

REALLY THE GREAT OUTDOORS

INCLUDES
NATURE
SPACE DESIGN
ACTIVITY

SCIENCE AND LANGUAGE ARTS ACTIVITIES



INCLUDES GRAPHIC
STORY

[scholastic.com/turfmutt](https://www.scholastic.com/turfmutt)

TURFMUTT

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STRENGTHENING OUR ECOSYSTEMS

Plants and green spaces make life livable on Earth. Explore the connection between climate and ecosystems with your class.



Objective

Students will ask questions to explore the impact of climate factors on ecosystems as well as conduct research or use observation to create a profile of a local plant.

Standards, Grs. 6–8 NGSS

MS-LS2-3 Develop a model to describe the cycling of matter and energy in an ecosystem

MS-LS2-4 Construct an argument supported by evidence that changes to an ecosystem affect populations

CCSS ELA

RST.6-8.4 Determine the meaning of unknown words in a scientific context

Time

45 minutes, plus time for completing presentations

Materials

🐾 Printed descriptions of LOWERN climate factors. For more information on these factors, visit bit.ly/2S7CDEo.

🐾 Chart paper and markers

🐾 Internet access for research



Bonus Lesson!

Protecting Pollinators

scholastic.com/turfmutt

Prep

Before class, write out each of the LOWERN descriptions below and place in six stations around the classroom. Include blank chart paper at each station.

Latitude helps determine temperature and amount of sunlight.

Ocean currents moderate temperature and shape weather systems.

Wind and air masses affect weather and which plants can grow where.

Elevation affects humidity and temperature.

Relief (shape of the land) affects what kinds of plants grow in certain areas.

Nearness to water affects temperature and many other factors.

Discussion

1 Review the definition of **ecosystem** (an interconnected system of living things interacting with each other and with their environment, including nonliving factors). Ask students what they know about the positive effects of plants in an ecosystem. Discuss the following:

- ➡ Plants release oxygen through photosynthesis, helping us breathe.
- ➡ Plants, especially forests, absorb large amounts of carbon dioxide through photosynthesis, helping to regulate the amount of CO₂ in the atmosphere.
- ➡ Trees help reduce the “heat island” effect. Without trees, cities can become measurably warmer during summer months, creating unhealthy conditions for many city dwellers.
- ➡ Green spaces provide shelter and

food for wildlife, supporting a healthy ecosystem.

2 Explain to the class that plants also provide numerous benefits for water systems, such as:

- ➡ Plants hold soil in place, reducing erosion along riverbanks.
- ➡ Plants filter water as it runs into waterways and reduce airborne dust and particulate matter (pollution).

3 Tell students that climate has a major impact on plants in ecosystems. These climate factors are summarized in the acronym LOWERN.

Activity

4 Have students visit the LOWERN stations you set up. Instruct them to add questions, reactions, ideas, and prior knowledge to the chart paper at each station.

5 Help students make a real-world connection to the plants in their community and the local effects of LOWERN. Instruct them to conduct online research or visit a local garden or nature center to create an informational profile of one local plant. The plant profiles should include the common name, scientific (Latin) name, characteristics, and images. They should also identify: a) whether the plant species is native, adapted, or invasive; b) the role the plant plays in the ecosystem; and c) how local LOWERN factors impact their plant. Students should present their plant profiles to the class.

Extension

Have students educate peers about the role local plants play in the ecosystem.

THE HEALTH BENEFITS OF NATURE

Guide your students to document the mental and physical health benefits that come from being outside.

Objective

Students will engage with domain-specific words and phrases in their scientific context and produce clear and coherent writing about their experiences in nature.

Standards, Grs. 6–8 CCSS ELA

WHST.6-8.4 Produce clear and coherent writing appropriate to task, purpose, and audience

SEL

Apply strategies to manage stress. Practice mindfulness and self-awareness.

Materials

- 🐾 Index cards
- 🐾 *The (Really) Great Outdoors* graphic story
- 🐾 Nature space planner
- 🐾 Rubric at [scholastic.com/turfmutt](https://www.scholastic.com/turfmutt)

Prep

Write the following health effects on index cards—Can reduce: blood pressure, stress, anxiety, depression, obesity, respiratory issues, symptoms of ADHD; Can improve: mood, access to clean air, cognition (ability to think and learn). You should have as many index cards as you have students (duplicate as needed).

Introduction

1 Tell students that scientists are beginning to document the many benefits of spending time in nature. In fact, they have coined the term “nature-deficit disorder” to describe people with a lack of nature in their lives. Doctors are even writing prescriptions that instruct patients to spend time outside.

Activity

2 Hand out the index cards and break students into small groups. Ask them to work together to brainstorm connections between the health effects on the cards and being in nature. As they discuss, write nature activities on the board. Examples: take a walk, breathe fresh air, sit on a park bench, hike, etc.

3 Discuss student speculations and take time to match health effects with the activities listed on the board as well as any additional activities. Examples: take a walk (*manage obesity*); get some fresh air (*help some respiratory*



issues); meet a friend in the park (*reduce anxiety, depression*); sit on a park bench (*reduce stress, anxiety, depression, blood pressure*); lie in the grass under a tree or sit on a green roof (*reduce stress, anxiety, depression, blood pressure*); pick up litter (*reduce stress, anxiety, blood pressure*).

4 Instruct students to write down the matches between related health effects and nature activities. Emphasize the idea that nature exists in many places, like your schoolyard, community park, or backyard. You don't have to go to a national park to find it.

5 Tell students that now they'll go out in nature and record their own experiences. Have them keep a journal documenting at least one nature experience, such as walking in the woods, relaxing in a backyard or green space, climbing a tree, mindfully breathing outdoors, or visiting a garden center or greenhouse. Instruct them to record details of their mental and their physical state of being, as well as any changes after spending time outdoors.

ELA/Art Connection

Have students read *The (Really) Great Outdoors* graphic story and complete the nature space design planner (next page).

🐾 Then provide time for students to **write** about and/or **draw with accompanying text** a nature space their community could use. For a rubric, visit [scholastic.com/turfmutt/rubric](https://www.scholastic.com/turfmutt/rubric).

THE (REALLY) GREAT OUTDOORS

Instructions Answer the questions below, writing your responses on separate paper. Use your answers to help create a successful nature space design !

PLANTS AND THE ECOSYSTEM

1. What are some of the positive effects of plants in an ecosystem?
2. What are the effects that plants have on water systems in an ecosystem?
3. How does climate affect what grows in an area?
4. What are some of the health benefits of spending time in nature?
5. Besides spending time in backyards and visiting national parks, what are other ways to experience nature and the outdoors no matter where a person lives?



YOUR NATURE SPACE

Now think about designing a nature space where you live. Answer the questions below to start.

1. If you designed a nature space, what would it be like? Where would it be?
2. What plants would make your nature space effective for people and/or the ecosystem? Why?
3. What is the climate of your geographic area, and how will it affect your nature space?
4. What are your goals for your nature space? What activities could people enjoy there?
5. What will be creative or unusual about your space?
6. How would you like a visitor (and yourself!) to feel there? What personal connection do you have to the space, or why is it important to you?



REALLY THE GREAT OUTDOORS

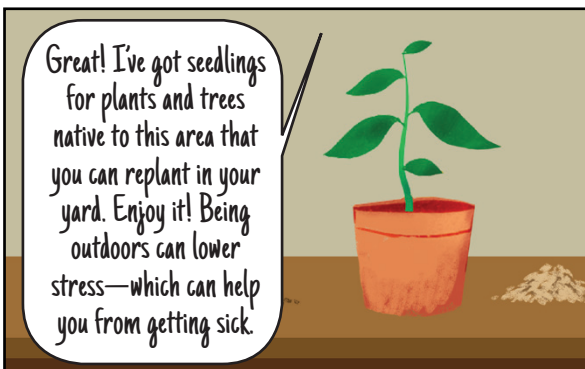
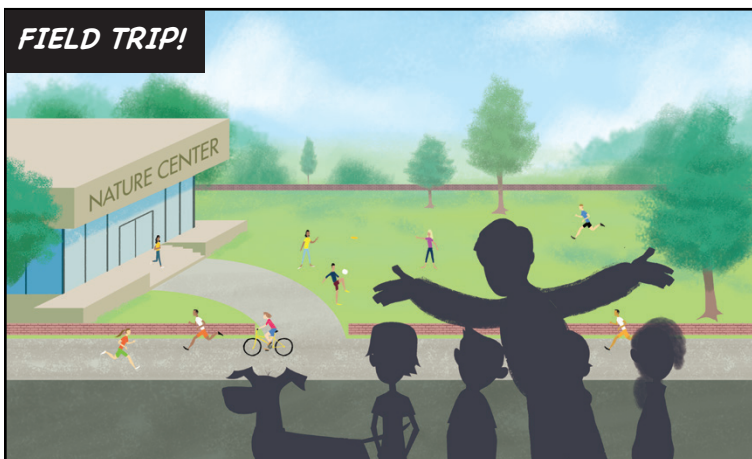
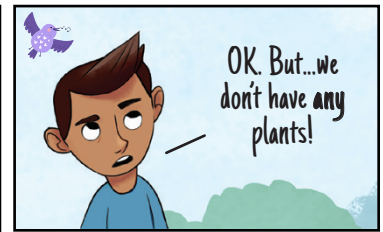
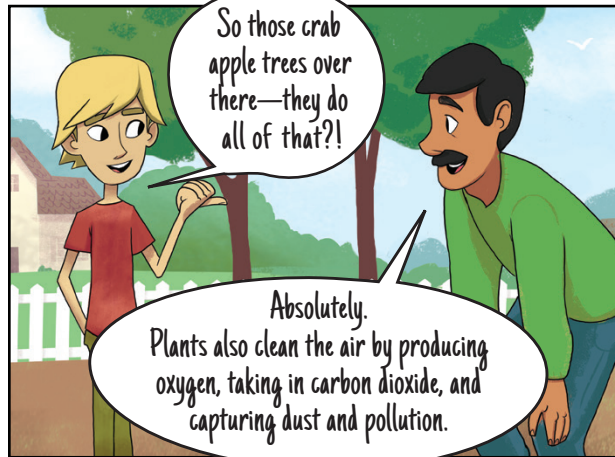
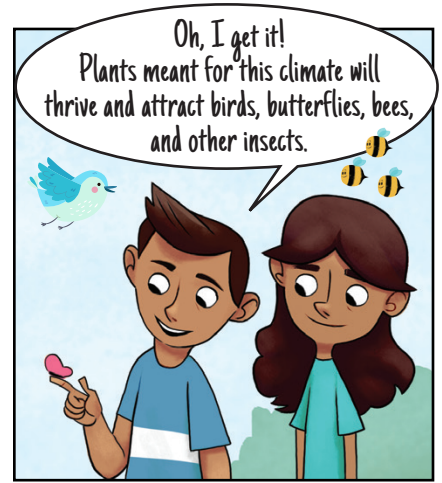
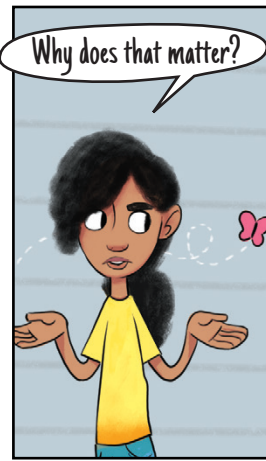


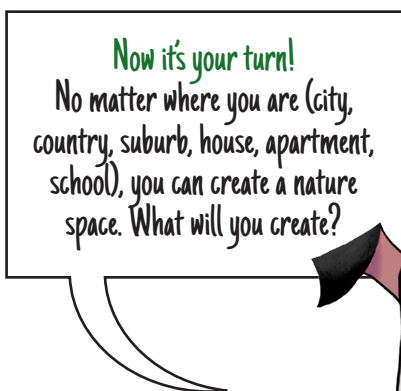
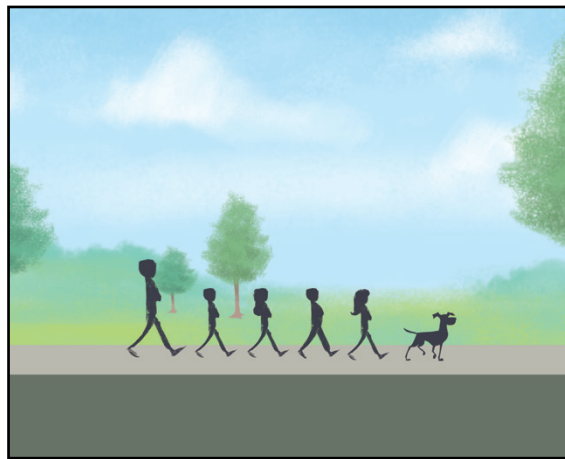
With "nothing to do" in the yard, the twins play games on the internet with friends...

Wow, we've never gotten to this level before!









DESIGN ↘

THE (REALLY) GREAT OUTDOORS

- 1 **Write about and/or draw with accompanying text** a nature space your community could use.

- 2 **Explain** what elements you need in your space, their purpose, and how it will benefit your community.

- 3 **Share your design with your teacher.**

Your nature space design should demonstrate: effectiveness of the nature space, innovation (creativity), personal connection, and a polished presentation.

PROTECTING POLLINATORS

Help your students explore the vital role these helpful creatures play in ecosystems and design a green space where they'll thrive.

Objective

Students will develop and evaluate design solutions for attracting pollinators to increase biodiversity in a local ecosystem.

Standards, Grs. 6–8

NGSS

MS-LS2-5 Evaluate designs for biodiversity in ecosystems

CCSS ELA

WHST.6–8.1 Write discipline-specific arguments

Time

60 minutes

Materials

- 🐾 Do Your Part for Pollinators activity sheet
- 🐾 Colored pencils or crayons (optional)
- 🐾 The (Really) Great Outdoors contest rubric and entry information at scholastic.com/turfmutt



More Resources

scholastic.com/turfmutt

Plus, take the survey for a chance to win a \$100 gift card!

Part 1: Pollination Foundation

1 Ask: *What do birds, bees, bats, and butterflies have to do with our food supply?* Determine students' prior knowledge. Then review the concept of **pollination**, the transfer of pollen grains from the male anther of a flower to the female stigma. Flowering plants produce seeds when pollen is transferred between flowers of the same species.

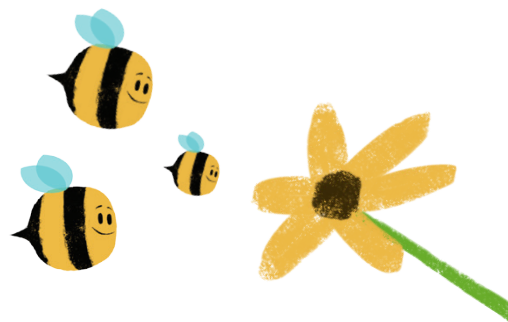
2 Explain that animals or insects that transfer pollen from plant to plant are called **pollinators**, which can include birds, butterflies, moths, and bats. (Wind and water also pollinate some plants.) In turn, pollinators rely on flowers for food—sticky pollen or sweet nectar.

3 Challenge students to estimate what percentage of the world's plants and food crops depend on animal pollination. Share some facts about pollinators, such as:

- 🐾 **75 percent** of the world's flowering plants and about **35 percent** of the world's food crops depend on animal pollinators to reproduce.
- 🐾 Scientists estimate that **one out of every three** bites of food we eat exists because of animal pollinators.
- 🐾 More than **3,500 species** of native bees help increase crop yields.

4 Explain that pollinators are under threat from many sources, including habitat loss, non-native species, pesticides, climate change, and parasites and disease. Pollinators benefit from **diverse habitats** that support both native plants and pollinators. When land is changed so that it only features one plant or crop (**monoculture**), ecosystems suffer. **Biodiversity** not only helps pollinators, but it is also important to ecosystems.

- 🐾 *To increase the challenge:* Ask students to



predict what **ecosystem homeostasis** might mean. Guide them to understand that it means **equilibrium**, maintaining the balance of species' populations over time (i.e., the population of each species doesn't change too much, so the species are able to fulfill their roles in the ecosystem). Discuss: *What would happen if ecosystem homeostasis wasn't maintained?*

Part 2: Applying Knowledge

5 Tell students that they will step into the role of landscapers. They must design a green space to support pollinators in their local community. (In urban spaces, consider green roofs, pocket parks, planted medians, and other ideas.) First, have them conduct research to identify plants and other features that will attract these creatures. Prompt students to take notes as they research. *Modification option:* Have groups choose ecosystem topics based on what your class is currently studying or learned previously (e.g., soil erosion).

- 🐾 *To decrease the challenge:* Have students focus on one of these pollinators only: birds, bees, or butterflies.

6 Hand out the Do Your Part for Pollinators activity sheet. Have students create their own green-space design and a persuasive proposal for it. *Optional:* Add real-world constraints, such as budget or social considerations.

7 Invite students to present their proposals to the class in a mock town hall, then vote to select the strongest green-space proposal. Use the experience as a jumping-off point for students to create individual (not group) entries to *The (Really) Great Outdoors Contest!* See details at scholastic.com/turfmutt.

Name _____

DO YOUR PART FOR POLLINATORS

Take a stand for birds, bees, and butterflies! Craft a proposal for a green space in your community that will support biodiversity and ecosystem health.



STEP 1 Design Time

Create two different green-space designs that benefit pollinators, considering the impact of each. Use extra paper as necessary.

	Design #1	Design #2
Where will you set up this green space? Select a location in your community.		
Which plants and other features will you include to attract birds, bees, butterflies, and other pollinators?		
How will attracting pollinators benefit the local ecosystem? Which types of plant or animal life will be affected?		

STEP 2 Sketch It Out

On the back of this sheet, draw a diagram of each green-space design. Label key features, such as plant species, feeding areas, and any other details.

STEP 3 Get Feedback

Share both diagrams with a classmate. Ask: *Which design is stronger? Are there ways to improve it?* Incorporate their suggestions.

STEP 4 Prep Your Pitch

On a separate sheet of paper, draft your persuasive proposal. Include info about how the green space would enhance your community.

