT.3.MD.C.5

Recognize area as an attribute of plane figures and understand concepts of area measurement.

CCSS.ELA-LITERACY.RI.3.5

Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.

CCSS.ELA-LITERACY.W.3.2

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.3.2.B

Develop the topic with facts, definitions, and details.

CCSS.ELA-LITERACY.W.3.7

Conduct short research projects that build knowledge about a topic.

CCSS.ELA-LITERACY.SL.3.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.3.4

Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

4TH GRADE:

CCSS.MATH.CONTENT.4.MD.A.3

Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

CCSS.ELA-LITERACY.RI.4.4

Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

CCSS.ELA-LITERACY.W.4.2

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.4.7

Conduct short research projects that build knowledge through investigation of different aspects of a topic.

CCSS.ELA-LITERACY.SL.4.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.4.4

Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

5TH GRADE:

CCSS.MATH.CONTENT.5.MD.A.1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

CCSS.ELA-LITERACY.RI.5.4

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

CCSS.ELA-LITERACY.RI.5.9

Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

CCSS.ELA-LITERACY.W.5.2

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.5.2.A

Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.

CCSS.ELA-LITERACY.W.5.7

Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

CCSS.ELA-LITERACY.SL.5.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.5.4

Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.



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BEE FRIENDLY HABITAT ASSESSMENT

SCIENTIST: _____ DATE: _____

DIRECTIONS: It's time to scope out the area to see if pollinators can live here! Use the questions below to guide your exploration.

LOCATION:

Complete the following section to describe the site you're assessing.

Site Name: _____

Site Location (circle one): school yard park playground

Season (circle one): summer autumn winter spring

WEATHER:

Describe today's weather (check one):



Sunny



Partly Cloudy



Cloudy



Rainy

OBSERVATIONS:

In two minutes, create a tally chart to show the number and types of pollinators you see.

TYPES OF POLLINATORS	NUMBER OF POLLINATORS
Native Bees	
Butterflies	
Hummingbirds	
Wasps	
Flies	
Honey Bees	
Moths	
Bats	
Beetles	
Ants	

SHELTER:

Look around. Check all the places you see that pollinators could use to rest and raise their young.



Bee Hive



Native Bee House or Hotel



Logs



Mulched ground



Bare soil



Other:



Natural or weedy areas

FOOD:

Pollinators need plants that provide nectar and pollen. Look around. How many do you see of each of the following? Check a number range for each plant type.

Trees: ☐ 0 ☐ 1-10 ☐ 11-20 ☐ 21-30 ☐ more than 30

Shrubs: ☐ 0 ☐ 1-10 ☐ 11-20 ☐ 21-30 ☐ more than 30

Vines: ☐ 0 ☐ 1-10 ☐ 11-20 ☐ 21-30 ☐ more than 30

Flowering Plants: ☐ 0 ☐ 1-10 ☐ 11-20 ☐ 21-30 ☐ more than 30

If you know the names of the plants write them below:

WATER:

What sources of water do you see for pollinators and other animals to drink from? Check all that apply.

☐ Wetland ☐ Fountain

☐ Birdbath ☐ Butterfly feeder

☐ Hummingbird feeder ☐ Puddle

☐ Standing water from a leaky faucet or garden hose

☐ Other:

PREPARATION:

Prepare to map your bee friendly habitat by completing the following steps:

1. Measure important areas such as buildings, garden beds, and ponds. Record your measurements for later.

IMPORTANT AREA	MEASUREMENT
1.	
2.	
3.	
4.	
5.	

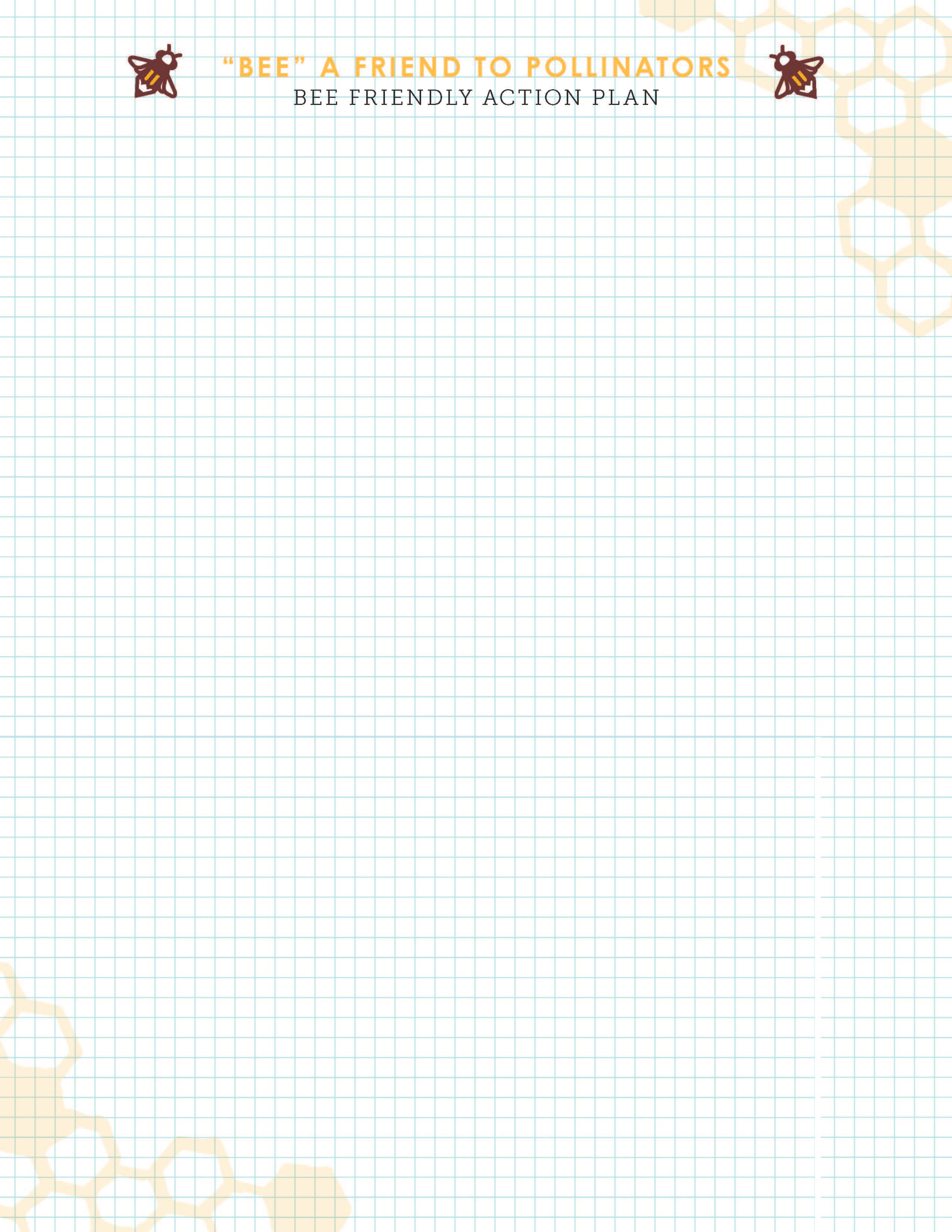
2. Take photos or sketch the location. If you decide to add any bee friendly elements to your space, you can look back and compare.

3. Use a compass or your own observations to determine cardinal directions. Mark north, south, east and west on your drawing.



"BEE" A FRIEND TO POLLINATORS

BEE FRIENDLY ACTION PLAN



Create and Advocate for Pollinator Friendly Schools & Outdoor Community Spaces

FOOD

Flowers provide food for pollinators. As they move from flower to flower sipping nectar, they also move pollen with their bodies, helping the plants complete their lifecycles. The best way to provide food for pollinators is to plant native trees, shrubs, vines, and flowering plants. Edible herbs and vegetable plants also create landscapes with year-round flowers. Native trees provide the most pollen and nectar at one time. Planting a special garden for pollinators can make your campus even more bee friendly!

— BEE A FRIEND TIP —

Plant flowers in groups rather than separately. This helps pollinators save their energy by putting all the food they need in one "bee buffet."

WATER

All living things depend on water and pollinators are no exception. Natural water sources are all great places for pollinators to quench their thirst, but a simple birdbath, garden fountain or a shallow dish filled with water can provide the hydration pollinators need.

— BEE A FRIEND TIP —

Bees can't swim so be sure to place a few stones or pebbles in your water source to help bees and other pollinators climb out.

Wrap your mind around a world without strawberries, watermelons or chocolate! Humans rely on pollinators such as native bees, honey bees, butterflies, birds and even flies and bats for these and other important foods around the world.

In our own neighborhoods, pollinators are in trouble. The food, shelter and water they need to live, grow and raise their young is disappearing. You can help pollinators where you live, go to school, and even where you play!

Explore this map to learn more about how you can help pollinators in your community.

BEE NATURAL

Small areas mowed only once or twice a year can become a pollinator paradise! Less mowing means less pesticide use and more food. Flowers of common weeds such as dandelions and clover are great food sources.

— BEE A FRIEND TIP —

Design a sign that explains what a "bee meadow" is. Describe why "weeds" are allowed to bloom and how this helps pollinators. Help others learn to appreciate the wilder side of supporting pollinators.

SHELTER

Pollinators need safe places to rest and raise their young. Honey bees live together in beehives while native bees, butterflies and beetles live alone. Humans help keep beehives clean and healthy and in return, harvest delicious honey. Dead plant stems, leaves, twigs, mulch and even a pile of sticks can become shelter in a storm.

— BEE A FRIEND TIP —

Investigate how to build a pollinator house or bee hotel to add shelter to your landscape. Is your school ready to host a hive of honey bees? Check out **The Bee Cause Project** for more information at: www.thebeecause.org

BEE AN ADVOCATE

Share what you have learned about pollinator friendly landscaping practices with others. Invite a beekeeper, entomologist, native plant enthusiast or Master Gardener to speak to your group. Talk to administrators and maintenance personnel, share your pollinator plan with them so they can help. Encourage them to learn about Integrated Pest Management (IPM) strategies to help create pollinator friendly spaces.

— BEE A FRIEND TIP —

"That's A Wrap": Celebrate your pollinator friendly space by painting a mural, hosting a pollinator parade or creating a sculpture using recycled materials. Apply for a grant or have a fundraiser to put your plan into action!

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LEARN MORE ABOUT THEIR SUSTAINABLE
FOOD STORAGE AT BEESWRAP.COM

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