Grade 2

Evan-Moor

SKILL SHARPENERS

STEAM

Grade 2

Connecting School and Home

Downloadable Teaching Guide

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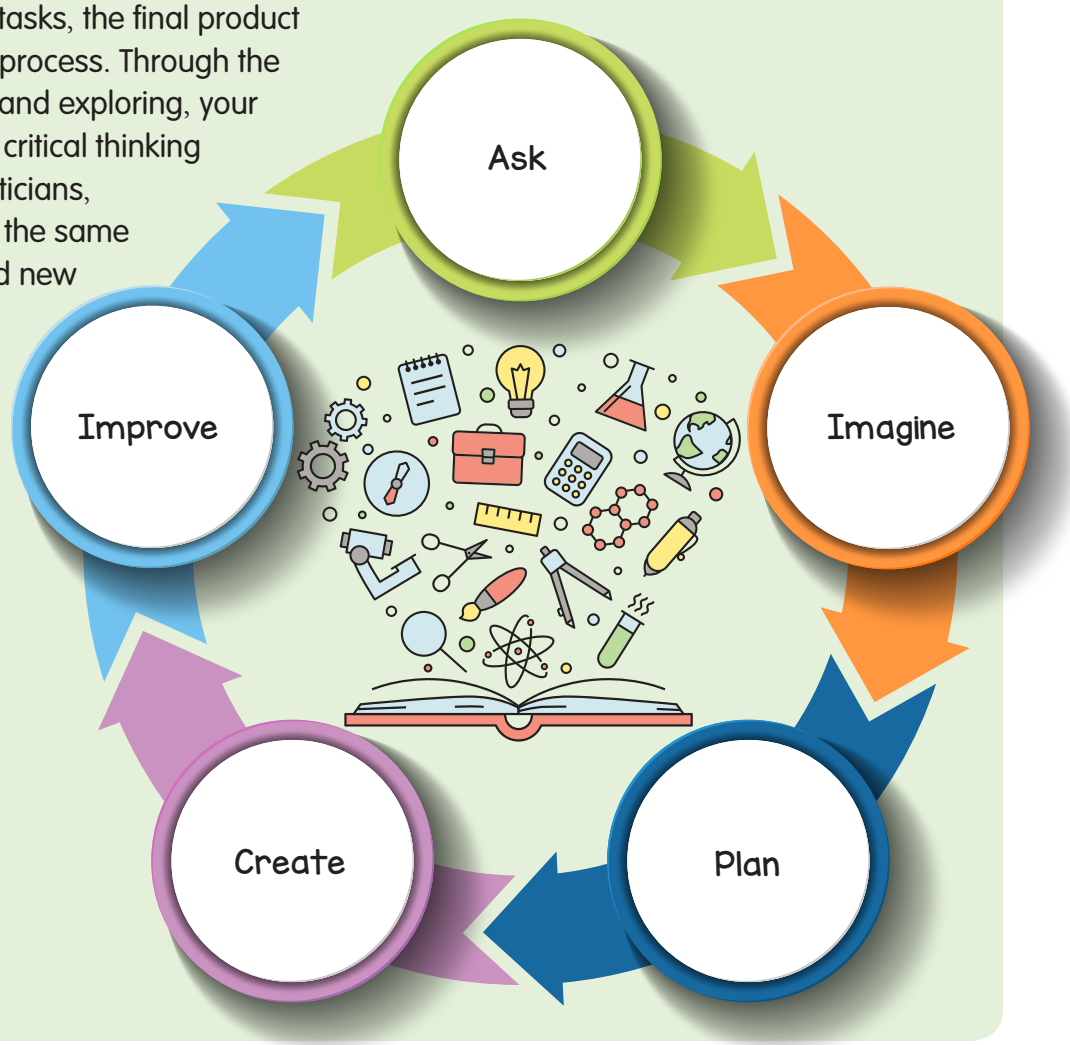
How to Use This Guide

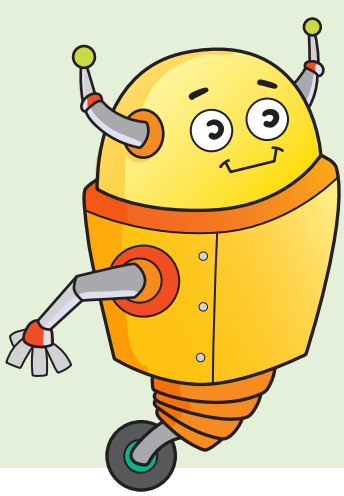
This guide provides suggestions and support to help you use *Skill Sharpeners: STEAM* as part of your core curriculum. The information and practice in *Skill Sharpeners: STEAM* introduce students to real-world problems in relatable contexts. The activities and projects focus on Science, Technology, Engineering, Art, and Math and provide hands-on experiences as well as connections to real-world scenarios and careers. The discussion questions and field trip suggestions provided in this guide will help you extend learning through additional conversations and real-world experiences.

How to Use the STEAM Approach to Education

STEAM is an approach to education that focuses on using Science, Technology, Engineering, Art, and Math to solve real-world problems. Empathy is at the core of STEAM education. Understanding how people, animals, or things are affected by a problem is an important part of the problem-solving and solution-seeking process. Teaching children how to think creatively prepares them for new unknown technologies, industries, and careers.

With STEAM activities and tasks, the final product is not as important as the process. Through the process of experimenting and exploring, your child is using creative and critical thinking skills. Scientists, mathematicians, engineers, and artists use the same critical thinking skills to find new and innovative solutions.

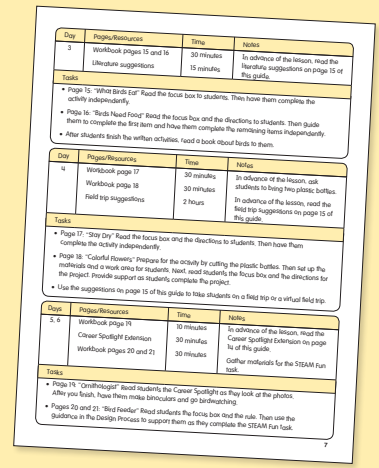




How to Use the Sample Pacing Plan and Template

The number of days you spend on each unit will depend on how you are using this resource. You may be using it to supplement your core curriculum or as part of a hybrid learning model.

The sample pacing plan is based on a 6-day lesson plan. Each day includes the *Skill Sharpeners: STEAM* workbook page numbers and suggested resources, the duration of the practice, relevant notes, and the tasks for that day. Refer to the sample plan to see examples of how and when to incorporate discussion questions, literature references, and field trips into your lesson plans.



Day	Pages/Resources	Time	Notes
3	Workbook pages 15 and 16 Literature suggestions	30 minutes 15 minutes	In advance of the lesson, read the literature suggestions on page 15 of this guide.

Tasks

- Page 15: "What Birds Eat" Read the focus box to students. Then have them complete the activity independently.
- Page 16: "Birds Need Food" Read the focus box and the directions to students. Then guide them to complete the first item and have them complete the remaining items independently.
- After students finish the written activities, read a book about birds to them.

Day	Pages/Resources	Time	Notes
4	Workbook page 17 Workbook page 18 Field trip suggestions	30 minutes 30 minutes 2 hours	In advance of the lesson, ask students to bring two plastic bottles. In advance of the lesson, read the field trip suggestions on page 15 of this guide.

Tasks

- Page 17: "Stay Dry" Read the focus box and the directions to students. Then have them complete the activity independently.
- Page 18: "Colorful Flowers" Prepare for the activity by cutting the plastic bottles. Then set up the materials and a work area for students. Next, read students the focus box and the directions for the project. Provide support as students complete the project.
- Use the suggestions on page 15 of this guide to take students on a field trip or a virtual field trip.

Days	Pages/Resources	Time	Notes
5, 6	Workbook page 19 Career Spotlight Extension Workbook pages 20 and 21	10 minutes 30 minutes 30 minutes	In advance of the lesson, read the Career Spotlight Extension on page 14 of this guide. Gather materials for the STEAM Fun task.

Tasks

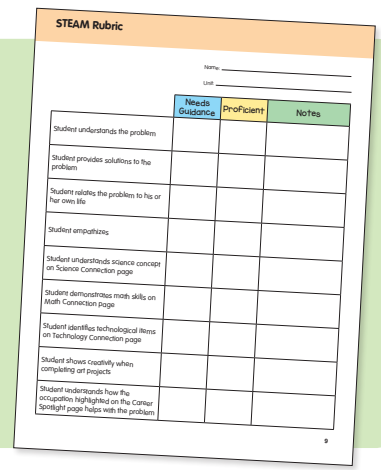
- Page 19: "Ornithologist" Read students the Career Spotlight as they look at the photos. After you finish, have them make binoculars and go birdwatching.
- Pages 20 and 21: "Bird Feeder" Read students the focus box and the rule. Then use the guidance in the Design Process to support them as they complete the STEAM Fun task.

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How to Use the STEAM Rubric and the Graphic Organizers

The STEAM Rubric can be used to measure and summarize students' understandings and competencies after they complete each unit.

The graphic organizers are intended to be used for field trips and virtual field trips. They provide a structure for students to record information as well as their observations and feelings.



STEAM Rubric

Name: _____

Unit: _____

	Needs Guidance	Proficient	Notes
Student understands the problem			
Student provides solutions to the problem			
Student relates the problem to his or her own life			
Student empathizes			
Student understands science concept on Science Connection page			
Student demonstrates math skills on Math Connection page			
Student identifies technological items on Technology Connection page			
Student shows creativity when completing art projects			
Student understands how the occupation highlighted on the Career Spotlight page helps with the problem			

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How to Use the Discussion Questions

This guide includes discussion questions for each Learn About the Problem nonfiction text. The discussion questions are intended to help students connect the topic to their own lives and deepen their understanding of how a problem can affect people, animals, a community, or a whole city—a problem can even affect an entire region. After students read the Learn About the Problem text, engage them in discussion about the topic. Explain to students that there are no right answers, and encourage them to share their experiences and opinions.



When to Do the Career Spotlight Extensions

The Career Spotlight Extensions provide opportunities to engage students in authentic tasks related to careers. The Career Spotlight Extensions will provide the most value if they are completed after you read the Career Spotlight activity to students. Engaging in tasks that are similar to those they read about in the Career Spotlights will help students make connections between the topics and the real-world tasks related to them.

How to Use the Literature Suggestions

The literature suggestions in this guide focus on different aspects of a topic. You may choose to read the fiction and nonfiction books to students before beginning the unit, during the unit, or after the unit. Encourage students to think about how they would feel if they were the person in the story or if they were experiencing the situation the story describes.

When to Do the Field Trips

The field trips may be most valuable after students complete the Connections activities and have read and completed the Career Spotlight.

The field trips and virtual field trips are intended to deepen students' understanding of the topic and extend their learning by having authentic or virtual experiences. As students participate in the field trips, encourage them to share their observations and ideas. At the end of the field trip, you may wish to have students share any solutions they come up with and have them think about how they can apply what they have experienced to their STEAM task.



Sample Pacing Plan

Unit: Bird Feeder

Day	Pages/Resources	Time	Notes
1	Workbook pages 8 and 9 Workbook pages 10 and 11 Discussion questions, page 14 of this guide	30 minutes	Preview discussion questions on page 14 of this guide before the lesson.

Tasks

- Page 8: "Dinner in the Snow" Guide students to preview the illustrations and make predictions about the story. Then read the title and the story to students.
- Page 9: "No Food in the Winter" Read the directions and the items to students and guide them through completing the activity.
- After students complete the activity, have them share their responses with the class.
- Pages 10 and 11: "Hungry Birds" Read the title to students and guide them through previewing the photos. Then read the text to students as they look at it in their workbooks.
- Use the discussion questions or some of your own questions to engage students in discussing the topic and sharing their thoughts, opinions, and experiences.

Day	Pages/Resources	Time	Notes
2	Workbook pages 12 and 13	40 minutes	Gather the materials for the art project.

Tasks

- Page 12: "Birdhouse" Set up the materials and a work area for students. Then guide them through the steps to complete the project.
- After they finish, ask students to tell you why birdhouses are important.

Day	Pages/Resources	Time	Notes
3	Workbook pages 15 and 16 Literature suggestions	30 minutes 15 minutes	In advance of the lesson, read the literature suggestions on page 15 of this guide.

Tasks

- Page 15: "What Birds Eat" Read the focus box to students. Then have them complete the activity independently.
- Page 16: "Birds Need Food" Read the focus box and the directions to students. Then guide them to complete the first item and have them complete the remaining items independently.
- After students finish the written activities, read a book about birds to them.

Day	Pages/Resources	Time	Notes
4	Workbook page 17 Workbook page 18 Field trip suggestions	30 minutes 30 minutes 2 hours	In advance of the lesson, ask students to bring two plastic bottles. In advance of the lesson, read the field trip suggestions on page 15 of this guide.

Tasks

- Page 17: "Stay Dry" Read the focus box and the directions to students. Then have them complete the activity independently.
- Page 18: "Colorful Flowers" Prepare for the activity by cutting the plastic bottles. Then set up the materials and a work area for students. Next, read students the focus box and the directions for the project. Provide support as students complete the project.
- Use the suggestions on page 15 of this guide to take students on a field trip or a virtual field trip.

Days	Pages/Resources	Time	Notes
5, 6	Workbook page 19 Career Spotlight Extension Workbook pages 20 and 21	10 minutes 30 minutes 30 minutes	In advance of the lesson, read the Career Spotlight Extension on page 14 of this guide. Gather materials for the STEAM Fun task.

Tasks

- Page 19: "Ornithologist" Read students the Career Spotlight as they look at the photos. After you finish, have them make binoculars and go birdwatching.
- Pages 20 and 21: "Bird Feeder" Read students the focus box and the rule. Then use the guidance in the Design Process to support them as they complete the STEAM Fun task.

Pacing Template

Unit: _____

Day	Pages/Resources	Time	Notes

Tasks

Day	Pages/Resources	Time	Notes

Tasks

Day	Pages/Resources	Time	Notes

Tasks

STEAM Rubric

Name: _____

Unit: _____

	Needs Guidance	Proficient	Notes
Student understands the problem			
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Student identifies technological items on Technology Connection page			
Student shows creativity when completing art projects			
Student understands how the occupation highlighted on the Career Spotlight page helps with the problem			

KWLF Graphic Organizer

Name: _____

Topic: _____

K What I know

W What I want to know

L What I learned

F How I feel

Design Process

Name: _____

What is the problem?

How can I help?

What I made.

What I will do next time.

Organization of Each Unit

Each unit in *Skill Sharpeners: STEAM* focuses on a real-world problem and features a realistic fiction text, a nonfiction text, an art project, and a variety of activities that focus on science, technology, engineering, and math. In addition, each unit includes a career connection that features real-world jobs. Following is a description of each component of the unit and the role it plays and its value for students.

Real-World Connection

Each unit begins with a Real-World Connection text that focuses on the topic through a one-page realistic fiction story. The story provides context for students to understand the problem and possibly empathize with the people or animals that this problem affects. The story often includes multiple problems connected to the topic. Some problems are First World, such as inclusive playgrounds, and some are Third World, such as clean drinking water.



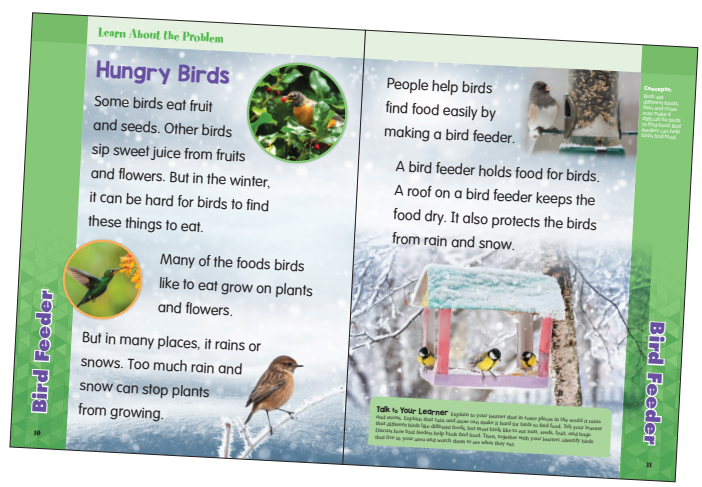
What's the Problem?

The What's the Problem? page follows the Real-World Connection story, and it focuses on having students identify one or more problems in the story. The items in this activity will help students think about the problem or problems that were presented and identify possible solutions from the story or from his or her own thoughts.



Learn About the Problem

Each unit includes a nonfiction text that provides students with more detailed information about the problem in the real world. Meaningful photos and illustrations provide context and enrich students' understanding of the problem.



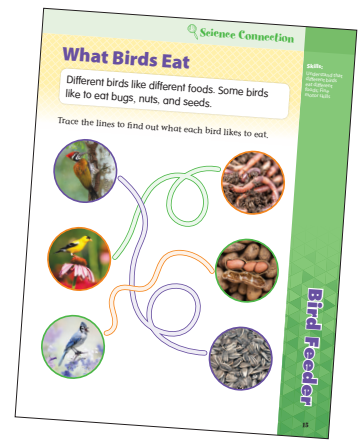
Art Connection

Each unit includes an art connection that incorporates creativity into finding solutions. These activities provide an opportunity to be creative and to learn about how to relate topics to art and present information in an engaging way.



Science, Technology, Engineering, and Math Connections

The science, technology, and engineering connections present additional information about how these emphases are used to solve problems. The math connection activities relate the problems to a variety of real-world situations in which math concepts can be used to figure out solutions.



Career Spotlight

The career spotlight activities present a variety of careers related to the problems or solutions in the unit. These activities provide students with a real-world view of science, technology, engineering, arts, and math jobs and careers.



STEAM Task

Each unit culminates with a STEAM task. The STEAM task gives students a real-world scenario and a problem to solve using the following design process: Ask, Imagine, Plan, Create, Improve. Support is provided for an adult to guide students through each step of the design process.

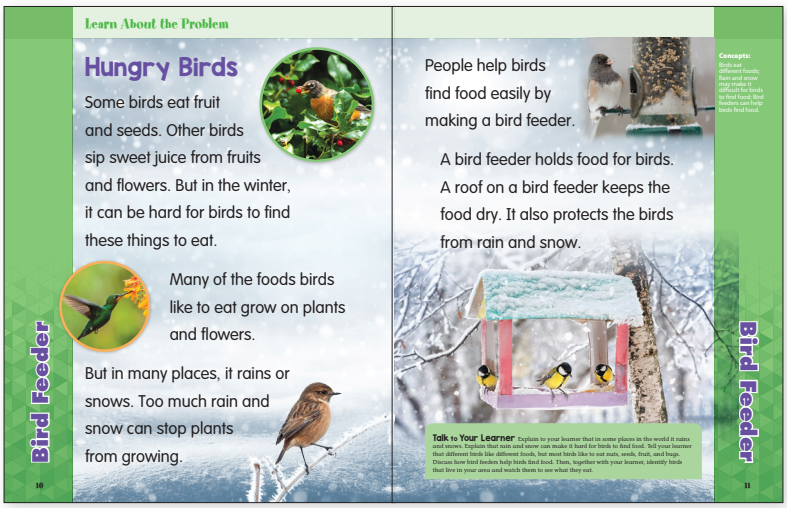


Bird Feeder

Discussion Questions

Discussion questions for "Hungry Birds," pages 10 and 11

After students read "Hungry Birds," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



What do birds need to live and grow?

What do birds eat?

What is the weather like during the winter in some places?

Why is it hard for birds to find food in the winter?

Where can birds find protection from the rain and snow?

Career Spotlight Extension

Have students make binoculars. Prepare for this activity by gathering the following items for each student: 2 paper tube rolls, scotch tape, crayons or markers, and string. You will also need a hole puncher for adult use. Begin by asking students to decorate the paper tube rolls with crayons or markers. Then wrap scotch tape around the two paper tube rolls to hold them together. Punch one hole at the end of each roll. Then thread a piece of string through the holes and tie knots at both ends. Allow students to use their binoculars to find birds on the playground.



Field Trip Suggestions

If you live near a bird sanctuary, a zoo, or a park, you might consider taking a field trip to one. While there, have students draw pictures of birds they see.

If you do not live near a bird sanctuary, a zoo, or a park, consider taking a virtual field trip to one. Have students draw pictures of the habitat and birds that live there.

Literature Suggestions

Consider reading students these stories about birds.

Birds in Winter, written by Jenny Fretland VanVoorst

Mama Built a Little Nest, written by Jennifer Ward

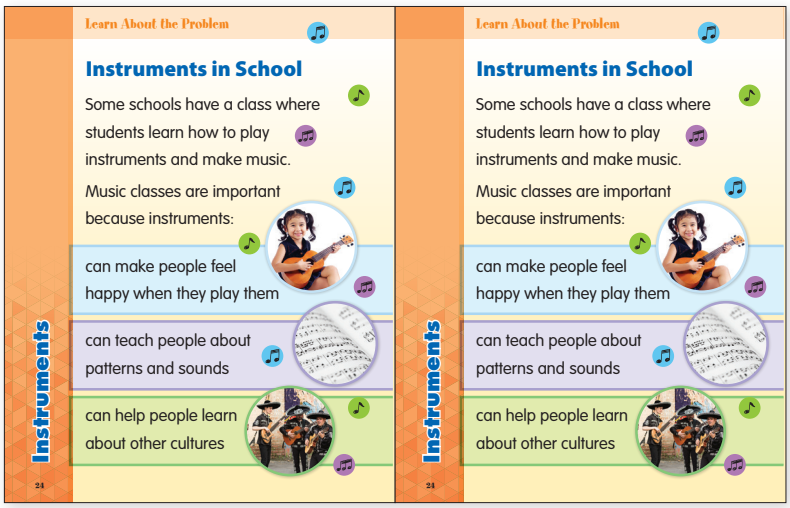
Little Bird Takes a Bath, written by Marisabina Russo



Discussion Questions

Discussion questions for "Instruments in School," pages 24 and 25

After students read "Instruments in School," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



Have you ever played an instrument?

How do you feel when you listen to music? How do you feel when you play an instrument?

Why are music classes important to have in schools?

Why are some schools no longer able to have music classes?

How can you make music if you do not have instruments?

Field Trip Suggestions

If you live near a symphony orchestra, you might consider organizing a field trip to visit it. While there, have students draw different instruments the orchestra plays.

If you do not live near a symphony orchestra, consider taking a virtual field trip to one. Have students take note of the conductor's role in an orchestra and how all the musicians work together to create musical works of art. Also have students draw pictures of their favorite instruments in the orchestra.



Literature Suggestions

Consider reading students these stories about music and instruments.

Max Found Two Sticks, written by Brian Pinkney

Because, written by Mo Willems

Rhythm Rescue, written by Vicky Weber

Lazlo Learns Recorder, written by Vicky Weber

Tito Puente, written by Monica Brown

My Family Plays Music, written by Judy Cox









Plastic Bags

Discussion Questions

Discussion questions for "Plastic Bags," pages 38 and 39

After students read "Plastic Bags," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



Do you use plastic bags? What do you use plastic bags for?

How do plastic bags end up in rivers and oceans?

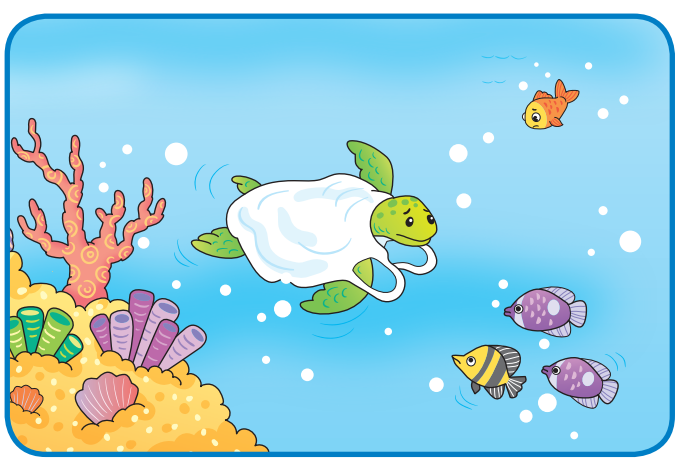
How do plastic bags hurt animals?

What should you do with your plastic bags when you are finished using them?

What can you use to carry things instead of a plastic bag?

Career Spotlight Extension

Set up a sensory table outside and fill it with water. Add sea animal toys, plastic wrappers or plastic sandwich bags, plastic lids or bottle caps, straws, dirt, etc. Allow children to try to clean up the water using different tools, such as fish nets, coffee filters, tongs, or spoons. Discuss how environmental engineers build tools or machines to help remove pollution from bodies of water around the world.



Field Trip Suggestions

If you live near a recycling center, you might consider organizing a field trip to visit it. While there, have students draw pictures of things that can be recycled, as well as what plastic bags can be recycled into.

If you do not live near a recycling center, consider taking a virtual trip to one. Have students draw pictures of how plastic bags are recycled.

Literature Suggestions

Consider reading students these stories about plastic bag pollution.

The Pout-Pout Fish Cleans Up the Ocean, written by Deborah Diesen

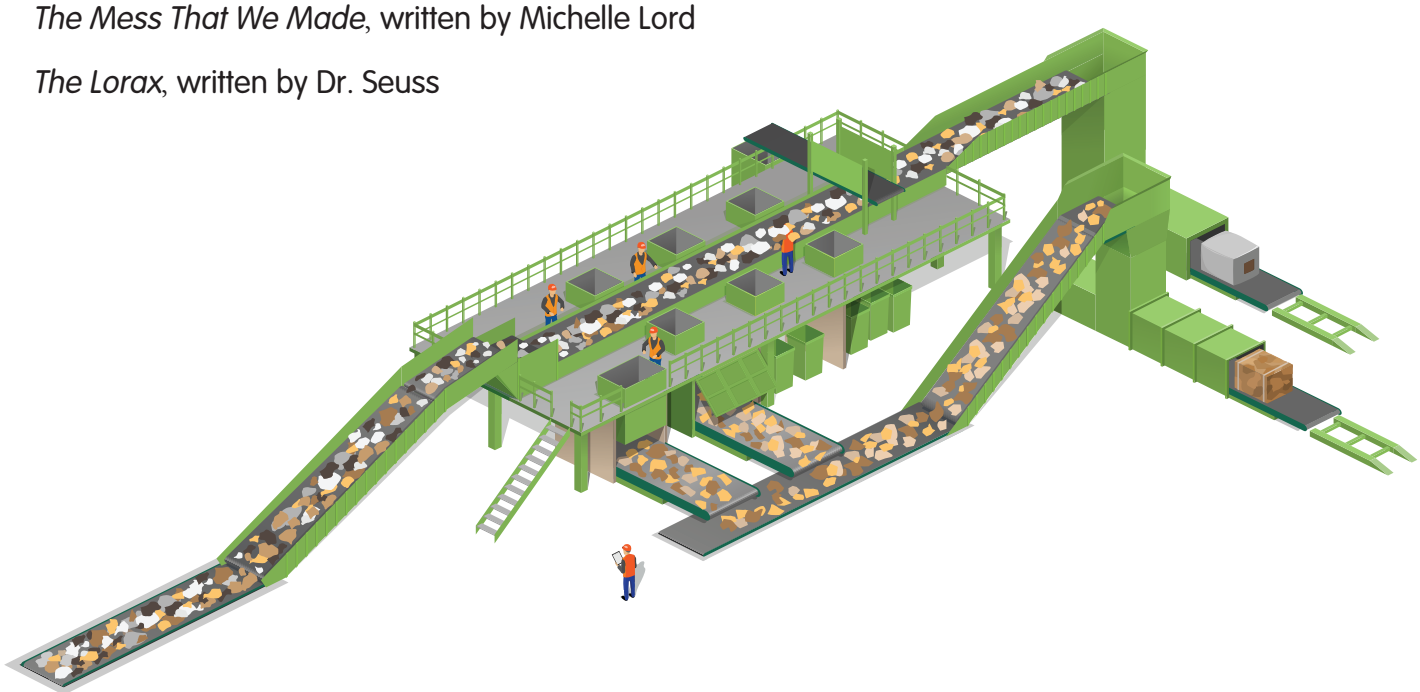
One Plastic Bag, written by Miranda Paul

The No-Plastic Challenge, written by Scot Ritchie

Bag in the Wind, written by Ted Kooser

The Mess That We Made, written by Michelle Lord

The Lorax, written by Dr. Seuss



Discussion Questions

Discussion questions for "Looking at a Screen," pages 52 and 53

After students read "Looking at a Screen," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



What do you like to do in your free time?

How much time a day do you think you spend looking at a screen?

How can looking at a screen for a long time hurt your body?

What are some things you can do to have fun that gets your body moving?

Literature Suggestions

Consider reading students these stories about too much screen time.

Cami and Wyatt Have Too Much Screen Time, written by Stacy C. Bauer

Limit Your Dragon's Screen Time, written by Steve Herman

Unplugged, written by Steve Antony

When Charlie McButton Lost Power, written by Suzanne Collins



Discussion Questions

Discussion questions for "The Air Around Us," pages 66 and 67

After students read "The Air Around Us," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



Why do living things need clean air to live and grow?

What can happen if people breathe in too much dirty air?

What makes the air dirty or smoky?

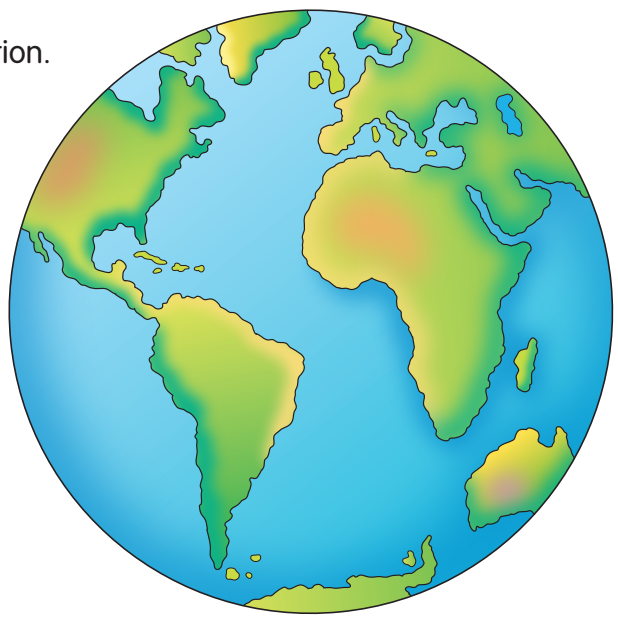
What can you do to help make less dirty air?

Literature Suggestions

Consider reading students these stories about air pollution.

The Little Helpers: Paula Helps Prevent Air Pollution, written by Claire Culliford

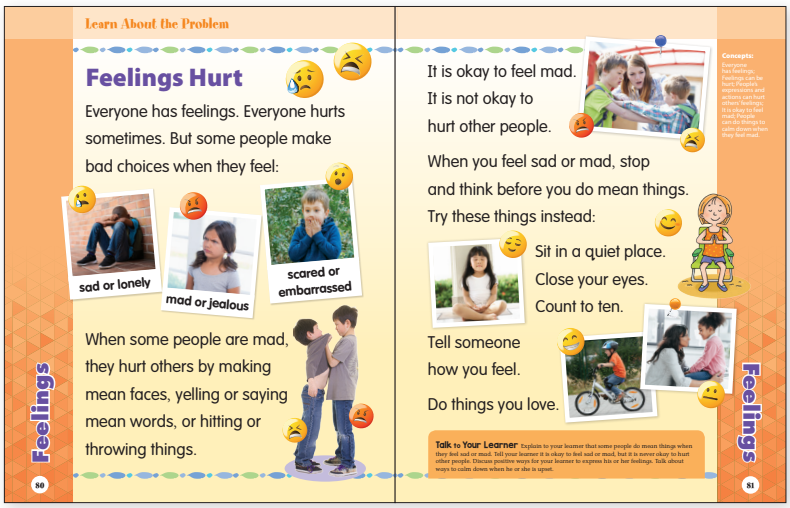
Earth Remembers When, written by Dawn Wynne



Discussion Questions

Discussion questions for "Feelings Hurt," pages 80 and 81

After students read "Feelings Hurt," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



Can you name different feelings people have?

What is a bully?

Would you rather be a bully or a friend? Why?

What are some things you can do when you feel mad?

What are some things you can do when you feel sad?

Is it okay to hurt others when you feel mad or sad? Why or why not?

Career Spotlight Extension

Have students make a class book about feelings. Set up an area where students can access paper and crayons, colored pencils, or markers. Then write different feelings on sheets of paper. For example, "happy," "sad," "excited," and "angry." Make enough copies for each student to have at least four sheets of paper for his or her book. Distribute the sheets of paper you copied for students. Have students draw a self portrait of how they look when they feel the emotions. Bind the paper together when all students have completed their drawings.



Literature Suggestions

Consider reading students these stories about feelings.

A Big Guy Took My Ball! written by Mo Willems

Marlene, Marlene, Queen of Mean, written by Jane Lynch

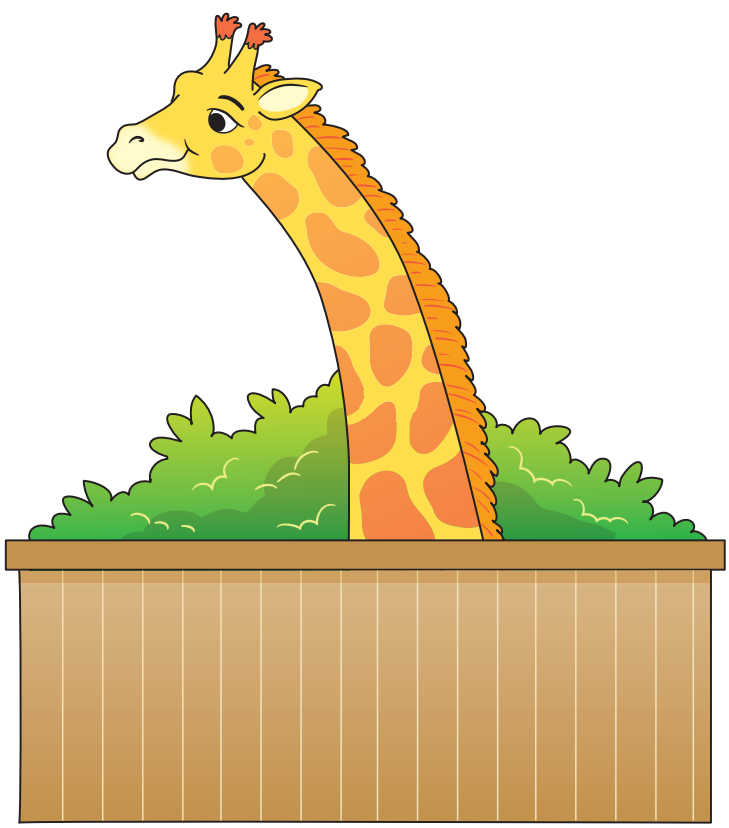
The Invisible Boy, written by Trudy Ludwig

Miss Nelson Is Missing! written by Harry Allard

Have You Filled a Bucket Today? A Guide to Daily Happiness for Kids, written by Carol McCloud

You, Me and Empathy, written by Jayneen Sanders

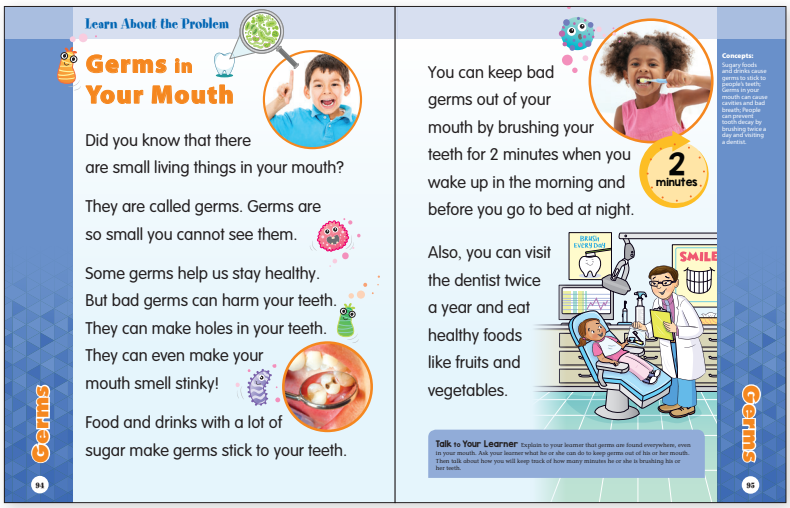
Giraffes Can't Dance, written by Giles Andreae



Discussion Questions

Discussion questions for "Germs in Your Mouth," pages 94 and 95

After students read "Germs in Your Mouth," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



What can you do if you have trash, but there isn't a place to throw it away?

Is there a park near where you live? If yes, have you ever seen trash in the park? What kinds of trash did you see?

What would you do if you were at the park with friends and one of your friends threw his or her trash on the ground?

Should all the people in a community care about trash in the park? Why or why not?

Career Spotlight

Set up a dramatic play area for students to pretend to be a dentist. Hang pictures of x-rays of teeth, stuffed animals for patients, tongue depressors, masks, gloves, paper cups, toothbrushes, etc. Allow students to explore the materials and role-play how dentists keep our teeth healthy.



Field Trip Suggestions

If you live near a dentist's office, you might consider organizing a field trip to visit it. While there, have students draw pictures of how a dentist helps us and ways to keep our teeth healthy.

If you do not live near a dentist's office, consider taking a virtual trip to one. Have students draw pictures of tools a dentist uses to help us keep our teeth healthy.

Literature Suggestions

Consider reading students these stories about germs in your mouth and the importance of good dental hygiene.

Open Wide: Tooth School Inside, written by Laurie Keller

Sugarbug Doug, written by Dr. Ben Magleby

The Tooth Book, written by Dr. Seuss

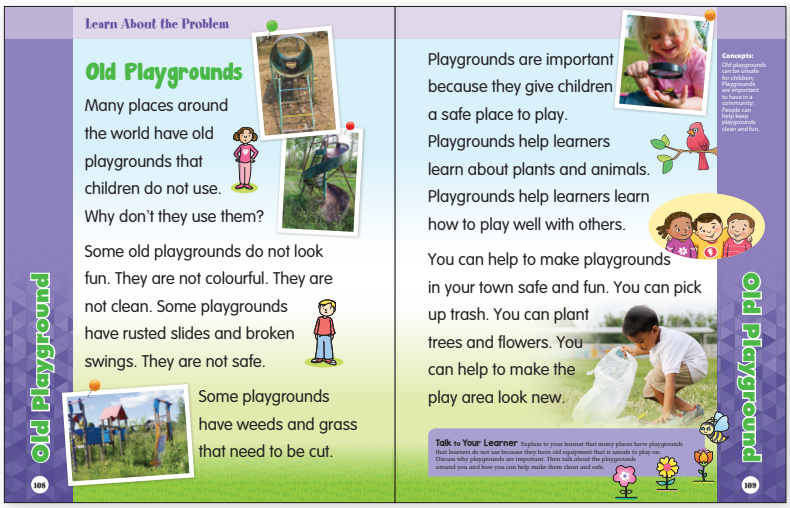


Old Playground

Discussion Questions

Discussion questions for "Old Playgrounds," pages 108 and 109

After students read "Old Playgrounds," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



What does your dream playground look like?

What are some reasons why you would not want to play at a playground?

Would you play at a playground that has broken equipment and trash all around? Why or why not?

Why are playgrounds important to children and other people?

How can you help make playgrounds safe and fun in your community?

Field Trip Suggestions

If you live near an old playground, you might consider organizing a field trip to visit it. While there, have students draw a picture of what it looks like. Then have students draw a picture of what it could look like if it were remodeled.

If you do not live near an old playground, consider taking a virtual trip to one. Have students compare and contrast this playground to the one at school or in the community.

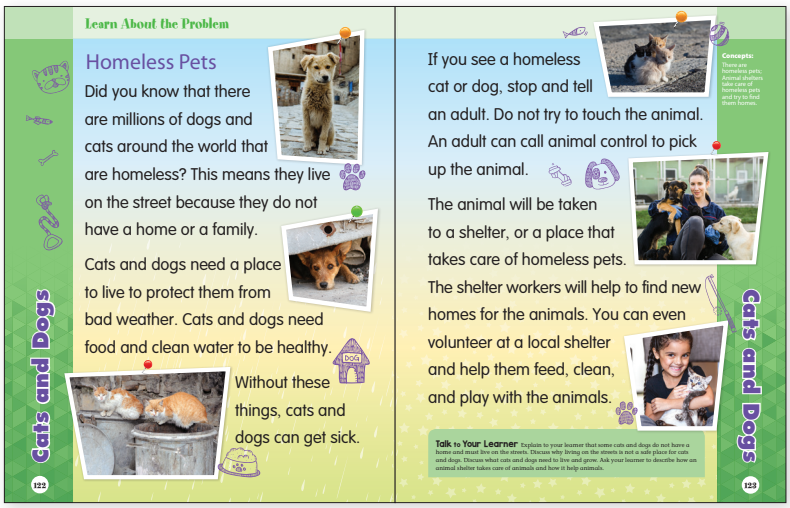


Cats and Dogs

Discussion Questions

Discussion questions for "Homeless Pets," pages 122 and 123

After students read "Homeless Pets," use the following questions along with some of your own to encourage discussion to deepen students' understanding of the topic.



What do cats and dogs need to live and grow?

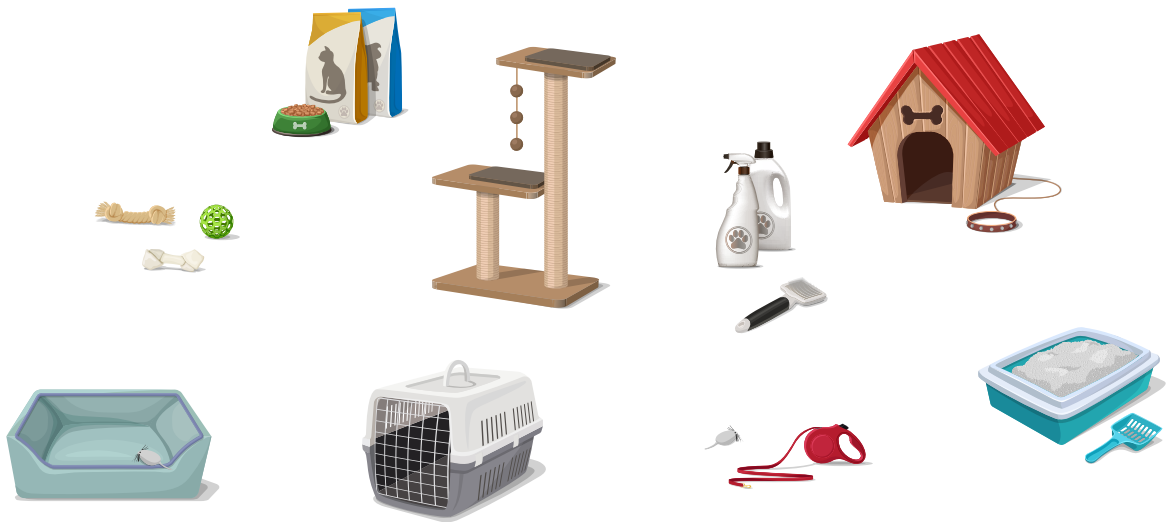
Have you ever seen a homeless cat or dog? How did it make you feel?

If you see a homeless cat or dog, do you think you should get close and try to touch the animal? Why or why not?

How can you help the homeless animals in your community?

Career Spotlight Extension

Set up a dramatic play area for students. Gather stuffed animals (cats and dogs), a stethoscope, bowls, balls, blankets, string to act as leashes, etc. Allow students to explore the items and role-play to show how animal shelter workers help homeless cats and dogs.



Field Trip Suggestions

If you live near an animal shelter, you might consider organizing a field trip to visit it. While there, have students draw pictures of the animals that live there and the ways the shelter workers help the animals.

If you do not live near an animal shelter, consider taking a virtual trip to one. Have students draw pictures of the ways an animal shelter helps homeless pets.

Literature Suggestions

Consider reading students these stories about homeless cats and dogs.

Ginger Finds a Home, written by Charlotte Voake

Buddy Unchained, written by Daisy Bix

A Dog Wearing Shoes, written by Sangmi Ko

Can I Be Your Dog? written by Troy Cummings





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