



# **Summer At-Home Learning**

Everything you need to provide summer lessons at home.

The learning plans included in this document are provided as a resource only. This information is intended to assist in the delivery of educational resources in this time of public crisis.

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**Texas Education Agency** 

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# **Getting Started**

#### Welcome Texas Families!

The Texas Summer At-Home Learning packet provides four weeks of home learning plans and additional lessons for students. This packet has been designed with flexibility and easy family use in mind to keep students connected to meaningful content during the summer. Although lessons, assignments, and scheduling suggestions are provided, students and families, with support from their schools, may complete the lessons in a way that meets the needs of each individual student.

#### What's included:

- Introductory guidance to get your student set up to learn
- Four weeks of daily lessons organized by subject
- Additional lessons to extend learning beyond four weeks, if desired
- Curriculum materials for each lesson, including books, articles, worksheets, etc.

To get started, review the **Establishing a Schedule for Learning** and **Learning Goals for Students** sections of this packet. Following a planned schedule with learning objectives makes the learning plan easy to follow.

#### **Packet Overview**

The four-week Summer At-Home Learning plan is divided by subject area: reading/language arts, math, science, and social studies. Students can focus on just a few subjects, like reading or math, or on all subjects included in the packet. Schools should help students choose which subject areas to focus on and when.

Each subject area includes sequential lessons with five daily lessons per week beginning with Week 1, Day 1 and ending with Week 4, Day 5, plus a set of additional lessons for students to extend learning up to four more weeks.

Lessons provide detailed instructions and reference the page numbers of materials in this packet, including articles, books, worksheets, and other materials needed to complete the lesson.

#### **First Steps**

- 1. To begin, simply choose a subject and use the table of contents to find that section of the packet.
- 2. Start with Week 1, Day 1, complete the listed activities, and check off each lesson when finished.
- 3. Make your way through all lessons in the order presented or as instructed by your school.
- 4. After completing four weeks of lessons in a specific subject area, continue to the Additional Lessons section for more learning.

#### For more information, visit TexasHomeLearning.org.



# **Establishing a Schedule for Learning**

It is recommended that students establish a consistent learning schedule that can be followed each day of the four-week learning plan. Having a regular structure can help make daily and weekly activities easier to follow and enhance home learning. For example, a student may start each day off eating breakfast and getting some exercise before beginning the first lesson.

# Families are balancing at-home learning with many other priorities so their chosen schedule should help increase student learning while also meeting the needs of the family.

In establishing a consistent routine, families should seek help from schools and consider which subject(s) may require more support for the student while balancing home learning with other family priorities.

The following sample schedules are a starting point. Families should adjust the schedule to meet the needs of the student while accounting for their own availability to help facilitate learning, if needed.

#### Age-Appropriate Time on Task

Students should spend learning time in a way that is age appropriate. Children 7 or younger should spend 5-10 minutes at a time on an activity. This might mean working through half of the assigned activity, taking a break, finishing the activity, and then reflecting on the activity before moving on. Children 8 or older may be able to spend 15-30 minutes on one activity and might prefer afternoons for deeper thinking.

#### **Daily Check-Ins**

Connect with your student every day at a time that works well for your household. For example, you may want to check in briefly a few times per day or have just one longer check-in in the morning or evening. The goal of this time is for students to recall and reflect on what they learned during the day.

Use check-in time to spark conversation with questions such as:

- Were you able to complete all the assigned activities?
- What did you learn/practice/read today?
- What was easy or challenging for you?
- Do you have questions for your teacher?

Also use this time to communicate with the student's teachers as needed, send them copies or pictures of student work, or share information about the student's learning progress.

#### **Choice Learning Time**

If you choose to follow the full-day learning schedule in the following pages of this packet, the Choice Learning block is a time to offer students multiple options. Many students will grow their love of learning when they can work on activities that are exciting to them. Some examples include puzzles, counting or sorting objects, building with blocks or Legos, or reading a book. Offer choices that are fun and interesting, and let the student pick the activity that excites them the most.



# **Sample Schedules**

Subject areas included in this Summer At-Home Learning packet are highlighted in gray.

#### Sample Schedule 1: Full Day of Learning

This schedule works best when student: needs access to all subjects; works well independently; has help available throughout the day.

Time	Activity
8:30-9:00 a.m.	Outdoor/Indoor Exercise
9:00-10:00 a.m.	Reading Language Arts
10:00-10:15 a.m.	Snack and Break
10:15-11:15 a.m.	Math
11:15-12:00 p.m.	Lunch and Quiet Time
12:00-12:30 p.m.	Science or Social Studies
12:30-12:45 p.m.	Break
12:45-1:15 p.m.	Choice Learning
1:15-2:00 p.m.	Art or Play
2:00 p.m.	Daily Check-In

Note: May use Monday-Friday, Monday-Thursday, or alternating days (Mon/Wed/Fri).

#### Sample Schedule 2: Morning Learning with Reading and Math Only

This schedule works best when student: needs to prioritize reading and math; has help available in the morning.

Time	Activity
8:30-9:00 a.m.	Outdoor/Indoor Exercise
9:00-10:00 a.m.	Reading Language Arts
10:00-10:30 a.m.	Snack and Break
10:30-11:30 a.m.	Math
11:30-11:45 a.m.	Daily Check-In
11:45 a.m.	Lunch

**Note:** May shift to an afternoon schedule. May use each day of the week, part of the week, or alternating days (Mon/Wed/Fri).

#### Sample Schedule 3: Reading-Only Option

This schedule works best when student: has limited time; has limited help available.

Time	Activity
5:00-6:00 p.m.	Reading Language Arts
6:00-6:30 p.m.	Choice Learning
6:30-7:00 p.m.	Dinner
7:00-7:30 p.m.	Independent Reading

Note: May schedule time as family schedule allows.



# **Learning Goals for Students**

This Summer At-Home Learning packet provides daily lessons in each of the main academic subjects. While materials are provided for all of these subjects, a student, family, or school may choose to focus on only some of these content areas based on individual academic and scheduling needs.

# Phonics

Caregivers lead students through a daily lesson using the Amplify activities in the lessons section of this packet. These lessons include both phonics and phonological awareness skills, which are foundational to strong reading.

#### **Tips for Caregivers**

- These are designed to be quick activities led by a caregiver. Students will need support.
- Use the instructions for each activity to reinforce and practice a skill.



# Reading and Writing

Students should read every day and follow an enjoyable at-home reading routine. Students are encouraged to either select books of interest at home or read and write about the provided books on a weekly theme.

#### **Tips for Caregivers**

- Support your student while reading. The amount of support needed will depend on the book selected.
- After your student reads each of the assigned selections, discuss the book together. Ask questions like: What is something new you learned from the book?
- Ask your student to draw something they learned from the book.
- Ask your student to write about the book or respond to a prompt.
- Ask your child to talk about the book with a family member.
- Parents are encouraged to obtain new books in addition to the printable options provided.

# 🔋 Math

Students will solve a daily word problem and complete a problem set (worksheet) to cover foundational skills for math, including addition, subtraction, and measurement.

#### **Tips for Caregivers**

- A caregiver may need to read the daily word problem and problem set to the student. Help them solve the example provided.
- A caregiver may need to continue supporting the student through the problem set. Some students may be able to do problem sets independently.
- Have objects available that students can count to help them solve the problems (pennies, blocks, cereal pieces—whatever you can find at home).
- Allow your student to solve the problems in a way that makes sense to them, even if it is different than what is shown on the page.





# Science

Students will engage in a daily activity focused on science or social studies. These activities have suggestions for using common materials found in the home or outside such as paper, pencil, and common objects.

#### **Tips for Caregivers**

- Caregivers may need to read the lessons to their student and provide access to materials for suggested activities.
- Background information is provided to support families with understanding content.



# **Social Studies**

Students will engage in a daily activity focused on science or social studies. These activities have suggestions for using common materials found in the home or outside such as paper, pencil, and common objects.

#### **Tips for Caregivers**

- Caregivers may need to read the lessons to their student and provide access to materials for suggested activities.
- Background information is provided to support families with understanding content.

You are now ready to begin your Summer At-Home Learning Packet! For more information, visit TexasHomeLearning.org.







# **Summer At-Home Lesson Plans**

**IMPORTANT NOTE:** Many caregivers are balancing home learning with many other priorities, so families should adjust the schedule to meet their individual needs.





# Day 1

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Beginning Sounds" (p.47)

### **Reading and Writing**

- Read: Student chooses a book from home or reads Talking About Forces (nonfiction) (p.49)
- Reflect: Caregivers asks, "What is a new thing you learned from the book?"
- Respond: Student can draw and write about what was learned. Encourage student to draw and write about more than one thing.

# Day 2

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Blend Words" (p. 47)

# **Reading and Writing**

- Read: Student chooses a book from home or rereads *Talking About Forces* (nonfiction) (p. 49)
- Reflect: Caregiver or student can turn to any page in the book. Caregiver can ask, "What is happening in the picture?"
- Respond: Student can draw and write about what is happening in the picture.

# Day 3

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Label Your Home" (p. 48)

#### **Reading and Writing**

- Read: Student chooses a book from home or reads Room 4 Solves a Problem (fiction) (p. 53)
- Reflect: Caregiver asks, "What happened in the beginning, middle, and end of the story? Or, what are three facts you learned?"
- Respond: Student can draw and label three pictures showing the beginning, middle, and end of the story or three facts learned. Encourage student to write about what they drew.

# Day 4

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Sounds on a Walk" (p. 45)
- Phonics Activity: "Grocery List" (p. 48)

- Read: Student chooses a book from home or rereads *Room 4 Solves a Problem* (fiction) (p. 53)
- Reflect: Caregiver asks, "What is a new thing you learned from the book?"
- Respond: Student can draw and write about what was learned. Encourage student to draw and write about more than one thing.



# Day 5

# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Break the Words Apart" (p. 45)
- Phonics Activity: "Personal Dictionary" (p.48) Tip: Revisit this activity daily

- Read: Student chooses a book from home or rereads *Talking About Forces* (nonfiction) (p. 49) or *Room 4 Solves a Problem* (fiction) (p. 53)
- Reflect: Caregiver or student can find an image in the book. Caregiver asks, "Can you describe this picture? What is happening in the picture? Does the picture help tell the story or help give information about the topic? How do you know?"
- Respond: Student can pick a picture or image from the book then act it out with family members. Then student can draw and write about what it was like act it out.



# Day 1

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Count the Words" (p. 46)
- Phonics Activity: "Words in the World" (p.48)

#### **Reading and Writing**

- Read: Student chooses a book from home or reads Forces in Ball Games (nonfiction) (p. 60)
- Reflect: Before reading the book, caregiver will start with the cover of the book and flip through each page asking the student to describe what is happening in the book. If it is an informational text, student can describe what they will learn about from each page.
- Respond: Student can draw and write about the book they made up by looking at the pictures.

#### Day 2

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Match Pictures with Words" (p. 48)

#### Reading and Writing

- Read: Student chooses a book from home or rereads *Forces in Ball Games* (nonfiction) (p. 60)
- Reflect: Caregiver asks, "What part of the book surprised you the most?"
- Respond: Student can draw and write about what surprised them the most and why.

# Day 3

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Match the First Sound" (p.44)
- Phonics Activity: "Household Message Board" (p. 47)

#### **Reading and Writing**

- Read: Student chooses a book from home or reads *Building with Forces* (nonfiction) (p. 73)
- Reflect: Caregiver or student turns to any page with a picture. Caregiver asks, "Can you describe the setting? Where do you think the story is taking place? What would you do if you could visit a place in the book?"
- Respond: Student can draw and write about what they would do if they could visit a place in their book.

# Day 4

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Note Time" (p. 48)

- Read: Student chooses a book from home or rereads Building with Forces (nonfiction) (p. 73)
- Reflect: Caregiver asks, "What do you think will happen next? Or what do you want to learn more about?"
- Respond: Student can draw and write about their predictions or what they would want to learn about.



# Day 5

# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Start a Journal" (p. 48)

- Read: Student chooses a book from home or rereads *Forces in Ball Games* (nonfiction) (p. 60) or *Building with Forces* (nonfiction) (p. 73)
- Reflect: Caregiver asks, "Can you tell me about your favorite character (person/animal) or favorite thing you learned from reading this week."
- Respond: Student can draw and write about their favorite character or thing they learned.



# Day 1

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Beginning Sounds" (p. 47)

### **Reading and Writing**

- Read: Student chooses a book from home or reads A Busy Day in Pushville
- (fiction) (p. 78)
- Reflect: Caregiver asks, "What is a new thing you learned from the book?"
- Respond: Student can draw and write about what was learned. Encourage student to draw and write about more than one thing.

# Day 2

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Blend Words" (p. 47)

#### Reading and Writing

- Read: Student chooses a book from home or rereads A Busy Day in Pushville (fiction) (p. 78)
- Reflect: Caregiver or student can turn to any page in the book. Caregiver can ask, "What is happening in the picture?"
- Respond: Student can draw and write about what is happening in the picture.

# Day 3

# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Label Your Home" (p. 48)

#### **Reading and Writing**

- Read: Student chooses a book from home or reads *What is the Weather Like Today*? (fiction) (p. 83)
- Reflect: Caregiver asks, "What happened in the beginning, middle, and end of the story? What are three facts you learned?"
- Respond: Student can draw and label three pictures showing the beginning, middle, and end of the story or three facts learned. Encourage student to write about what they drew.

# 🗆 Day 4

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Sounds on a Walk" (p. 45)
- Phonics Activity: "Grocery List" (p. 48)

- Read: Choose a book from home or reread What is the Weather Like Today? (fiction) (p. 83)
- Reflect: Caregiver asks, "What is a new thing you learned from the book?"
- Respond: Student can draw and write about what was learned. Encourage student to draw and write about more than one thing.



# Day 5

# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Break the Words Apart" (p. 45)
- Phonics Activity: "Personal Dictionary" (p.48)

- Read: Student chooses a book from home or rereads A Busy Day in Pushville (fiction) (p. 78) or What is the Weather Like Today? (fiction) (p. 83)
- Reflect: Caregiver or student can find an image in the book. Caregiver asks, "Can you describe this picture? What is happening in the picture? Does the picture help tell the story or help give information about the topic? Why or why not?"
- Respond: Student can pick a picture or image from the book then act it out with family members. Then student can draw and write about what it was like act it out.



# Day 1

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Count the Words" (p. 46)
- Phonics Activity: "Words in the World" (p.48)

#### **Reading and Writing**

- Read: Student chooses a book from home or reads *Tornado!* (fiction) (p. 90)
- Reflect: Before reading the book, caregiver will start with the cover of the book and flip through each page asking the student to describe what is happening in the book. If it is an informational text, student can describe what they will learn about from each page.
- Respond: Student can draw and write about the book they made up by looking at the pictures.

#### Day 2

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Match Pictures with Words" (p. 48)

#### Reading and Writing

- Read: Student chooses a book from home or rereads *Tornado!* (fiction) (p. 90)
- Reflect: Caregiver asks, "What part of the book surprised you the most?"
- Respond: Student can draw and write about what surprised them the most and why.

# Day 3

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Match the First Sound" (p.44)
- Phonics Activity: "Household Message Board" (p. 47)

#### **Reading and Writing**

- Read: Choose a book from home or read *Getting Warm in the Sunlight* (fiction) (p. 96)
- Reflect: Caregiver or student turns to any page with a picture. Caregiver asks, "Can you describe the setting? Where do you think the story is taking place? What would you do if you could visit a place in the book?"
- Respond: Student can draw and write about what they would do if they could visit a place in their book.

# Day 4

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Note Time" (p. 48)

- Read: Choose a book from home or reread Getting Warm in the Sunlight (fiction) (p. 96)
- Reflect: Caregiver asks, "What do you think will happen next? What do you want to learn more about?"
- Respond: Student can draw and write about their predictions or what they would want to learn about.



# Day 5

# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Start a Journal" (p. 48)

- Read: Student chooses a book from home or rereads Tornado! (fiction) (p. 90) or Getting Warm in the Sunlight (fiction) (p. 96)
- Reflect: Caregiver asks, "Can you tell me about your favorite character (person/animal) or favorite thing you learned from reading this week."
- Respond: Student can draw and write about their favorite character or thing they learned.



# Additional Lesson 1

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Beginning Sounds" (p. 47)

#### Reading and Writing

- Read: Student reads Bees Feed Me (nonfiction) (p. 101)
- Reflect: Caregiver asks, "What kind of book is this, fiction or nonfiction? How you can tell? What are some foods that wouldn't be here without bees?"
- Respond: Student can draw and write about their favorite food from the book. Encourage the student to explain why it's their favorite.

#### □ Additional Lesson 2

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Blend Words" (p. 47)

#### Reading and Writing

- Read: Student rereads *Bees Feed Me* (nonfiction) (p.101)
- Reflect: Caregiver tells student to look at pages 3 & 4, then asks, "What do you think bees do to help feed us? Do you think bees help other foods? What kind of foods do you think bees help?"
- Respond: Student can draw and write about what would happen to our food if there were no more bees in our world.

# □ Additional Lesson 3

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Label Your Home" (p. 48)

- Read: Student reads Grasshopper's Gross Lunch (fiction) (p. 107)
- Reflect: Caregiver asks, "What was the problem in the story? Why did Grasshopper want to try new foods? Why do you think grasshopper didn't like the foods he tried?"
- Respond: Student can draw and label the new foods that grasshopper tried. Encourage the student to write a sentence or more about the food.



#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Sounds on a Walk" (p. 45)
- Phonics Activity: "Grocery List" (p. 48)

#### **Reading and Writing**

- Read: Student rereads Grasshopper's Gross Lunch (fiction) (p. 107)
- Reflect: Caregiver asks, "Can you retell the story by describing what happened at the beginning, middle, and end. Why do you think Grasshopper decides to eat green grass and leaves again?
- Respond: Student can draw and write about how grass, leaves, nuts, berries, and honey are similar and different.

# □ Additional Lesson 5

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Break the Words Apart" (p. 45)
- Phonics Activity: "Personal Dictionary" (p.48) Tip: re-visit this activity daily

#### **Reading and Writing**

- Read: Student reads Extreme Insects (nonfiction) (p. 114)
- Reflect: Caregiver asks, "How are all the insects in the story alike? Can you describe three facts you learned about how insects protect themselves. If you were an insect what extreme traits would you want?"
- Respond: Student can draw and label a picture of themselves as an insect. Encourages the student to explain what extreme traits they would have as an insect.

# □ Additional Lesson 6

# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Count the Words" (p. 46)
- Phonics Activity: "Words in the World" (p.48)

#### Reading and Writing

- Read: Student reads Ocean Animals (nonfiction) (p. 123)
- Reflect: Caregiver asks, "Can you name some ocean animals that you learned about in the book. What are some ways the animals protect themselves?"
- Respond: Student can draw or write an answer to the following questions. Which two animals protect themselves by changing their color? How are they alike and different?

# □ Additional Lesson 7

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Match Pictures with Words" (p. 48)

- Read: Student rereads Ocean Animals (nonfiction) (p. 123)
- Reflect: Caregiver asks, "Which animals eat foods that people eat too? What kind of foods do they eat? Can you describe a fact from the book that you learned that surprised you?"
- Respond: Student can draw and write about how the animals in this book are similar and different from humans.



#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Match the First Sound" (p.44)
- Phonics Activity: "Household Message Board" (p. 47)

#### **Reading and Writing**

- Read: Student reads Bonk and the Big Splash (fiction) (p. 128)
- Reflect: Caregiver asks, "Who were the characters in the book? What were they trying to do? Why do you think Bonk says he swam across the whole ocean?"
- Respond: Student can draw or write an answer to the following questions. How did Bonk feel about taking swimming lessons? Why do you think he felt that way?

# □ Additional Lesson 9

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Note Time" (p. 48)

#### **Reading and Writing**

- Read: Student rereads Bonk and the Big Splash (fiction) (p. 128)
- Reflect: Caregiver asks, "Can you retell the story? What were some of the things Bonk said to his friends as an excuse to stay out of the pool? What did his friends do to try to help Bonk?"
- Respond: Student can draw and write about a time they tried something new. Encourage the student to explain how they felt and if their feelings changed.

# □ Additional Lesson 10

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Start a Journal" (p. 48)

#### Reading and Writing

- Read: Student reads Sharks (nonfiction) (p.133)
- Reflect: Caregiver asks, "Can you describe the different sharks in the book? How is this book similar or different from *Ocean Animals* (nonfiction) (p. 123)?
- Respond: Student can create their own ocean themed book. The book should include a cover and title page. Each page should feature a new ocean animal. Take a look at *Ocean Animals* (nonfiction) (p. 123) for ideas.

# □ Additional Lesson 11

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Beginning Sounds" (p. 47)

- Read: Student reads *The Moon* (nonfiction) (p.138)
- Reflect: Caregiver asks, "Can you explain how the moon changes over time. Can you describe the different ways that the moon can appear?"
- Respond: Student can draw three different phases of the moon and write a word or sentence to describe the shape of the moon during each phase.



#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Blend Words" (p. 47)

#### **Reading and Writing**

- Read: Student rereads The Moon (nonfiction) (p. 138)
- Reflect: Caregiver asks, Can you describe two facts you know about the moon? What are two questions you still have about the moon?"
- Respond: Student can write down two questions they have about the moon, such as, "What causes the moon to change every night?"

# □ Additional Lesson 13

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Label Your Home" (p. 48)

#### **Reading and Writing**

- Read: Student reads The Disappearing Moon (fiction) (p. 141)
- Reflect: Caregiver asks, "Can you explain why the animals were confused? What did the owl teach the animals about the moon?"
- Respond: Student can draw and write about what the animals learned about the moon.

# □ Additional Lesson 14

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Sounds on a Walk" (p. 45)
- Phonics Activity: "Grocery List" (p. 48)

#### **Reading and Writing**

- Read: Student rereads The Disappearing Moon (fiction) (p. 141)
- Reflect: Caregiver asks, "Why did the animals feel differently at the beginning and end of the story?"
- Respond: Student can draw and write about how and why the animals felt differently at the beginning and the end of the story.

#### □ Additional Lesson 15

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Break the Words Apart" (p. 45)
- Phonics Activity: "Personal Dictionary" (p.48)

- Read: Student rereads their favorite book from the week.
- Reflect: Caregiver says, "In *The Disappearing Moon*, the wise owl teaches the other animals about the moon so that they are no longer worried about it. Pretend you are like wise owl and teach a family member about something you know. This could be a science fact, how to play your favorite game, or anything that you know well."
- Respond: Student can draw and write about what they know well to teach others!



#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Count the Words" (p.46)
- Phonics Activity: "Words in the World" (p.48)

### **Reading and Writing**

- Read: Student reads The Goat and the Singing Wolf (fiction) (p. 150)
- Reflect: Caregiver asks, "Can you retell the story? Explain how the goat tricked the wolf. Brainstorm another way that the goat could have tricked the wolf?"
- Respond: Student can draw and write about another way that the goat could have tricked the wolf.

# Additional Lesson 17

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Find Specific Sounds" (p. 44)
- Phonics Activity: "Match Pictures with Words" (p. 48)

# **Reading and Writing**

- Read: Student rereads The Goat and the Singing Wolf (fiction) (p. 150)
- Reflect: Caregiver says, "This book is a fable that teaches a lesson. What lesson do you think that the wolf learned in this story?"
- Respond: Student can draw a picture of the wolf before he learns his lesson and after he learns his lesson. Student can write about the wolf before and after he learns his lesson.

# □ Additional Lesson 18

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Match the First Sound" (p.44)
- Phonics Activity: "Household Message Board" (p. 47)

# Reading and Writing

- Read: Student reads The Boy Who Cried Wolf (fiction) (p. 159)
- Reflect: Caregiver asks, "Can you retell the story? Why did the boy decide to cry "wolf" at the beginning of the story?
- Respond: Student can draw three pictures of what happened in the beginning, the middle, and the end of the story. Then write about each part of the story.

# □ Additional Lesson 19

#### Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Mystery Game" (p. 44)
- Phonics Activity: "Note Time" (p. 48)

- Read: Student rereads The Boy Who Cried Wolf (fiction) (p. 159)
- Reflect: Caregiver says, "This book is a fable that teaches a lesson. What lesson did the boy learn and how did he learn this lesson?"
- Respond: Student can draw and write about the lesson that the boy learned in this story.



# Phonics

Caregiver leads two literacy skill-building activities:

- Phonological Awareness Activity: "Word Race" (p. 45)
- Phonics Activity: "Start a Journal" (p. 48)

- Read: Student reads their favorite story from this week
- Reflect: Caregiver says, "This week, a character in each story learned a lesson. Did the characters learn the same lesson?"
- Respond: Student can make a mini book that tells a story about a character learning a lesson using pictures and words. This could be a fantasy story or something that really happened.



# Day 1

### Zearn Mission 4 Topic A Lesson 1

- Caregiver provides a set of 12 objects to count. Student counts and says how many. Then, student finds the same number of another object in the house (ex. Count 12 beans, then find 12 shoes). Repeat with 14.
- Student completes Zearn Mission 4 Topic A Lesson 1 Problem Set, (p. 167)
- Note to caregiver: The number bond on this Problem Set should show 3 cats in one circle and 2 cats in the other circle for a total of 5 cats.

# Day 2

#### Zearn Mission 4 Topic A Lesson 2

- Caregiver tells student to count out loud to 100, then write the numbers 0-10 with pencil and paper, chalk on the sidewalk, or finger paint on paper. Below each number 1-10, student draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic A Lesson 2 Problem Set, (p. 168)

# Day 3

#### Zearn Mission 4 Topic A Lesson 3

- Caregiver provides a set of 15 objects to count. Student counts and says how many. Then, student finds the same number of another object in the house (ex. Count 15 beans, then find 15 shoes). Repeat with 13.
- Student completes Zearn Mission 4 Topic A Lesson 3 Sprint, (p. 169).

# Day 4

#### Zearn Mission 4 Topic A Lesson 3

- Caregiver tells student to count out loud to 100, then write the numbers 1-10 with pencil and paper, chalk on the sidewalk, or finger paint on paper. Below each number 1-10, student draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic A Lesson 3 Problem Set, (p. 170).

# Day 5

# Zearn Mission 4 Topic A Lesson 4

- Caregiver provides a set of 11 objects to count. Student counts and says how many. Then, student finds the same number of another object in the house (ex. Count 11 beans, then find 11 shoes). Repeat with 15.
- Student completes Zearn Mission 4 Topic A Lesson 4 Problem Set, (p. 172).



# Day 1

### Zearn Mission 4 Topic A Lesson 5

- Caregiver gives students about 20 small objects, such as pennies, cereal pieces, or blocks. Caregiver says, "Make a set of 15." Student counts out 15 objects. Repeat with 13 and 11.
- Student completes Zearn Mission 4 Topic A Lesson 5 Problem Set, (p. 174)
- Note to caregiver: The first number bond of cats should show 5, 2, and 3. The first number bond of apples should show 3, 2, and 1.

# Day 2

#### Zearn Mission 4 Topic A Lesson 6

- Caregiver tells student to count out loud to 100, then write the numbers 0-15 with pencil and paper, chalk on the sidewalk, or finger paint on paper. Below each number 1-15, student draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic A Lesson 6 Problem Set, (p. 175).
- Note to caregiver: An example story for the first problem could be: "There are 2 birds flying and 2 birds sitting. How many birds are there altogether?" The number bond should show 5, 2, and 3.

# Day 3

#### Zearn Mission 4 Topic B Lesson 7

- Caregiver gives students about 20 small objects, such as pennies, cereal pieces, or blocks. Caregiver says, "Make a set of 16." Student counts out 16 objects. Repeat with 14 and 19.
- Student completes Zearn Mission 4 Topic B Lesson 7 Problem Set, (p. 177).
- Note to caregiver: There are 6 birds. 6 can be broken down into 4 and 2 or 3 and 3.

# Day 4

#### Zearn Mission 4 Topic B Lesson 7

- Caregiver tells student to count out loud to 100, then write the numbers 1-15 with pencil and paper, chalk on the sidewalk, or finger paint on paper. Below each number 1-15, student draws that many circles or shows that many objects.
- Student cuts out the cards on Zearn Mission 4 Topic B Lesson 7 Fluency, (p. 179). Caregiver says, "There are lots of different ways to show the same number. Can you match each card with all of the cards that show that many?"

# Day 5

#### Zearn Mission 4 Topic B Lesson 8

- Caregiver gives students about 20 small objects, such as pennies, cereal pieces, or blocks. Caregiver says, "Make a set of 12." Student counts out 12 objects. Repeat with 10 and 17.
- Student completes Zearn Mission 4 Topic B Lesson 8 Problem Set, (p. 183).



# Day 1

#### Zearn Mission 4 Topic B Lesson 9

- Caregiver leads student through an activity to break down the number 8 in different ways. Caregiver gives shows student two plates and 8 small objects, such as candies.
- Student counts the candies, then caregiver tells student to put some on one plate and the rest on the other. For example, 5 on one and 3 on the other.
- Caregiver asks student to count all of the candies again and then explain how s/he made 8. For example, "I made 8 with 5 and 3."
- Student makes 8 a different way.
- Student completes Zearn Mission 4 Topic B Lesson 9 Problem set, (p. 185).

# Day 2

# Zearn Mission 4 Topic B Lesson 10

- Caregiver leads student through different ways to make the number 6. Hold up 5 fingers on one hand and 1 on the other. Ask student to say how many fingers and how s/he knows. Student may count all of the fingers or know that 5 + 1 = 6. Repeat with 4 and 2, 3 and 3.
- Student completes Zearn Mission 4 Topic B Lesson 10 Sprint, (p. 187).

# Day 3

# Zearn Mission 4 Topic B Lesson 10

- Student counts out loud to 100, then writes the numbers 0-15 with pencil and paper, chalk on the sidewalk, or paint on paper. Below each number 1-15, child draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic B Lesson 10 Problem Set, (p. 188).

# Day 4

# Zearn Mission 4 Topic B Lesson 11

- Caregiver gives student some red crayons and some blue crayons (or other objects in two different colors). Caregiver helps student make different groups of 6 crayons with some red and some blue, such as 4 blue and 2 red. For each group, student says how many red, how many blue, and how many altogether.
- Student completes Zearn Mission 4 Topic B Lesson 11 Problem Set, (p. 190).

# Day 5

# Zearn Mission 4 Topic B Lesson 12

- Caregiver gives student some red crayons and some blue crayons (or other objects in two different colors). Caregiver helps student make different groups of 8 crayons with some red and some blue, such as 4 blue and 4 red. For each group, student says how many red, how many blue, and how many altogether.
- Student completes Zearn Mission 4 Topic B Lesson 12 Problem Set, (p. 191).



# Day 1

### Zearn Mission 4 Topic B Lesson 12

- Caregiver shows student 4 fingers on hand and hides the other hand behind back with 1 finger up. Caregiver says, "If I have 5 fingers up altogether, how many fingers are up behind my back?" Student needs to figure out 4 and 1 more makes 5. Repeat with 2 fingers in front and 3 fingers hidden. Then let student lead the activity a few times.
- Student completes Zearn Mission 4 Topic B Lesson 12 Fluency, (p. 193).

Day 2

#### Zearn Mission 4 Topic C Lesson 13

- Caregiver tells student a math story. Student can solve using pennies, bottle caps, or other small objects to help. Story: "There are 4 birds and 5 squirrels in the backyard. How many animals altogether?" Student can solve any way s/he wants, and should say a number sentence to match the story (ex. 4 + 5 = 9; 5 + 4 = 9).
- Student completes Zearn Mission 4 Topic C Lesson 13 Problem Set, (p. 194).

Day 3

#### Zearn Mission 4 Topic C Lesson 13

- Student counts out loud to 100, then writes the numbers 0-15 with pencil and paper, chalk on the sidewalk, or paint on paper. Below each number 1-15, child draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic C Lesson 13 Fluency, (p. 196).

# Day 4

#### Zearn Mission 4 Topic C Lesson 14

- Caregiver gives student some red crayons and some blue crayons (or other objects in two different colors). Caregiver helps student make different groups of 7 crayons with some red and some blue, such as 3 blue and 4 red. For each group, student says how many red, how many blue, and how many altogether.
- Student completes Zearn Mission 4 Topic C Lesson 14 Sprint, (p.197).

# Day 5

# Zearn Mission 4 Topic C Lesson 14

- Caregiver tells student a math story. Student can solve using pennies, bottle caps, or other small objects to help. Story: "Silvia ate 6 cookies and Joe ate 2. How many cookies did they eat?" Student can solve any way s/he wants and should say a number sentence to match the story (6 + 2 = 8; 2 + 6 = 8).
- Student completes Zearn Mission 4 Topic C Lesson 14 Problem Set, (p. 198).



# □ Additional Lesson 1

#### Zearn Mission 4 Topic C Lesson 15

- Caregiver shows student 4 fingers on hand and hides the other hand behind back with 4 fingers up. Caregiver says, "If I have 8 fingers up altogether, how many fingers are up behind my back?" Student needs to figure out 4 and 4 makes 8. This might be tricky, and student may need to use fingers, but work together and give it a try!
- Student completes Zearn Mission 4 Topic C Lesson 15 Problem Set, (p. 200).
- □ Additional Lesson 2

#### Zearn Mission 4 Topic C Lesson 16

- Caregiver shows student 3 fingers on hand and hides the other hand behind back with 5 fingers up. Caregiver says, "If I have 8 fingers up altogether, how many fingers are up behind my back?" Student needs to figure out 3 and 5 makes 8. This might be tricky, and student may need to use fingers, but work together and give it a try!
- Student completes Zearn Mission 4 Topic C Lesson 16 Sprint, (p. 202).
- □ Additional Lesson 3

#### Zearn Mission 4 Topic C Lesson 16

- Student counts out loud to 100, then writes the numbers 0-10 with pencil and paper, chalk on the sidewalk, or paint on paper. Below each number 1-10, student draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic C Lesson 16 Problem Set, (p. 203).
- □ Additional Lesson 4

#### Zearn Mission 4 Topic C Lesson 17

- Student writes out all of the names of the members of the family, then counts the number of letters in each name to figure out who has the name with the greatest number of letters.
- Student completes Zearn Mission 4 Topic C Lesson 17 Problem Set, (p. 205).

# □ Additional Lesson 5

#### Zearn Mission 4 Topic C Lesson 18

- Caregiver gives student two plates and 5 objects. Caregiver tells student to put some objects on one plate and the rest on the other to show 5 one way. Then, student needs to show 5 a different way.
- Student completes Zearn Mission 4 Topic C Lesson 18 Sprint, (p. 207).

# □ Additional Lesson 6

#### Zearn Mission 4 Topic C Lesson 18

- Caregiver gives students about 20 small objects, such as pennies, cereal pieces, or blocks. Caregiver says, "Make a set of 15." Student counts out 15 objects. Repeat with 13 and 11.
- Student completes Zearn Mission 4 Topic C Lesson 18 Problem Set, (p. 208).





#### Zearn Mission 4 Topic D Lesson 19

- As part of a snack, caregiver gives student 4 crackers (or other snack). Caregiver asks student how many crackers s/he has and student answers. Caregivers tells student to eat 3 and see how many are left. Caregiver and student work together to come up with a subtraction number sentence that matches what happened (4 – 3 = 1).
- Student completes Zearn Mission 4 Topic D Lesson 19 Problem Set, (p. 210).
- □ Additional Lesson 8

#### Mission 4 Topic D Lesson 20

- Student counts out loud to 100, then writes the numbers 0-15 with pencil and paper, chalk on the sidewalk, or paint on paper. Below each number 1-15, student draws that many circles or shows that many objects.
- Student completes Mission 4 Topic D Lesson 20 Sprint, (p. 212).

#### □ Additional Lesson 9

#### Zearn Mission 4 Topic D Lesson 20

- Caregiver plays "one less" with student. Caregiver holds up 3 fingers and ask what 1 finger less would be. Student may know or may need to put down 1 finger to be able to tell. Repeat with 5 and 2, then let student lead a few rounds of the activity.
- Student completes Zearn Mission 4 Topic D Lesson 20 Problem Set, (p. 213).

# □ Additional Lesson 10

#### Zearn Mission 4 Topic D Lesson 21

- Caregiver and student will make up subtraction word problems and act them out with candies, blocks, or pennies. Common subtraction problems are about eating or losing things, such as, "I had \$8 in my pocket, and \$6 fell out! How many dollars do I have left?"
- Student completes Zearn Mission 4 Topic D Lesson 21 Problem Set, (p. 215).
- □ Additional Lesson 11

# Zearn Mission 4 Topic D Lesson 22

- Caregiver and student play a dice game (or use cards with numbers and dots on them). Both roll one die, and student must find how many dots altogether.
- Student completes Zearn Mission 4 Topic D Lesson 22 Sprints A-B, (p. 217-218).

# □ Additional Lesson 12

#### Zearn Mission 4 Topic D Lesson 22

- Caregiver and student play a dice game (or use cards with numbers and dots on them). Both roll one die, and student must say which number is greater and explain how s/he knows.
- Student completes Zearn Mission 4 Topic D Lesson 22 Problem Set, (p. 219).

# □ Additional Lesson 13

#### Zearn Mission 4 Topic D Lesson 23

- Student counts out loud to 100, then writes the numbers 0-20 with pencil and paper, chalk on the sidewalk, or paint on paper. Below each number 1-20, child draws that many circles or shows that many objects.
- Student completes Zearn Mission 4 Topic D Lesson 23 Problem Set, (p. 221).





#### Zearn Mission 4 Topic D Lesson 24

- Caregiver and student make up and act out subtraction stories together.
- Student completes Zearn Mission 4 Topic D Lesson 24 Problem Set, (p. 223).
- □ Additional Lesson 15

#### Zearn Mission 4 Topic E Lesson 25

- Caregiver gives student some red crayons and some blue crayons (or other objects in two different colors). Caregiver helps student make different groups of 9 crayons with some red and some blue, such as 4 blue and 5 red. For each group, student says how many red, how many blue, and how many altogether.
- Student completes Zearn Mission 4 Topic E Lesson 25 Problem Set, (p. 225).

# □ Additional Lesson 16

#### Zearn Mission 4 Topic E Lesson 26

- Student uses flashcards to practice addition and subtraction math facts within 5, such as 4 + 0, 5 -1, and 2 + 3. Make your own on index cards with the answer on the back if needed. For each fact, caregiver asks student how s/he knows the answer. Student may explain using fingers, objects, or words.
- Student completes Zearn Mission 4 Topic E Lesson 26 Problem Set, (p. 227).

# □ Additional Lesson 17

#### Zearn Mission 4 Topic E Lesson 27

- Student uses flashcards to practice addition and subtraction math facts within 5, such as 4 + 0, 5

   -1, and 2 + 3. Make your own on index cards with the answer on the back if needed. For each fact, caregiver asks student how s/he knows the answer. Student may explain using fingers, objects, or words.
- Student completes Zearn Mission 4 Topic E Lesson 27 Problem Set, (p. 229).

# □ Additional Lesson 18

#### Zearn Mission 4 Topic E Lesson 28

- Student uses flashcards to practice addition and subtraction math facts within 5, such as 4 + 0, 5 -1, and 2 + 3. Make your own on index cards with the answer on the back if needed. For each fact, caregiver asks student how s/he knows the answer. Student may explain using fingers, objects, or words.
- Student completes Zearn Mission 4 Topic E Lesson 28 Problem Set, (p. 231).

# □ Additional Lesson 19

#### Zearn Mission 4 Topic F Lesson 29

- Student uses flashcards to practice addition and subtraction math facts within 5, such as 4 + 0, 5 -1, and 2 + 3. Make your own on index cards with the answer on the back if needed. For each fact, caregiver asks student how s/he knows the answer. Student may explain using fingers, objects, or words.
- Student completes Zearn Mission 4 Topic F Lesson 29 Core Fluency Practice Sets A-C, (p. 232-235).



#### Zearn Mission 4 Topic F Lesson 29

- Student uses flashcards to practice addition and subtraction math facts within 5, such as 4 + 0, 5
   -1, and 2 + 3. Make your own on index cards with the answer on the back if needed. For each fact, caregiver asks student how s/he knows the answer. Student may explain using fingers, objects, or words.
- Student completes Zearn Mission 4 Topic F Lesson 29 Core Fluency Practice Sets D-E, (p. 236-237).



# Day 1

### Science: The Engineering and Design Process

- Caregiver reads the Engineering and Design Process Background Information to student. (p. 240)
- Caregiver talks to the student about the engineering and design process.
- Caregiver asks the student to look at their toothbrush and think about how the design of the toothbrush could be improved.
- Caregiver asks student to draw a picture of the improved toothbrush design and explain how the new design makes it better.

# Day 2

#### **Science: Making Observations**

- Caregiver reads Making Observations Background Information to student. (p. 241)
- Caregiver asks student to look outside and observe what they see, hear, and smell (ex. plants, animals, houses, weather).
- Caregiver asks student to make five observations and a draw a picture of what was observed outside.

# Day 3

#### **Science: Science Projects**

- Caregiver reads the Science Projects Background Information to student. (p. 243)
- Caregiver asks the student to pick something to observe such as an object, animal, plant, or person. Students should not say what they picked to observe.
- Caregiver then asks the students to describe details or observations about what they chose in order for the caregiver to guess what the student observed.
- **Optional Activity**: Caregiver talks to student about possible science projects that they could plan and do together.

# Day 4

# Social Studies: Reading Maps

- Caregiver reads the Reading Maps Process Background Information to student. (p. 307)
- Caregivers asks the student to hide an object in the home.
- Caregiver asks the student to draw a treasure map for someone to follow in order to find the hidden object.

# Day 5

# Social Studies: Reading Maps

- Caregiver rereads the Reading Maps Process Background Information to student. (p. 307)
- Caregiver asks students to draw a map of a room of the home including major features within the room such as window or table.
- Caregiver asks student to measure the distance between major features by counting steps and then recording the number on the map.



# Day 1

# Science: Parts of a Plant

- Read the Parts of a Plant Background Information with the student. (p. 245)
- Ask the student: What does your favorite plant look like?
- Have them draw a picture of that plant (or one they see outside). Remember to draw all the plant parts, like the roots, stem, and leaves.
- **Optional Activity**: You will need a cup, food coloring, and celery. Follow the directions Activity directions for this topic.

# Day 2

# Science: Plant Life Cycle

- Read the Plant Life Cycle Background Information with the student. (p. 248)
- Ask the student: How is a seedling different from an adult plant?
- Have them make a drawing that shows how a seed grows and changes into a plant. Then ask them to explain their drawing.
- **Optional Activity:** You will need seeds (or dry beans), soil, and a clear plastic bottle with a cap. Follow the activity directions for this topic.

# Day 3

# **Science: Plant Adaptations**

- Read the Plant Adaptations Background Information with the student. (p. 251)
- Ask the student: What are some ways plants have adapted to meet their needs for water, sunlight, air, and nutrients?
- Have them complete the Plant Adaptations Talk About It by writing their thoughts or telling them to you.
- **Optional Activity**: You will need a plant and a sunny window. Follow the Activity directions for this topic.

# Day 4

# Social Studies: Continents and Oceans

- Caregiver reads the Continents and Oceans Background Information to student. (p. 309).
- Caregiver reviews the key vocabulary.
- Caregiver asks student: What are the different continents and oceans? Can you locate them on a map?
- Caregiver asks student to draw a continent they would like to visit and tell why.

# Day 5

# **Social Studies: Natural Resources**

- Caregiver reads Natural Resources Background Information to student. (p. 311)
- Caregiver asks student: What natural resources do people use? Why is it important to conserve natural resources? What is the difference between reusing and recycling?
- Caregiver helps student make a list of things in the home you can reuse and a list of things that you can recycle. Talk about how reusing and recycling impacts the environment.
- Optional Activity: Complete the activity to think about water use and ways to reduce use.


# Week 3

## Day 1

## Science: Butterflies

- Read the Butterflies Background Information with the student. (p. 256)
- Say to the student: Imagine you are a butterfly. Draw or write a story about your life.
- **Optional Activity**: You will need crayons, scissors, string, tape, and a coat hanger. Follow the activity directions for this topic.

## Day 2

## Science: Frogs

- Read the Frogs Background Information with the student. (p. 260)
- Say to the student: Imagine you are a frog. What would your habitat look like? Have them draw on a piece of paper.
- **Optional Activity**: Take a walk outside and look for frogs together in areas where there is water nearby.

## Day 3

## Science: Mammals

- Read the Mammals Background Information with the student. (p. 263)
- Say to the student: Rabbits have many predators. How do you think rabbits stay safe in their habitats?
- Have the student draw or write a story about a rabbit staying safe or avoiding a predator.
- **Optional Activity:** Take a walk outside and look for different animals. Count how many different animals you see.

## Day 4

## Social Studies: Needs and Wants

- Caregiver reads the Needs and Wants Background Information. (p. 314)
- Caregiver asks student: What is the difference between a need and a want? What are some examples of each?
- Caregiver has student fold a piece of paper in half and label the left sides *Needs* and right side *Wants*. Work together to create a list or ask student to draw. Have student describe or write about one thing they need and why, and one thing they want and why.
- **Optional Activity**: Share examples of ads with student and talk about what makes the add persuasive. Have student make an ad for an item that people might want using the Activity page.

## Day 5

## Social Studies: Saving and Spending

- Read Saving and Spending Background Information to student. (p. 316)
- Caregiver asks student: What are some ways children and adults can save money? Why is it important to save? Why might it be hard?
- Caregiver says to student: Imagine you have \$20. Draw or write what they would do with the money, considering what they might save and what they would spend.
- **Optional Activity**: Caregiver explains to student that a budget is a plan for spending and saving money. Work together using the activity page to create a sample budget.



# Week 4

## Day 1

## Science: Camouflage

- Read the Camouflage Background Information with the student. (p. 264)
- Say to the student: Make up an imaginary animal that uses camouflage. Draw or write about our animal. Name your animal and describe how they use camouflage to survive in their environment.
- **Optional Activity**: You will need scissors, white paper, and a partner. Follow the Activity directions for this topic.

## Day 2

## **Science: Hibernation**

- Read the Hibernation Background Information with the student. (p. 266)
- Say to the student: Animals sleep through the winter in different places. Draw an animal that might hibernate in the pictured places in the page provided.
- Optional Activity: Talk about animals that you know live in your area and

## Day 3

## Science: Migration

- Read the Migration Background Information with the student. (p. 268)
- Say to the student: Pretend to be a migrating animal. Draw or write about where you went and what you saw.
- **Optional Activity**: You will need a printer, crayons, scissors, and tape. Follow the Activity directions for this topic.

## Day 4

## Social Studies: Branches of Government

- Caregiver reads the Branches of Government Background Information with student. (p. 319)
- Caregiver asks student: What are some examples of rules in our house? What are some rules at school?
- Caregiver asks student to draw or write about rules they think are most important and why.

## Day 5

## Social Studies: Presidents

- Caregiver reads the President Background Information to student. (p. 321)
- Caregiver asks student: Who can become president? What would you do if you were president?
- Caregiver has student draw a picture of themselves as president and what they would want to do.



# **Additional Lessons**

## □ Additional Lesson 1

## Science: Food Chain

- Read the Food Chain Background Information with the student. (p. 270)
- Have students draw, write, or act out the different vocabulary terms.
- **Optional Activity**: Think about what you had for lunch and develop a food chain that represents energy transfer from the source (sun) all the way to the end (you).

## Additional Lesson 2

## Science: Ocean Habitats:

- Read the Ocean Habitats Background Information with the student. (p. 273)
- Say to the student: Choose one of the ocean's zones. What lives in that zone? Draw or write your answer.
- **Optional Activity**: You will need a cup, napkin, water, feather, and oil (any kind). Follow the Activity directions for this topic

## □ Additional Lesson 3

## Science: Rainforests

- Read the Rainforests Background Information with the student. (p. 277)
- Ask the student: How do special adaptations help plants and animals survive in the rainforest?
- Have the student identify how the different animals survive in the rainforest.
- **Optional Activity**: Think about your home as a habitat and create a drawing that shows all the animals, plants, and nonliving objects that interact. Give your habitat a name.

## Additional Lesson 4

## Social Studies: George Washington

- Caregiver reads the George Washing background information to student. (p. 323)
- Caregiver has student draw or write on the activity page about the different stages of George Washington's life.
- **Optional Activity**: Talk with student about how places are often named after people. Think about places in the community, state, or nation that are named after George Washington.

## □ Additional Lesson 5

## Social Studies: George Washington Carver

- Caregiver reads the George Washington Carver Background Information. (p. 326)
- Caregiver asks student: What are some ways that George Washington Carver discovered peanuts could be used? What qualities about him made him successful?
- Caregiver has student draw what they would grow if they were a farmer and draw or write about how they would use the crop.

## □ Additional Lesson 6

## Science: Sun

- Read the Sun Background Information with the student. (p. 281)
- Ask the student: Why is the Sun important to the Earth?
- Have the student explain, draw, or write about why the Sun is important.
- **Optional Activity**: You will need a watch or clock, a stick, rocks, and chalk. Follow the Activity directions for this topic.



## □ Additional Lesson 7

## Science: Seasons

- Read the Seasons Background Information with the student. (p. 284)
- Ask the student: What season is your favorite? What makes it your favorite season?
- Have the student draw a picture or write about their favorite season and why it is their favorite.
- **Optional Activity**: Draw a series of pictures or cartoons that show the four seasons.

## □ Additional Lesson 8

## Science: Water Cycle

- Read the Water Cycle Background Information with the student. (p. 286)
- Ask the student: What happens in the water cycle?
- Have the student complete the Water Cycle Talk About It.
- **Optional Activity**: You will need a plastic bag, a cup, water, sand or dirt. Follow the Activity directions for this activity.

## □ Additional Lesson 9

## Social Studies: Helen Keller

- Caregiver reads the Helen Keller Background Information to student. (p. 328)
- Caregiver asks: What are some challenges that Helen Keller faced in her life? Good citizens find ways to help others. How did Helen Keller help other people?
- Caregiver has student think of how they can be a good citizen at home or in the community. Have student draw or write at least three ways they can help others in the upcoming week. Post these commitments.
- **Optional Activity:** Have student study the back of quarters you have at home. Mention Helen Keller is on the back of the Alabama state quarter. Have student think about someone who inspires them and draw a quarter to honor them.

## □ Additional Lesson 10

## **Social Studies: Amelia Earhart**

- Caregiver reads the Amelia Earhart Background Information to student. (p. 330)
- Caregiver asks student: What was Amelia Earhart like when she was young? What are some challenges that Amelia faced in her life and how did she overcome them?
- Caregiver has student fold a piece of paper in half. On One side have student draw or write goals and accomplishments of Amelia Earhart. On the other side, have student draw or write about two goals they have.
- **Optional Activity:** Make an airplane as described in the Activity.

## □ Additional Lesson 11

## Science: Earth

- Read the Earth Background Information with the student. (p. 289)
- Ask the student: Is there life on other planets?
- Have the student share their thoughts of what an alien might look like by drawing a picture, making a model, or writing a story.
- **Optional Activity**: You will need a printer or a piece of paper. Follow the Activity directions for this topic.



## □ Additional Lesson 12

## Science: Soil

- Read the Soil Background Information with the student. (p. 292)
- Ask the student: What is each layer of soil like?
- Have the student explain, draw, or write about the different layers of soil.
- **Optional Activity**: You will need plastic cups or baggies, a small shovel or plastic spoon, and access to soil outside. Follow the Activity directions for this activity.

## □ Additional Lesson 13

## Science: Fossils

- Read the Fossils Background Information with the student. (p. 294)
- Have the student look at the picture of the fossil and explain how the animal lived.
- **Optional Activity**: You will need scissors and crayons. Follow the Activity directions for this activity.

## □ Additional Lesson 14

## Social Studies: Susan B. Anthony

- Caregiver reads Susan B. Anthony background information to student. (p. 332)
- Caregiver asks student: What did Susan B. Anthony or Eleanor Roosevelt fight for? What challenges did she face along the way? What issues do you think are important?
- Have student use the activity page to create illustrations of Susan B. Anthony's life.

## □ Additional Lesson 15

## Social Studies: Jackie Robinson

- Caregiver reads the Jackie Robinson background information. (p. 334)
- Caregiver asks student: What was life like for Jackie Robinson growing up? What challenges did he face? What accomplishments did he achieve?
- Have student think of someone they look up to or admire and draw a picture or write about that person and why they look up to them.
- **Optional Activity**: Help the student think of questions they would like to ask the person they selected to draw. If you know the person, have student conduct a short interview with that person.

## □ Additional Lesson 16

## Science: Moon

- Read the Moon Background Information with the student. (p. 298)
- Ask the student: How is the Moon different from the Earth? How are they alike?
- Have the student explain, draw, or write about how the Moon is different from the Earth.
- **Optional Activity**: You will need a piece of paper or notebook. Follow the Activity directions for this activity.

## □ Additional Lesson 17

## Science: Solar System

- Read the Solar System Background Information with the student. (p. 301)
- Ask the student: What is your favorite planet?
- Have the student explain, draw, or write about their favorite planet and why they like it.
- **Optional Activity**: You will need a piece of paper and scissors. Follow the Activity directions for this activity.



## □ Additional Lesson 18

## Science: Mars

- Read the Mars Background Information with the student. (p. 304)
- Ask the student: Imagine you are a scientist observing Mars using an orbiter or rover. What is Mars like? What do you see?
- Have the student explain, draw, or write about Mars.
- **Optional Activity**: You will need a baking pan, sand, scissors, water, steel wool, and gloves. Follow the Activity directions for this activity.

## □ Additional Lesson 19

## Social Studies: Rights and Responsibilities

- Caregiver reads Rights and Responsibilities Background Information to student. (p. 335)
- Caregiver asks student: What are your responsibilities? Make a list of the actions they are responsible for in the home.
- Caregiver has student use the draw it page to draw a picture of how they could make the home or community better. Have them explain what they drew.
- □ Additional Lesson 20

## **Social Studies: Community Helpers**

- Caregiver reads the Community Helper Background Information. (p. 337)
- Caregiver asks student: Who are the community helpers you know? How do they help?
- Caregiver has student draw a picture of the type of community helper they think is most important or that they would like to be. Have them explain why they chose that community helper.







# Amplify.

## **Phonological Awareness**

Before being able to read written letters and words, children learn to hear the individual sounds in spoken words. For example, beginning readers with phonemic awareness are able to hear and recognize that the word "cat" is made up of the sounds /c/ /a/ /t/. They can also combine or blend the separate sounds of a spoken word to say the word ("/d/ /o/ /g/  $\rightarrow$  dog"). Phonological Awareness activities provide practice in segmenting individual sounds in spoken words and blending sounds to say the word.

Title	Suggested Grade(s)	Target Skill(s)	Activity
Find Specific Sounds	K-2	Isolate Beginning and Ending Sound	Have your child and other family members listen for words with a specific sound in family conversation or on television and radio programs, such as words that start with the <i>s</i> sound or that end with the <i>k</i> sound. Have your family members share their heard words and list them on a piece of paper.
Match the First Sound	К-2	Isolate Beginning Sound	Help your child identify the beginning sounds in words. Sort and match pictures and words according to beginning sound. Ask your child to figure out which picture or word doesn't belong because it has a different beginning sound. (Example: <i>bag</i> , <i>nine</i> , <i>beach</i> , and <i>bike</i> ). Sing the television jingle, "One of these things is not like the others." Have your child sort snack foods by their beginning sounds. (Example: raisins on one plate, carrots on another, etc.)
Mystery Game	K-2	Isolate Beginning Sound	Play a mystery game in which you are calling your child's name or looking for an object around the house. For example, say, "I'm thinking of someone whose name begins with (say the sound for the letter <i>t</i> )," or "I'm looking for an item that begins with (say the sound for the letter <i>g</i> )."

Use these activities to reinforce and practice phonological awareness skills with your child.

(continues on the next page)



К-2	Isolate Beginning Sound	Help your child pick out the first sound in words, an important step in learning to read. Give your child one minute to name as many objects, people, foods, etc that start with a given sound, such as <i>sss</i> . When the minute is up, have them try to beat their score with another sound, such as <i>rrr</i> . It's important to say the sound the letter makes rather than the letter's name. For instance, say <i>mmm</i> rather than em.
К-2	Segment Sounds in Words, Counting Sounds in Words	Help your child count the number of sounds in words. Have your child find pictures of two- and three-sound words. Put the same number of markers (coins, blocks, etc.) representing the sounds under the picture. Have your child touch a different marker as he or she says each sound. Some ideas for pictures are: fish (3 sounds), lip (3 sounds), shoe (2 sounds), and the number five (3 sounds).
К-2	Segment Sounds in Words, Counting Sounds in Words	Help your child take spoken words apart. Have your child listen for syllables in words. You can play this game while you are walking. Have your child clap the number of syllables in the name of each object you see. Next, have your child separate the sounds in words, listening for beginning, middle, and ending sounds; for example, if your child sees a bird, he or she would say <i>b</i> - <i>ir</i> - <i>d</i> .
K-2	Segment Sounds in Words, Isolate Beg/Mid/End Sounds in Words, Blending Sounds	Help your child take spoken words apart and put them together. Have your child separate the sounds in simple three–letter words, listening for beginning, middle, and ending sounds. For example, pronounce <i>mom</i> as follows: $mm-o-mm$ . Next, ask your child to blend sounds together to make a word. Say words one sound at a time; for example, you say $sh-ee-p$ and your child says sheep.
	K-2 K-2 K-2	K-2Isolate Beginning SoundK-2Segment Sounds in Words, Counting Sounds in WordsK-2Segment Sounds in WordsK-2Segment Sounds in WordsK-2Segment Sounds in Words, Counting Sounds in Words, Sounds in Words, Sounds in Words, sounds in Words, Isolate Beg/Mid/End Sounds in Words, Isolate Beg/Mid/End Sounds in Words, Isolate Beg/Mid/End Sounds in Words, Isolate Beg/Mid/End Sounds in Words, Isolate

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Shopping For Sounds	K-2	Segment Sounds in Words, Isolate Beg/Mid/End Sounds in Words, Blending Sounds	As you and your child shop, have your child separate the sounds in the name of each item you put in your shopping basket, listening for beginning, middle, and ending sounds; for example, for a bag, your child would say $b-a-g$ . Next, ask your child to blend sounds together to make a word. Say words one sound at a time; for example, you say $m-i-l-k$ and your child says <i>milk</i> ; you say $c-a-n$ and your child says <i>can</i> .
Count the Words	K-2	Word Counting	Have your child count the number of words in a spoken sentence. Say a sentence. (Example: "Let's go to the park.") Have your child tell you the number of words in the sentence. Switch roles, allowing your child to give you a sentence and have you say the number of words it contains.

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# Amplify.

## Phonics

Reading is dependent on an understanding of the alphabetic principle — the idea that letters and letter patterns represent the sounds of spoken language that are blended together to make words. Children learn letter sounds and apply these predictable relationships between sounds and letters to read words that are both familiar and unfamiliar; they then build their skills to use knowledge of word parts including prefixes and suffixes like re/–ness/–ing, and syllables to decode words. Phonics activities provide practice in letter–sound correspondence, blending, and reading words with various letter–sound patterns and word parts. Students must learn to both accurately and fluently decode words so that they can read words automatically and focus on reading for understanding.

Title	Suggested Grade(s)	Target Skill(s)	Activity
Beginning Sounds	K-2	Beginning Sound Isolation, Individual Letter Sounds	Say, "Let's think of some words that start with the same sound. I'll say the first ones and we'll see if you can think of a color word that starts with the same sound." Say, " <i>Pig, penguin, porcupine</i> "Ask your child to repeat your words before supplying another one. Then ask, "What sound do these words start with?" (Your child should say the sound <i>p.</i> ) You may have to exaggerate the beginning sounds until your child gets the idea. Then ask, "What is a color word that begins with the same sound?" ( <i>pink, purple</i> ) Repeat with other beginning sounds.
Blend Words	К-2	Blending Onset– Rime	Gather several small objects from around the house. Say, "Let's see if you can guess what I am hiding behind my back. I will say parts of the word and, if you put these parts together, you will be able to guess what I have behind my back." Pronounce the first sound and ending rhyme separately. For example, $p-en$ . If your child is able to blend the parts and come up with the word, show him or her the pen and repeat with another object or toy. If your child is not able to blend the first sound and ending rhyme, model the process. For example, $b-at$ , bat. Repeat this practice, blending parts of words into whole words.
House Hold Message Board	2	Decoding Words, Reading Multisyllabic Words	Use a chalkboard, pinboard, or a large piece of paper as a family message board. This is as an exciting way to involve children in reading with a purpose. Leave written notes to your child on the message board.

Use these activities to reinforce and practice phonics skills with your child.

Label Your Home	K-2	Decoding Words, Letter Combinations	Use masking tape and a permanent marker to label names of objects in your home, such as <i>bed</i> , <i>doll</i> , <i>table</i> , and <i>chair</i> . This helps your child recognize letters and the names of everyday objects.
Grocery List	К-2	Decoding Words, Writing Words	Give your child a sheet of paper and dictate the items you need to buy. If your child requests the correct spelling, write the words for your child to copy, or spell the words as he or she writes them. You can also allow your child to use inventive spelling for items on the list and locate the correct spelling at the grocery store.
Start a Journal	2	Decoding Words, Writing Words	Explain what a journal is and give examples of what types of things your child might write about, such as making a new friend, going someplace special, or experiencing something exciting at school. Provide an example by writing about your day. Ask your child to write about his or her day on the next page.
Magnetic Words	K-2	Decoding Words, Writing Words	Help your child practice reading and writing letters and words. Help your child form words using magnetic letters.
Note Time	K-2	Decoding Words, Writing Words, Words in Context	Choose 10 minutes of a day to be note time. Communicate with your child during that time by passing written notes. Try to use words your child is learning in school. Share a spirit of secrets and fun. A note could just say, "Hello." If your child needs help reading the notes, help him or her read them aloud.
Words in the World	K-2	Individual Letter Sounds	Point out the letter/sound relationships your child is learning on food labels, boxes, newspapers, magazines, and signs. For instance, ask your child, "What sound does this letter make?" Practice writing and reading letters and words.
Personal Dictionary	K-2	Word Categories, Sight Word Reading	Help your child create a personal word dictionary. This is a long-term project that's fun for rainy or snowy days. Help your child write a letter of the alphabet at the top of every page in a notebook or on separate sheets of paper. Ask your child to write down recently learned words on the page with the corresponding first letter.
Match Pictures With Words	K-2	Words In Context	As you read a book with your child, point to an object in an illustration and help your child find the word in the text that matches that object.

(continues on the next page)



**Talking About Forces** by Andrew Falk and Jennifer Tilson





Materials to be used solely for remote learning due to COVID-19



It was a beautiful day at the park! Everywhere you looked, there were kids making things move.

### Materials to be used solely for remote learning due to COVID-19



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> Grade K Talking About Forces ISBN: 978-1-939787-92-7



We have many ways of talking about what happens when one thing makes another thing move.

Scientists and engineers have their own way of explaining what is happening. They talk about forces. They say that when one thing makes another thing move, it exerts a force on it.

Let's see some examples! 4



Scott pushed Francis on the swing, and Francis moved. She sailed forward in the swing, high into the air.

What would a scientist or engineer say happened here?

5



Here is what a scientist or engineer would say:

Francis moved because Scott exerted a force on her.



Faheem jumped into the wagon and asked for a ride. Francis pulled on the handle of the wagon, and the wagon rolled up the hill with Faheem in it!

What would a scientist or engineer say happened here?



Here is what a scientist or engineer would say:

The wagon and Faheem moved because Francis exerted a force on the wagon.



Mia and Scott played catch in the field. When it was her turn to throw, Mia threw the ball and it flew away from her.

What would a scientist or engineer say happened here?

8



Here is what a scientist or engineer would say:

The ball moved because Mia exerted a force on the ball.



Another ball was sitting on the grass. Jess ran up and kicked the ball. Wham! The ball bounced away over the grass. Jess scored a goal!

What would a scientist or engineer say happened here?

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Here is what a scientist or engineer would say:

The ball moved because Jess exerted a force on the ball.



The kids had fun playing in the park and making things move. A scientist or engineer would agree that they had fun playing in the park. A scientist or engineer might also say they exerted forces on lots of **objects** in the park!

Scientists and engineers know that any time you see an object start to move, it is because another object exerted a force on it. When you see one object start to move, look for the other object that made it move. Forces always happen between two objects.

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Here are more pictures of objects exerting forces on other objects.



The snowplow shoved the snow, and the snow moved forward along the road.



The grandma pushed the grandpa's chair, and the chair rolled along the sidewalk.



The hammer pounded the nail, and the nail moved down into the wood.





The bird tugged on the worm, and the worm slid up out of the sand.

The dog dragged the sled, and the sled slipped across the snow.

What is another way to say what happened in these pictures? How would a scientist or engineer say it?

Look at each picture and think about these questions: What object moved? What object exerted a force on it, making it move?

## Glossary

engineer: a person who makes something to solve a problem

exert: to cause a force to act on an object

explain: to describe how something works or why something happens

force: a push or a pull

object: a thing that can be seen or touched

scientist: someone who learns about the natural world

Books for Pushes and Pulls:

Talking About Forces Building with Forces Room 4 Solves a Problem A Busy Day in Pushville Forces in Ball Games

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## **Pushes and Pulls**

## Scientists and engineers have a special way of saying how things happen.

When Scott pushes Francis on the swing, a scientist or engineer would say that Scott is exerting a force on Francis. Find out how a scientist or engineer would describe different things happening in the park.



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## **Room 4 Solves a Problem**

by Ashley Chase illustrated by Jomike Tejido





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### Materials to be used solely for remote learning due to COVID-19

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### Materials to be used solely for remote learning due to COVID-19

## **Ratty's Problem**

Everybody in Room 4 loved having a pet rat. All the kids took turns feeding Ratty and cleaning his cage. During choice time, somebody always chose to play with Ratty. So when Mr. S told the kids that Ratty had a problem, all the kids were concerned.



"I took Ratty to the **vet** for a check-up," said Mr. S. "She told me Ratty needs to **exercise**. He needs to move around and play more."

Omar raised his hand. "I'll play with Ratty!"

"That's great!" said Mr. S. "We can all play with Ratty more often. But the vet said Ratty *also* needs to have ways to exercise when he's by himself in his cage."

The class decided to think of **solutions** to Ratty's exercise problem. They decided to **design** new exercises for Ratty.



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Then Mr. S said, "Maybe we can visualize other kinds of pushes and pulls Ratty could do for exercise. Picture Ratty pushing and pulling."

That night, each student agreed to design some exercises for Ratty. They decided to make drawings to help them visualize their exercises.



"What kinds of exercises can you think of?" Mr. S asked. "Visualize some exercises that you've tried. Picture them in your mind." The kids visualized pull-ups, soccer, weightlifting, and more.

Once they told Mr. S their ideas, he said, "Those are all exercises for humans. Rats can't do those human exercises exactly, but rats do **exert forces** when they exercise, just like humans do."



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## **Planning Solutions**

The next day, the students shared their solutions to Ratty's exercise problem. They showed their drawings of ways for Ratty to exercise.

Omar had designed a track for a ball. He thought Ratty could push the ball along the track. Omar showed everyone his drawing.



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Kai shared her drawing next. She wanted to put vegetables into a ball with holes in it. Ratty liked to eat vegetables. Kai thought Ratty could pull the vegetables out of the holes. Leo and Jayden wanted to make a cardboard maze for Ratty to explore. They thought Ratty could push open cardboard flaps to get through the maze. The two of them had worked on a drawing together after school.

"What wonderful solutions!" said Mr. S.





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On Tuesday, the class tested Omar's track idea. They put Ratty on the track and gave him a big ball to push. The first time they tried it, the ball fell off the track. The ball fell off again the second time they tried it.



## **Testing**, **Testing**

Room 4 was busy that week. On Monday, Mr. S said, "You designed some ways for Ratty to exercise. Let's **test** your solutions to see how well they will work."

Mr. S explained that testing might give them new ideas and help them think of ways to make their solutions even better.





They were about to test a third time, but Omar said, "Wait! Let's try a smaller ball. It will stay inside the edges of the track. It won't fall off like the big ball."

The class talked together, and decided that trying a smaller ball was a good idea. They tested the track with the smaller ball. This time, the ball stayed in the track. Ratty pushed it from one end to the other!

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The kids tied the ball on a string. They hung it in Ratty's cage.

Ratty gave the ball a little push, and all the peas fell out. He ate them off the floor of his cage.

"That was too easy," said Kai. "The peas just fell out. Ratty didn't have to pull them." On Wednesday, the class tested Kai's idea about filling a ball with vegetables. They used a plastic ball from the recess supplies. It had round holes in it.

Ratty's favorite vegetable was peas, so they put lots of peas into the ball. The peas were small and round, so they were easy to put into the round holes.



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Kai told the class she thought the vegetables in the ball should be a different shape. Instead of small and round, they should be long and thin. The class put string beans into the ball. They had to push the string beans into the holes carefully.





They gave the ball with string beans to Ratty. Ratty grabbed a string bean in his teeth and started pulling. He pulled string beans out of the ball for the rest of the day.

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The kids put the maze on the floor of the classroom and put Ratty inside.

Ratty explored the maze for a long time. He pushed through the flaps and climbed on everything. Leo put Ratty at the top of the slide, and he slid down. It seemed like Ratty was getting lots of exercise in the maze.





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On Thursday, the class built Leo and Jayden's maze. Everybody added pieces to the maze. They used cardboard boxes, toilet paper tubes, and other pieces of cardboard they could find. In parts of the maze, the kids made flaps for Ratty to push. There were also tunnels to crawl through, ramps to climb, and even a slide!



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## Lots of Solutions

On Friday, the class put all their solutions together. Inside Ratty's cage, they put Kai's ball of vegetables and Omar's track for pushing a ball.



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The cardboard maze was too big to fit in Ratty's cage, but the class decided to keep it in the closet. Mr. S said they could bring out the maze for Ratty to play in at least once a week.

"Nice work, class!" said Mr. S. "You solved Ratty's exercise problem."



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The kids had lots of questions. "What should we name Ratty's friend?" "Will they get along?" "Where will the new rat sleep?" Now the kids had a new problem to solve: finding room in Ratty's cage for the new rat.

They decided to design some changes to the rat cage. The kids got out some paper and started drawing their ideas.





Mr. S had a surprise for the class: another rat to live in the classroom! Mr. S put the new rat in the cage with Ratty. The two rats sniffed each other.

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### Materials to be used solely for remote learning due to COVID-19

## Glossary

**design**: to try to make something new that people want or need

**exercise**: to play sports or move around in order to stay healthy

force: a push or a pull

exert: to cause a force to act on an object

**solution**: something that helps people do what they want or need to do

test: to try something and find out what happens

vet: a kind of doctor who keeps animals healthy

visualize: to make a picture in your mind





-

**Pushes and Pulls** 

# How can the kids in Room 4 help their pet rat?

Ratty has a problem. He needs more exercise! The kids in Room 4 have lots of ideas about how to help Ratty. They design many different solutions to Ratty's problem. The solutions all have one thing in common: they use pushes and pulls to help Ratty exercise.



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## **Forces in Ball Games**

by Ashley Chase





### Books for Pushes and Pulls:

Talking About Forces Building with Forces Room 4 Solves a Problem A Busy Day in Pushville Forces in Ball Games

### Lawrence Hall of Science:

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## **Amplify**Science

# Forces in **Ball Games**

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Developed by the Learning Design Group at the University of California, Berkeley's awrence Hall of Science

Amplify Science Elementary is based on the Seeds of Science/Roots of Reading approach, which is a collaboration between a science team led by Jacqueline Barber and a literacy team led by P. David Pearson. www.scienceandliteracy.org

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## Introduction

People love to play ball games. A ball game is any game with a ball in it.

To play a ball game, you need to make the ball move. To make a ball move, you need to **exert** a **force** on it. Forces are pushes and pulls.

You can exert a force on a ball by hitting it, kicking it, bouncing it, throwing it, or catching it. There are lots of other ways, too.



In many games, players need to get the ball to a goal. Soccer is a game like this. To make the ball go into the goal, you have to exert a force on the ball in the direction of the goal.

The goal might be nearby or very far away. You can make a ball move a long **distance** by exerting a strong force on it. You can exert a gentle force on the ball to make it move a short distance instead.

You can make a ball move fast or slow. The stronger the force you exert on the ball, the faster it will go.

This is a book about forces in ball games.

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This player hit the ball gently with the bat. The ball moved slowly. It landed nearby.

The ball went a short distance because the bat exerted a gentle force on it.

7



6

## How does the ball move in baseball?

The men played baseball. This player hit the ball hard with the bat. The ball went fast. It flew far away.

The ball went a long **distance** because the bat **exerted** a strong **force** on it.



## How does the ball move in basketball?

The women played basketball. This player threw the ball at the basket.

The ball moved toward the basket because her hands exerted a force on the ball in the direction of the basket.





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This player dribbled the ball. She pushed the ball down. It hit the floor and bounced back up again.

The ball changed direction after it hit the floor because the floor exerted a force on it.





# How does the ball move in bowling?

The boy went bowling. He pushed the ball hard. The ball went fast. It rolled all the way to the end where the pins were.

The ball went a long **distance** because the boy's hand **exerted** a strong **force** on it.



The pins were standing in rows. The ball hit the pins, and the pins fell over. They rolled all around.

The pins started to move because the ball exerted a force on them.

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# How does the ball move in croquet?

The girl played croquet (kro-KAY). She wanted the ball to go to the striped stick. The stick was not far away. She hit the ball gently with the mallet. It rolled slowly to the stick.

The ball went a short distance because the mallet exerted a gentle force on it.





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The ball rolled to the striped stick. It hit the stick and bounced back a little.

The ball changed **direction** when it hit the stick because the stick exerted a force on the ball.





# How does the ball move in foosball?

The teenagers played foosball. They used rods to push and pull the foosball men.

The foosball men moved because the rods **exerted forces** on them.



The ball was rolling across the table. The foosball man bumped into the ball. The ball started rolling the other way.

The ball changed **direction** because the foosball man exerted a force on it.

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# How does the ball move in football?

The men played football. The player in blue threw the ball hard. The ball flew through the air. It went fast and far.

The ball went a long **distance** because the player's hand **exerted** a strong **force** on it.



The player in white ran across the field toward the goal. Then the player in yellow grabbed him. Instead of moving toward the goal, the player in white started falling toward the ground.

The player in white changed **direction** because the player in yellow exerted a force on him.

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# How does the ball move in foursquare?

The kids played foursquare. The boy hit the ball to the right, into the next square.

The ball moved to the right because the boy's hand **exerted** a **force** to the right.



The girl hit the ball to the left, into another square.

The ball moved to the left because the girl's hand exerted a force to the left.

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# How does the ball move in golf?

The people played golf. This player wanted the ball to go far. He hit the ball hard with the golf club. The ball flew across the grass. It went fast and far.

The ball went a long **distance** because the club **exerted** a strong **force** on it.



This player wanted the ball to go just far enough to fall into the hole. She knew the ball would go too far if she hit it too hard. She hit the ball gently with the golf club. The ball rolled slowly to the hole and fell in.

The ball went a short distance because the club exerted a gentle force on it.





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The ball hit the ground and bounced.

The ball changed **direction** when it hit the ground because the ground exerted a force on the ball.



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# How does the ball move in kickball?

The families played kickball. This girl kicked the ball and it flew into the air.

The ball went up because her foot **exerted** an upward **force** on the ball.







# How does the ball move in lacrosse?

The women played lacrosse. This player wanted to get the ball into the goal. She threw the ball with the stick.

The ball went toward the goal because the stick **exerted** a **force** on the ball in that **direction**.



The ball was moving toward this player. She used her stick to catch it.

The ball stopped moving because the stick exerted a force on it.



# How does the ball move in mini-golf?

The kids played mini-golf. The girl wanted the ball to go into the hole. She hit the ball gently with her golf club and it rolled slowly toward the hole.

The ball moved a short **distance** because the club **exerted** a gentle **force** on it.



The boy reached into the hole and pulled the ball out.

The ball moved up out of the hole because the boy's hand exerted an upward force on it.

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# How does the ball move in pinball?

I played pinball. I pulled the launcher back and let go. The launcher hit the ball and it rolled away.

The ball started to move because the launcher **exerted** a **force** on the ball.





The ball was rolling toward me. I hit the ball with the flipper. The ball started rolling the other way.

The ball changed **direction** because the flipper exerted a force on the ball.





The white ball rolled and hit the red ball. Then the red ball rolled toward the hole.

The red ball went in the hole because the white ball exerted a force on it in that **direction**.

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8

# How does the ball move in pool?

The man played pool. He poked the white ball with the stick.

The ball started moving because the stick **exerted** a **force** on it.

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# How does the ball move in soccer?

The girls played soccer. This girl kicked the ball at the goal.

The ball went toward the goal because her foot **exerted** a **force** on it in that **direction**.





The ball was rolling toward the goal. The goalie stopped the ball and kept it from going into the goal.

The ball stopped moving because the goalie's hands exerted a force on it.





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# How does the ball move in street hockey?

The kids played street hockey. One kid hit the ball with the stick. He hit the ball at the goal.

The ball rolled toward the goal because the stick **exerted** a **force** on it in that **direction**.



The goalie stopped the ball with his pads.

The ball stopped moving because the pads exerted a force on it.

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# How does the ball move in table tennis?

The teenagers played table tennis. The boy hit the ball with his paddle. It flew across the table.

The ball flew across the table because the paddle **exerted** a **force** on it in that **direction**.



The ball flew across the table toward the girl. The girl hit the ball with her paddle. The ball started flying the other way, back across the table.

The ball changed direction because the paddle exerted a force on it.

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The ball was flying through the air. The boy caught it with his mitt.

The ball stopped moving because the mitt exerted a force on it.



# How does the ball move in T-ball?

The boys played T-ball. The ball was sitting on the T. The boy hit the ball with the bat. The ball started moving.

The ball started moving because the bat **exerted** a **force** on the ball.



The ball was flying toward this player. She hit it with her racket. The ball started moving away from her.

The ball changed **direction** because the racket exerted a force on it.

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# How does the ball move in tennis?

The women played tennis. This player threw the ball up into the air.

The ball went up because her hand **exerted** an upward **force** on the ball.







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## How does the ball move in tetherball?

The kids played tetherball. The girl hit the ball with her hands. The ball moved away from her.

The ball moved away because her hands exerted a force in that direction.



The ball was tied to a rope. The rope was twisting around a pole. The rope pulled the ball closer and closer to the pole.

The ball moved closer to the pole because the rope exerted a force in that direction.

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## How does the ball move in volleyball?

The women played volleyball. The player in red hit the ball with her hand. She pushed it to the other side of the net.

The ball moved to the other side of the net because her hand **exerted** a **force** in that direction.



The ball was flying over the net. The player in blue hit the ball back to the other side.

The ball changed direction because her hand exerted a force on the ball.



## How do balls move in other ball games?

There are so many ball games! What are some forces in your favorite ball game?

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## Glossary

direction: the way something is facing or moving, such as left, right, toward you, or away from you

distance: how far it is between two things

exert: to cause a force to act on an object

force: a push or a pull



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### Books for Pushes and Pulls:

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**Pushes and Pulls** 

### How do you use forces when you play games?

People all over the world play ball games. In a ball game, players exert forces to make things happen. Learn about many different kinds of ball games and the forces that make them possible.



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#### **Building with Forces**

by Sophia Lambertsen



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Grade K Building with Forces ISBN: 978-1-943228-68-3

# <image>

Men and women work hard to build things at construction sites.

When a construction worker is building something, every brick, nail, and piece of wood has a place where it needs to go. Workers **exert forces** to put things where they belong. Materials to be used solely for remote learning due to COVID-19



Garrett and Theo work together to build a roof. Garrett pushes a piece of wood up next to the other pieces of wood. He is exerting a force in the **direction** of the roof.

3

4





Garrett cannot just stand there and hold the wood all day. He uses a metal pole to keep exerting a force on the piece of wood. The pole pushes the wood in the direction of the roof and keeps the wood in place. Now Garrett can keep working!



Theo uses bricks and cement to build a wall for the outside of the building. He exerts forces in two directions. He exerts a force to the left and then he exerts a force to the right. He is wiggling the brick from one direction to the other. He is making sure it fits on top of the other bricks.

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Theo makes sure all his bricks are stuck to the cement. He pounds them into place by pushing down with his hand. He needs to make sure all the bricks are in just the right places or the wall will not stay up.

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May, Liz, and Jane are helping to build a house. They are putting up a frame for the wall. They all exert a force in the same direction so the frame will stand up just where it needs to go.

7

8



Fran and Lee are working on the other side of the frame. Fran helps to hold up the frame by exerting a force toward her body. Lee hammers a nail in to keep the wood in place. The hammer exerts a force toward the wood and pushes the nail into the wood.



Annie and Jo are working on another part of the house. They exert a force up and away from their bodies to lift this frame.

Now Annie measures the frame and marks where a nail will go. She exerts a force to the left to stretch out the measuring tape.

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Sometimes a construction job is too big for a person to do. Austin and Michael are building a big store, but there is a lot of sand in the way. They need to use a machine to help them.

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The machine exerts a strong force up and pushes the sand up onto the top of the pile. The sand lands in the truck, right where it belongs.



Michael and Austin shake hands at the end of the day. Michael exerts a force up and down. Which way does his hand go?



At the construction site, everyone works hard. They need to exert forces in the right direction, so everything ends up where it belongs.

Are people and machines in these pictures exerting forces in different directions?

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#### Glossary

direction: the way something is facing or moving, such as left, right, toward you, or away from you

exert: to cause a force to act on an object

force: a push or a pull



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**Pushes and Pulls** 

#### At the construction site, people exert forces in different directions.

When people build houses and other buildings, they push and pull things to get them in the right places. See how construction workers exert forces to put up walls and roofs.





**Amplify**Science

#### A Busy Day in Pushville

by Chloë Delafield illustrated by Anthony Lewis



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Grade K A Busy Day in Pushville ISBN: 978-1-943228-60-7



I live in a town called Pushville. People do all kinds of different jobs in my town. On the way to the library with my dad, I see lots of people doing their jobs. They all use **forces** to do their jobs! I just learned about forces at school, and now I see people using forces everywhere. They use pushes and pulls to make things move and change. Pushes and pulls are forces.

The **baker kneads** bread **dough**.



When the dough is ready, she pushes the pan into the oven so it can bake.





She pushes the dough against the counter. Bam! Bam! Bam!

She pulls the dough until it is looooong. Strrrrretch.

4





The firefighter pulls the hose out of the fire truck. He pulls and pulls to unroll the hose. It is very long.



She will pull the pan out of the oven when it is just right. Yum!







The hose has to reach all the way from the truck to the tree so the firefighter can put out the fire. He pulls it across the lawn and up to the tree. Splash! He puts out the fire. 7

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The **gardener** pulls on his gardening gloves. He pushes up his sleeves and gets a **rake**.

Then he pulls the rake to drag leaves across the lawn.







He pulls the rake again and again to bring all the leaves into a big pile. Then the pile is ready for kids to jump into!

в





I push open the door to the library and walk inside. We are just in time to hear a story! The **librarian** pulls a book off the shelf. He reads the book to us. Then he pushes it across the table so we can look at the pictures.



I am going to check out a book so I can read it at home. I pull it close as I carry it home. I will read it with my mom at bedtime! 11



When we get back home, my dad and I sit and make pictures together. I push a paintbrush across the paper. I painted a river!



My dad is drawing with pencils. He pulls the pencil down the page to make a line. What is he drawing?

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When my mom gets home from work, we all go to the grocery store together to get some food for dinner. We push the grocery cart around the store. Dad pulls a box off the shelf and puts it in the cart.



At home, we cook dinner together. Dad pulls open a drawer to get forks for us. It is time to eat. We all pull our chairs in to the table. What a great day! I can find forces everywhere.

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#### Glossary

baker: a person who makes things in an oven, like bread and cakes

dough: a mixture of flour, water, and other things that turns into bread when it is baked

force: a push or a pull

gardener: a person who takes care of plants

knead: to push and pull dough before baking it

librarian: a person who helps people find books at the library

rake: a tool used for moving leaves and branches

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#### **Pushes and Pulls**

#### People use forces to do their jobs all around town.

A girl and her dad take a walk around town. They meet a baker, a gardener, a librarian, and other people who use pushes and pulls while they are working. People are using forces everywhere!





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#### What Is the Weather Like Today?

by Kate Donaldson-Fletcher illustrated by Jeffrey Ebbeler





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Developed by the Learning Design Group at the University of California, Berkeley's Lawrence Hall of Science.

Amplify Science Elementary is based on the Seeds of Science/Roots of Reading<sup>\*</sup> approach, which is a collaboration between a science team led by Jacqueline Barber and a literacy team led by P. David Pearson. www.scienceandliteracy.org

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Grade K What Is the Weather Like Today? ISBN: 978-1-945192-39-5



Every morning, I wake up with a question. "What is the **weather** like today?"



To find out, I go to my window and look outside.

The weather today might be different than it was yesterday. Weather can be sunny, cloudy, windy, rainy, or snowy. There are other types of weather, too.

4

3



Some days I look outside and everything is wet. Drops of water are falling from the sky. I see puddles on the sidewalk.

What is the weather like today?



The weather today is rainy.

Gray clouds cover the sky. Rain is falling from the clouds. Sometimes the rain falls lightly. Sometimes it rains so hard I can barely see the houses across the street! It is raining hard today. I will wear my rain boots and raincoat and bring my umbrella to school with me.



Some days when I look outside, the sky is blue and everything looks bright. Leaves are flying through the air. The grass is bending over and the bushes are swaying. The branches of the trees are moving back and forth.

What is the weather like today?



The weather today is sunny and windy.

There are no clouds, and the sun is high in the sky. **Sunlight** is shining on houses, trees, people, and everything else. The wind is blowing. It blows leaves through the air and makes branches sway. The sunlight is very bright today, so I'm going to wear my sunglasses. I'll keep my hair tied back to keep the wind from blowing it around.



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Some days I look outside and see ice crystals on my window. Outside, everything looks white and still. White flakes are falling to the ground. I can see the footprints of animals that have passed by in the night.

What is the weather like today?



The weather today is snowy.

When clouds get very cold, snowflakes form in the clouds. Then the snowflakes start falling to the ground. If enough snowflakes fall, they can form piles of snow. I am going to wear warm boots, a coat, and a scarf today.

Materials to be used solely for remote learning due to COVID-19



Some days I look outside and the sky is gray. It's daytime, but it's not very bright outside. I don't see the sun in the sky.

What is the weather like today?

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The weather today is cloudy.

When there are thick clouds in the sky above us, we can't see the sun. The sky looks gray and it is not bright outside. Even though we can't see the sun, it's still there behind the clouds.



There are many types of weather. On different days, the weather can be sunny, cloudy, windy, rainy, or snowy. There can even be more than one type of weather at a time.

I want to be ready for whatever the weather brings. I might need sunglasses to **prepare** for sunny weather. To prepare for rain, I might need a raincoat. I want to know what the weather will be like each day so I can always be prepared.



After breakfast, I am dressed and ready to go to school, but I have another question.

Every day before I leave for school, I always ask, "What is the **temperature** today?"

Days can be different temperatures. For example, the temperature can be cold, cool, warm, or hot.

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I open the door and step out on the porch.

Brrr! I am glad I have my coat and hat.

What is the temperature today?

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The temperature today is cold.

The air feels like the inside of my refrigerator! On cold days, I like to puff air out and form little clouds with my breath.

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Today is a little warmer than before. I am going to leave my hat at home, but I still need to wear my coat.

What is the temperature today?



The temperature today is cool.

On cool days, I like to run around on the playground to stay warm. If I stand still, I feel too cold! I need to ask my teacher to help me zip up my coat again.



I don't need a coat today! I am going to school wearing my favorite sweatshirt.

What is the temperature today?

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The temperature today is warm.

On warm days, I like to play in the **shade** of the big oak tree on our playground. We pretend that the branches are the roof of our house.



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Today I don't even need long sleeves! I'm wearing shorts and a T-shirt. I even put on my sandals.

What is the temperature today?



The temperature today is hot.

On hot days, I like to lie around in the shade of the oak tree. I look at shadows and sunlight on the leaves above me.



The weather where I live can be different on different days. The weather can be sunny, cloudy, windy, rainy, or snowy. Temperature is part of weather, too. The temperature can be cold, cool, warm, or hot. I wonder what the weather will be like tomorrow.

What is the weather like where you are today? What is the temperature where you are today?

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#### Books for Sunlight and Weather:

What Is the Weather Like Today? Getting Warm in the Sunlight Cool People in Hot Places Tornado! Predicting Severe Weather Handbook of Models

#### Lawrence Hall of Science:

Program Directors: Jacqueline Barber and P. David Pearson Curriculum Director, Grades K–1: Alison K. Billman Curriculum Director, Grades 2–5: Jennifer Tilson

Lead Book Developers: Ashley Chase and Chloë Delafield

#### Sunlight and Weather Book Development Team:

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Rick Martin Steven Zavari

#### Design and Production: Fran Biderman-Gross, advantages.net

Credits: Illustrations: Jeffrey Ebbeler

#### Glossary

prepare: to get ready

shade: a place where sunlight is blocked by something

sunlight: light from the sun

temperature: how hot or cold something is

**weather:** what is happening outside with the air and sky and temperature

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**Sunlight and Weather** 

#### Knowing about the weather helps you get ready for each day!

This little girl looks out her window each day and wonders what the weather is like. Then she goes outside to see what the temperature is. When she knows about the weather, she can prepare for the day. What do you like to do in different kinds of weather?



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#### **Tornado! Predicting Severe Weather**

by Jonathan Curley illustrated by Joanne Renaud





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Amplify. Amplify. 55 Washington Street, Suite 800 Brooklyn, NY 11201 1-800-823-1969 www.amplify.com

> Grade K Tornado! Predicting Severe Weather ISBN: 978-1-945192-36-4

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Lynn works with other scientists at a weather station. The scientists study the weather together. Lynn says, "It's great to be part of a team."

Lynn loves her job. She says, "I like that the weather is different every day." She also likes that she can help people stay safe from severe weather.

A big part of Lynn's job is **predicting** the weather where she lives. She uses **observations** of the weather that is happening now to think about what will happen next.





Many people use the **predictions** that Lynn makes. Farmers need to know what the weather will be like so they can decide when to plant their crops. Pilots need to know when and where it is safe to fly planes. All the people who live in Lynn's area need to know when severe weather is coming so they can **prepare**.



To make a prediction, Lynn uses many types of **data**. She checks how fast the wind is blowing. She checks how much rain has fallen from the sky. She checks the **temperature**. She also looks at how the weather is changing over time.

The next page shows some of the tools that Lynn uses to **measure** the weather.

Different kinds of weather happen at different temperatures. When temperatures get warmer where Lynn lives, thunderstorms can happen.

Those thunderstorms sometimes lead to tornadoes. A tornado is air spinning from a cloud down to the ground. The wind in a tornado is very fast—as fast as a race car! A tornado is one type of severe weather.

Tornadoes can be very dangerous. Their fast winds can lift big things into the air and damage buildings and trees. That's why it is so important for weather scientists to know how to predict tornadoes.



Weather scientists warn people when a tornado is coming. Lynn says her biggest hope is that people will have plenty of time to prepare when she and her team send out a warning.

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At the school, the principal told students to stay inside and away from windows, in the strongest part of the building. When the tornado hit the school, all the students were safe inside.



Luckily, no one was badly hurt, even though buildings, cars, and buses were damaged. Lynn and her team had predicted the tornado in time. They had warned the whole town, and people had time to prepare. The scientists had done a great job!



Lynn says, "Weather affects everyone, every day." Lynn says her job is interesting and rewarding because she helps people understand the weather around them. She likes using science to help people stay safe even when the weather becomes severe.

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#### Materials to be used solely for remote learning due to COVID-19

#### Glossary

data: what you record in an investigation

measure: to use a tool to find out things like how big, how heavy, or how hot or cold something is

observation: something you notice using any of the five senses (sight, hearing, smell, taste, touch)

predict: to use what you already know to decide what you think might happen

prediction: an idea about what might happen that is based on what you already know

prepare: to get ready

severe: very strong or harmful

temperature: how hot or cold something is

thermometer: a tool for measuring temperature

weather: what is happening outside with the air and sky and temperature

20

**Sunlight and Weather** 

#### This weather scientist helps people stay safe!

Lynn is a scientist who knows all about weather. She can predict when a big storm is coming. She warns people so they have time to get ready for the storm and stay safe.

Special thanks to Lynn Burse, a forecaster at the **National Weather Service.** 





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#### **Amplify**Science

### **Getting Warm** in the Sunlight

by Chloë Delafield illustrated by Peter Johnston

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#### **Getting Warm in the Sunlight**

by Chloë Delafield illustrated by Peter Johnston





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Grade K Getting Warm in the Sunlight ISBN: 978-1-945192-42-5

The sun is just coming up. Morning in the **desert** is very cold.





It is too cold for the lizard to come out. The lizard needs to be warm before it can run and hunt. The lizard stays in its warm, cozy hole.



The sun comes all the way up. The **sunlight** shines on the rocks and the sand. The rocks and sand start to heat up. Even so, they are still too cool for the lizard to come out. Now it is late morning. The sun has been up for a few hours. All that time, the sunlight has been shining on the rocks and the sand. The rocks and sand are getting warmer.

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The lizard can come out now. It walks across the **pale** sand. The sand is warm. The lizard finds a **dark** rock. The rock is hot. The dark rock is warmer than the pale sand, even though both **surfaces** have been heated by the same sunlight all morning.



The lizard sits on a rock and gets warm in the sunlight. Soon the lizard is warm enough to run and hunt!



The lizard hunts for bees that are also out in the warm part of the day. They come out and fly around in the sunlight. The lizard catches lots of bees.



The day goes on. Now it is the afternoon, and the sun has been up for many hours. The sunlight has been shining on the rocks and the sand for a long time. The surfaces are even warmer than before.

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The dark rocks are getting too hot for the lizard. It runs to the pale sand, which is cooler than the dark rocks. Soon the pale sand also gets too hot. The lizard finds some **shade** to escape the sunlight. Later, the sun starts to set. The sun goes behind the mountains. The sunlight is not heating the rocks and the sand anymore. The rocks and sand start to get cooler.

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It is evening, and the sunlight has been gone for a while. Now it is cold out. A fox comes out of its hole. The fox does not need the sunlight to keep warm. It can keep itself warm!

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#### Glossary

dark (color): closer to black than white

desert: a dry place that gets very little rain

pale (color): closer to white than black

shade: a place where sunlight is blocked by something

sunlight: light from the sun

surface: the outside part of something

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Illustrations: Peter Johnston

Sunlight and Weather

#### What happens as sunlight heats up the desert?

In the morning, it's too cold for the lizard to come out. When the sun has been out for a while, the lizard gets warm enough to run and hunt. Then it gets too hot! The lizard has to find shade. When the sun sets, it gets cool again and the lizard goes back into its hole.





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Bees are little, but they do a big job. Bees feed you and me.



Without bees, we would not have apples.

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Without bees, we would not have lemons.

Bees Feed Me • Level D



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Without bees, we would not have cucumbers.







Without bees, we would not have pumpkins.

Bees help bring us some of our favorite foods. Thank you, bees!





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## Grasshopper's Gross Lunch



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Grasshopper's Gross Lunch Level H Leveled Book © Learning A-Z Written by Alyse Sweeney Illustrated by Patrick Girouard

CorrelationLEVEL HFountas & PinnellHReading RecoveryDRA


Day after day, the green grasshopper grazed. Most of the time, Grasshopper grazed on green leaves.

Grasshopper's Gross Lunch • Level H



Sometimes, he grazed on grass.

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But Grasshopper was tired of grazing on green leaves and grass. "I'm going to eat new food today," he said. Then, he hopped into the forest.



Grasshopper grinned when he saw all the new food to eat.



"Maybe these green berries will taste great," said Grasshopper. "Gross!" he groaned. He hopped to find something else to eat.





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"Maybe these gray nuts will taste great," said Grasshopper. "Gross!" he groaned, hopping on.



"Maybe this sweet honey will taste great," said Grasshopper. "Gross!" he groaned. "I'm hopping home to graze on green leaves and grass," said the grumpy grasshopper.



At home, Grasshopper greeted his friends. He said, "I just ate berries, nuts, and honey." "Those foods aren't great for grasshoppers like me. They're gross!" he said.



His friends said, "Don't you know? Green leaves and grass are the greatest foods for grasshoppers." "Be glad you are a grasshopper!" they said.



Now Grasshopper always grins as he grazes on green leaves and grass.

Grasshopper's Gross Lunch • Level H

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# **Extreme Insects**

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## Extreme Insects



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Front cover: Ambush bug

Back cover: Robber fly eating a meal

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A robber fly dines on another insect.

### Introduction

They are food for each other Insects are always in danger. They have many enemies. as well as other animals.

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A peanut-head bug's looks and its skunk-like spray help keep it alive.

Insects have many **traits** that help them stay alive. These traits include size, looks, and weapons. Let's look at some of the **extreme** traits insects have that help them.







Goliath beetles are one of the largest insects in the world.

### **Extreme Size**

This beetle can grow as long as a pen. It can weigh as much as a banana. Extreme size and a hard cover **protect** it from its enemies.



A walking stick's size and looks help keep it from being eaten.

This insect can grow longer than a new pencil. Its size frightens smaller insects away. Animals don't eat it because they think it is just a big stick.



Trash bugs carry leftovers on their backs to hide from animals that might eat them.

# **Extreme Look-Alikes**

Many insects look like other things. Their looks help them hide from animals that want to eat them.

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Can you find the insect in this picture?

Some insects look like parts of plants. They can look like leaves, flowers, stems, or even thorns.



A Sphinx moth caterpillar can puff up its spots so it looks like a cobra.

There are insects with large fake eyes to scare hungry animals away. When scared, this **caterpillar** can make itself look like a snake.

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Ambush bugs have thick front legs to catch bees and flies.

# **Extreme Weapons**

Some insects have extreme weapons to help them survive. Some of these insects use their weapons to get food. Others use their weapons to keep from *becoming* food.



An antlion larva traps and eats ants with its extreme jaws.

This insect digs a pit in the sand. It traps ants in the pit. Then it grabs an ant in its large, sharp jaws. Yummy!



The assassin bug's beak makes it deadly.

This bug jumps on other insects. It stabs them with its sharp beak. It shoots out **poison** that turns their insides to goo. Then the bug sucks out the goo. *Slurp!* 



The bombardier beetle's spray keeps enemies away.

Watch out! This beetle sprays out boiling hot poison when touched. It stops animals from trying to eat it.

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		Glossary	
	caterpillar	the second stage of the cycle of a butterfly or n the larva stage (p. 10)	e life noth;
	extreme	great or much more th (p. 5)	an usual
	poison	a substance that can kil or plants (p. 13)	l animals
	protect	to keep something from hurt (p. 6)	heing
	traits	qualities that make living	g things
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	Words to Know
community	mammals
endangered	pollution
lobes	reptiles

**Ocean Animals** 

Create a poster about one animal from the book. Include a Writing and Art

A Reading A-Z Level J Leveled Book • Word Count: 380

Connections

picture and interesting facts. Share the poster with your class. Science

an animal. Read your clues to a partner and have them guess Use the information from the book to write clues describing the animal.



Many kinds of animals live in the ocean.

They are part of the ocean community.

Ocean Animals • Level J



Most of the ones in this book are mammals, fish, or reptiles. Let's meet some of these ocean animals.

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I am a dolphin.

I have a sleek body and a strong tail to swim fast.

I live in a group called a pod, and I like to eat fish.

I whistle to talk to other dolphins.



I am a walrus, and I have ivory tusks.



I use them to dig for clams and to protect myself.

I live on ice and in cold water.

My thick layer of fat keeps me warm.

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My eyes and nostrils are at the ends of lobes. I am a hammerhead shark, and

Ocean Animals • Level J













I am an octopus.

- I have a soft body and no skeleton.
- I have eight arms with suckers.
- I shoot black ink from my body
- to hide and escape from danger.
- I can also change the color of my skin.







- I am a California sea lion.
- I am smart, noisy, and playful.
- I bark like a dog, and I am covered by short fur. I eat squid, octopus, and fish.
- ω



I am a large and fierce shark. that are shaped like triangles. I am a great white shark. I have very sharp teeth

I eat seals, dolphins, and fish.







I am a manta ray.

I have fins that look like wings.

I am related to stingrays, but I do not sting.

Ocean Animals • Level J



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the biggest turtle in the world. I am a leatherback turtle,



I am covered with leathery skin instead of a shell.

Jellyfish are my favorite food.







<b>Glossary</b> a group of plants and animals that live together in an area (p. 3)	in danger of dying out completely (p. 15)	rounded or curved parts of bodies (p. 7) warm-blooded animals with hair or fur (p. 4)	harmful materials in the air, water, or soil (p. 15)	cold-blooded animals that are covered with scales (p. 4)		Notes
community (n.)	endangered (adj.)	lobes (n.) mammals (n.)	pollution (n.)	reptiles (n.)	22	
			is home to all these animals.	em are <b>endangered</b> . Fer because of <b>pollution</b> and hunting. • oceans clean will help keep these animals alive.	5	Notes

P





Bonk is bragging.

- "I know how to swim," he says.
- "I swam across the ocean."
- "I swam faster than dolphins."

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Jupe, Lurk, and Snag get ready. They put on their swimsuits and swim trunks. They bring their towels and goggles.





"Good for you," says Jupe. "You can help us at swimming lessons." "Swimming lessons?" asks Bonk. "Yes," says Jupe. "They start today."



"Are you ready. Bonk?" asks Snag. "No. My swim trunks are too small," says Bonk. "My towel is too big."

"My goggles are too big."

"I can't go to swimming lessons." says Bonk.

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"But it won't be the same without you," says Snag. Snag trades swim trunks with Bonk. Lurk trades goggles with Bonk. Jupe trades towels with Bonk. "Now you can go with us," says Jupe.



The monsters jump in. But Bonk sits at the side of the pool. "This water is too cold," says Bonk. "It is too wet," says Bonk.

"I will just watch today."





At the pool, monsters dive and splash. Lurk, Jupe, and Snag meet their teacher. "It is time to get in the water," says the teacher.

ω



The monsters dive under the water. They blow bubbles. They kick their feet. The monsters have fun. But Bonk does not.

9



After swimming lessons, Jupe sits by Bonk. "Are you afraid of the water, Bonk?" she asks. Bonk crosses his arms and stomps his feet. "I am a good swimmer," he says.

Bonk and the Big Splash • Level I



Jupe is quiet. "Okay, I am not a good swimmer," says Bonk.

"I know how to swim a little bit," says Bonk.

12

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Jupe is still quiet. Bonk hangs his head.

"I don't know how to swim at all!" says Bonk.





Jupe pats Bonk's back. She rubs his head. "Then we can all learn together," she says.

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"TYteupcoort thete allo setts "vistanyaid gplessons."	"SWimemeindides.coms.Wimaßiks Bonk.	"Yesn'ny dokat di tupbe". "Sidiye ya shakrit to day."	2	Potes	
			ΰ		
He has a life jacket.	He has water wings.	He has a dinosaur float.	Bonk and the Big Splash • Level I	Notes	

Γ

"GwedtfewigmaingdastJaiget." he says.

The next day, Bonk is the first monster ready.

Bonk and the Big Splash • Level I

18









A Reading A-Z Level J Leveled Book • Word Count: 303

Sharks





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Reading Recovery Fountas & Pinnell Correlation LEVEL J DRA 8 7



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sharks • Level J 3



## Introduction

Sharks have lived in the oceans since before **dinosaurs** walked on Earth.

Hundreds of kinds of sharks can be found all over the world.

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Sharks are fish, but their skeletons are made

of cartilage instead of bones.

Cartilage is what gives human ears their shape.

13 14 Unlike most fish, sharks have rough skin.





Sharks have a good sense of smell. They also see well in the dark. Sharks can sense other animals moving in the water.

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Shading helps sharks sneak up on other animals.

#### Description

The huge whale shark is the largest fish in the world. Some sharks are only a few inches long. Sharks come in many sizes.

Sharks • Level J





This shading makes it harder for other animals to see them. Many sharks are dark on the top and light on the bottom.



Sharks swim by swinging their tails from side to side. Fins help sharks steer, turn, and keep their balance.



#### Eating

When one tooth breaks off, another one moves up Most sharks have many rows of teeth. to take its place.



Most sharks eat fish.

Large sharks eat sea lions, dolphins, and other sharks. Some sharks eat shellfish.

These sharks have flat teeth for crushing shells.

Sharks • Level J



The huge whale shark has tiny teeth but doesn't It swallows very small ocean plants and animals that float near the ocean's surface. use them when eating.

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## Shark Attacks

Many people are afraid of sharks, but most sharks do not attack humans.

Great white sharks are one of the few kinds of sharks that **136** are dangerous to people.



## Shark Hunting

Many people eat shark meat, and shark fins are used to make soup. People hunt sharks for their skin, oil, and teeth.

	cartilage (n.)	Glossary an elastic tissue that makes up the skeletons
		of sharks, and rays (p. 5)
シンシン	dinosaurs (n.)	a group of reptiles that lived long ago (p. 4)
	steer (v.)	to turn to move in a desired direction (p. 9)
any kinds of sharks are now in danger of being ompletely killed off. Narks are an important part of the balance of life the world's oceans.	surface (n.)	the part of the ocean or land that touches the air above it (p. 12)
IS • Level J	5	
Votes		Notes



Draw pictures on your poster and label them. Make a poster about the cycle of the Moon.

Draw a picture of the Moon tonight. Describe your picture to a partner.

Science and Art

A Reading A–Z Level C Leveled Book • Word Count: 54

Connections

Writing and Art

The Moon



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The Moon

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The Moon looks different over time. The changes happen in a cycle.

The Moon • Level C



The Moon is dark tonight.



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# The Moon is full tonight.

The Moon • Level C



The Moon is half full tonight.

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The Moon • Level C

The Moon is thin tonight.



## The Disappearing Moon

A Reading A-Z Level J Levelled Book Word Count: 468



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## The Disappearing Moon



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•	•
The Scared Squirrel	The Wise Old Owl



# The Scared Squirrel

Squirrel was scared. He could not eat. He could not sleep. He could only worry.

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Tomorrow, it will be even smaller."

The Disappearing Moon • Level J

before it is too late."


- The next night, the animals looked at the moon. "Is the moon really getting smaller?" asked Deer.
  - "I don't know," said Raccoon.





There was no question a few nights later. The moon really was smaller. "Squirrel is right," said Raccoon. "The moon is disappearing."

Z



- "What is this I hear about the moon disappearing?" asked Skunk. "Look!" Squirrel pointed up at the moon. Only three-quarters of the moon was left now.
  - "It is disappearing," said Skunk.



# The Wise Old Owl

A few nights passed and only half of the moon was left. The animals feared the moon would soon disappear. After a week their fears came true. The moon disappeared. They all ran to wise old Owl to tell him that the moon had disappeared. "You're all very silly," said Owl. "Gather around and I will teach you

"Gather around and I will teach you a lesson about the moon."

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"There are two things you need to know about the moon," said Owl. "First, the moon does not shine on its own. The sun lights up the moon. Second, the moon does not sit still in the sky. It moves around Earth."



- "Oh, yes," said Owl. "There is one more thing you need to know. The moon is like a ball." "The sun can only light up one side of the moon. So when the moon moves
  - the moon. So when the moon moves around Earth, you see only the part of the side that the sun lights up."



Owl went on to say that sometimes you only see half of the lit side. "This is called a half moon," he said. "At other times you see all of the lit side. This is called a full moon."

"Sometimes you do not see the lit side at all. You see the dark side. This is called the new moon."

"But don't worry. The moon did not disappear," said Owl. "Soon after a new moon, you will see a small part of the lit side come back."



The other animals began to feel better after listening to Owl talk.

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A few nights after Owl's lesson, the animals were out playing. Squirrel looked up and saw a small sliver of the moon. "Owl was right," Squirrel yelled. "The moon is coming back!"





The moon grew bigger each night. Soon there was a full moon again. The animals had a full moon party!

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### The Goat and the Singing Wolf



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The Goat and the Singing Wolf

Level H Leveled Book

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CorrelationLEVEL HFountas & PinnellReading RecoveryDRA



A young goat was walking across a field. Suddenly, a hungry wolf jumped out of the bushes.



The goat ran for his life, but the wolf soon **caught** him.

The Goat and the Singing Wolf • Level H

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The hungry wolf licked his lips. He opened his jaws to eat the goat.



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The Goat and the Singing Wolf • Level H

me!" he begged.

"Do me one **favor** before you eat

the wolf could gobble him up.



"It's a small thing, really," said "What favor is that?" asked the wolf. the goat.

"I want to hear music once more

"Would you please sing me a song before you eat me?" he asked. in my life," said the goat.

The Goat and the Singing Wolf • Level H



The wolf thought for a moment. "Why not?" he laughed. "I can still eat you when I am done singing," the wolf growled.



So the wolf began to **howl** out a song for the goat. His mighty voice was loud and strong.

The Goat and the Singing Wolf • Level H

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The Goat and the Singing Wolf • Level H

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The wolf's howls soon brought the farmer's dogs running.



The pack of dogs quickly chased off the wolf.



The young goat laughed when he saw the wolf run away. "That was the best song I ever heard!" he chuckled.

The Goat and the Singing Wolf • Level H

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		Glossary
	begged (v.)	asked in an emotional
		way for something (p. 6)
	caught (v.)	grabbed and held
		something (p. 4)
	distracted	unfocused or unable
	(adj.)	to pay attention to
Not and a second second		something (p. 15)
	favor (n.)	a special act of kindness
The way of the second s		(b. 6)
and the second and the	goal (n.)	something that one
		is trying to do or
		accomplish (p. 15)
The wolf learned an important	howl (v.)	to make a long, loud cry
lesson that day.		(p. 10)
Do not become distracted when		

16

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a goal is within reach.



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## The Boy Who Boy "Wolfi"



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The Boy Who Cried "Wolf!" Level E Leveled Book © Learning A-Z An Aesop's Fable Retold by Anthony Curran Illustrated by Jeff Ebbeler

CorrelationLEVEL EFountas & PinnellReading Recovery7-8DRA8



One day, a boy was watching over his sheep. He was very bored. He wanted to play a trick.



"Help! Wolf!" cried the boy.

The Boy Who Cried "Wolf!" • Level E

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The people of the town ran to help. There was no wolf. The boy laughed.



The next week he did it again. "Help! Wolf!" cried the boy.

The Boy Who Cried "Wolf!" • Level E

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Again, the people of the town ran to help. Again, there was no wolf. Again, the boy laughed.



Then, a wolf really did come for the sheep.

The Boy Who Cried "Wolf!" • Level E

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The Boy Who Cried "Wolf!" • Level E

"Help! Wolf!" cried the boy.

6

9

164





The boy learned a lesson. People don't believe liars, even when they tell the truth.

12

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sheep away.







Draw to show how to take apart the group of cats to show 2 groups, the ones sleeping and the ones awake.





The squares below represent a cube stick. Color the squares to match the rabbits. 4 squares gray. 1 square black. Draw the squares in the number bond.



### Fill in the missing number.

0, 1, 2, 3, 4,	, 4, 3, 2, 1,0
0, 1, 2, 3,, 5	5,, 3, 2, 1,0
0, 1, 2,, 4, 5	5, 4,, 2, 1, 0
0, 1,, 3, 4, 5	5, 4, 3,, 1,0
0,, 2, 3, 4, 5	5, 4, 3, 2,,0
, 1, 2, 3, 4, 5	5, 4, 3, 2, 1,
0,, 2, 3, 4, 5	0, 1, 2, 3,,5
0, 1,, 3, 4, 5	5, 4,, 2, 1, 0
0, 1, 2,, 4, 5	0, 1,, 3, 4, 5
0, 1, 2, 3,,5	, 1, 2, 3, 4, 5

### Name\_\_\_\_\_

Date \_\_\_\_\_

Draw the shapes and write the numbers to complete the number bonds.



Write numbers to complete the number bond. Put the dogs in one part and the balls in the other part.



Look at the picture. Tell a story about the birds going home to your neighbor. Draw a number bond, and write numbers that match your story.





Draw and write the numbers to complete the number bonds.





Look at the picture. Tell your neighbor a story about the dogs standing and sitting. Draw a number bond, and write numbers that match your story.



### Name\_\_\_\_\_

Date \_\_\_\_\_

### Write numbers to fill in the number bonds.



### Name\_\_\_\_\_

Date \_\_\_\_\_

Fill in the number bond. Tell a story about the birds to your friend.



Tell a story that matches the number bond. Draw pictures that match your story.



Tell a story. Draw pictures and a number bond that match your story.

The squares below represent cube sticks. Draw a line to match the number bond to the cube stick.



















Look at the birds. Make 2 different number bonds. Tell a friend about the numbers you put in one of the bonds.





Color some squares green and the rest yellow. Write numbers in the bonds to match the colors of your squares.





	••••	• • •
* * * *	* * * * * * * *	* * * *
9	7	8
•••		
--------------------------	--------------------------	
* * * * * * * *	* * * * * * * *	
6	10	

matching game cards



Tell a story about the shapes. Complete the number bond.



The squares below represent cube sticks. Color the cube stick to match the number bond.









In each stick, color some cubes orange and the rest purple. Fill out the number bond to match. Tell a story about one of your number bonds to a friend.





Draw 8 dots, some blue and the rest red. Fill in the number bond.





Blue Dots



Draw a line to make 2 groups of dots. Fill in the number bond.



## 1 \* \* \* \* \* \* \* \* \* 2 3 4 \* \* \* \* \* \* \* \* \* 5 6 \* \* \* \* \* \* \* \* \* \* \* 7 8 9 5 2 10

## Circle the number to make 6.



Color some of the faces orange and the rest blue. Fill in the number bond.



Color some of the faces orange and the rest blue. Fill in the number bond.



Color some of the faces orange and the rest blue. Fill in the number bond.



#### Name\_\_\_\_\_

Date

These squares represent cubes. Draw a line to break the stick into 2 parts. Complete the number bond and number sentence.



On the back of your paper, draw a cube stick with some red cubes and some blue cubes. Draw a number bond to match.

#### Name \_\_\_\_\_

Date \_\_\_\_\_

5 boxes are colored. Color 3 more boxes to make 8. Complete the number bond.





5 boxes are colored. Color more boxes to make 7. Complete the number bond.





Color 6 cubes. Complete the number bond.



Draw more to make 6. Complete the number bond.





Draw more to make 7. Complete the number bond.





Draw more to make 8. Complete the number bond.





## Draw more to make 5.



#### Name

Date

Fill in the number bond and number sentences.



3 geckos have black spots, and 3 geckos have no spots. There are 6 geckos.



There are 6 monkeys. 4 monkeys are swinging on the tree, and 2 monkeys are taking a nap. Draw a picture to go with the story.



Create your own story, and tell your partner. Have your partner draw a picture of your story and create a number sentence to go with the picture.

#### Draw more to make 6.





### Circle the number to make 7.

#### Name \_\_\_\_\_

Date

There are 7 animals. There are 5 giraffes and 2 elephants.



At the store, there was 1 big bear and 6 small bears. There were 7 bears.



The squares below represent cubes. 4 gray cubes and 3 white cubes are 7 cubes.



Color the cubes to match the cubes above. Fill in the number sentence.



Create your own story, and tell your partner. Have your partner draw a picture of your story and create a number sentence to go with the picture.

#### Name

Date

Fill in the number sentences.

There are 8 fish. There are 4 striped fish and 4 goldfish.

\_\_\_\_\_



There are 8 shapes. There are 5 triangles and 3 diamonds.



There are 6 stars and 2 moons. There are 8 shapes.



There are 8 shapes. Count and circle the squares. Count and circle the triangle.



There are 8 flowers. Some flowers are yellow, and some flowers are red. Draw a picture to go with the story.





Create your own story, and tell your partner. Have your partner draw a picture of your story and create a number sentence to go with the picture.



Circle the number to make 8.

#### Name\_

Date

There are 4 snakes sitting on the rocks. 2 more snakes slither over. How many snakes are on the rocks now? Put a box around all the snakes, trace the mystery box, and write the answer inside it.



There are 5 turtles swimming. Draw 2 more turtles that come to swim. How many turtles are swimming now? Draw a box around all the turtles, draw a mystery box, and write the answer.



Today is your birthday! You have 7 presents. A friend brings another present. Draw the present. How many presents are there now? Draw a mystery box, and write the answer inside it.





Listen and draw. There were 6 girls playing soccer. A boy came to play. How many children were playing soccer then? Draw a box around all the children.

6	+	1	=	

Listen and draw. There were 3 frogs on a log. 5 more frogs hopped onto the log. How many frogs were on the log then? Draw a box around the frogs, and box the answer.

#### Name

Date

There are 4 green balloons and 3 orange balloons in the air. How many balloons are in the air? Color the balloons to match the story, and fill in the number sentences.



Dominic has 6 yellow star stickers and 2 blue star stickers. How many stickers does Dominic have? Color the stars to match the story, and fill in the number sentences.



There are 5 big robots and 1 little robot. How many robots are there? Fill in the number sentences.



Listen and draw. Charlotte is playing with pattern blocks. She has 3 squares and 3 triangles. How many shapes does Charlotte have?

# 

Listen and draw. Gavin is making a tower with linking cubes. He has 5 purple and 3 orange cubes. How many linking cubes does Gavin have?



1	Y		,	15
2	* * * *	* * *		*
3	•••	•		•••
4	4	1		4
5	¥		<b>*</b>	15
6	* * *	* *	* * * *	*
7	۰.	•••	•	•
8	3	3	1	2
9	15	Y	15	
10	* *	* * * *	* * *	* *
11	2	2	3	1
12	*	* * * * *	* * *	* * * *
13	1	4	5	3
14		•	•	
15	5	2	1	0

## Circle the number to make 5.

#### Name \_\_\_\_

Date

Devin has 6 pencils. He put some in his desk and the rest in his pencil box. Write a number sentence to show how many pencils Devin might have in his desk and pencil box.



Shania made 7 necklaces. She wore some of the necklaces and put the rest in her jewelry box. Use the linking cubes to help you think about how many necklaces Shania might have on and how many are in her jewelry box. Then, complete the number sentences.



Tommy planted 8 flowers. He planted some in his garden and some in flowerpots. Draw how Tommy may have planted the flowers. Fill in the number sentences to match your picture.



Create your own story, and draw a picture. Fill in the number sentences. Tell your story to a friend.



#### Name \_\_\_\_















Pick 1 mouse picture, and tell a story to your partner. See if your partner can pick the picture you told the story about.

Cross out the bears to match the number sentences.

6 - 1 = 5	7 – 2 = 5
6 - 4 = 2	7 - 3 = 4
8 - 1 = 7	8 - 2 = 6



Anthony had 5 erasers in his pencil box. He dropped his pencil box, and 4 erasers fell on the floor. How many erasers are in Anthony's pencil box now? Draw the erasers, and fill in the number sentence.

Tanisha had 5 grapes. She gave 3 grapes to a friend. How many grapes does Tanisha have now? Draw the grapes, and fill in the number sentence.
Complete the number bond.



# Complete the number bond.



## Name\_\_\_\_\_

Date

## Fill in the number bonds.





## Fill in the number sentences and the number bonds.

### Name \_\_\_\_\_

Date \_\_\_\_\_

Say the number sentence. Fill in the blanks. Cross out the number.



Draw and fill in the number bond and number sentence.



## Name\_\_\_\_\_

Date \_\_\_\_\_

Fill in the number sentences and number bonds.





### Name\_\_\_\_\_



There are 9 shirts. Color some with polka dots and the rest with stripes. Fill in the number bond.



There are 9 flowers. Color some yellow and the rest red. Fill in the number bond.



There are 9 hats. Color some brown and the rest green. Fill in the number bond.



# There are 9 jellyfish. Color some blue and the rest a different color. Fill in the number bond.



There are 9 butterflies. Color some butterflies orange and the rest a different color. Fill in the number bond.



Draw 9 balloons. Color some red and the rest blue. Make a number bond to match your drawing.

## Name \_\_\_\_\_

Date \_\_\_\_\_

The squares below represent cube sticks.

Draw a line from the cube stick to the matching number bond. Fill in the number bond if it isn't complete.



## Draw and color cube sticks to match the number bonds.



## Name

Date

Benjamin had 10 bananas. He dropped some of the bananas. Fill in the number bond to show Benjamin's bananas.



Savannah has 10 pairs of glasses. 5 are green, and the rest are purple. Color and fill in the number bond.



Xavier had 10 baseballs. Some were white, and the rest were gray. Draw the balls, and color to show how many may be white and gray. Fill in the number bond.





There were 10 dragons playing. Some were flying, and some were running. Draw the dragons. Fill in the number bond.



Create your own story of 10. Draw your story and a number bond to go with it.

## Name\_\_\_\_\_

Date

These squares represent cube sticks. Look at the linking cube sticks. Draw a line from the cube stick to the number bond that matches. Fill in the number bond if it is not complete.



## Draw and color cube sticks to match the number bonds.

















# **Science and Social Studies**



# Engineering and Design Process Background Information for Teachers, Parents, and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about engineering and design process. It is designed to complement the **Engineering and Design Process** (https://jr.brainpop.com/science/beascientist/engineeringanddesignprocess/) topic page on BrainPOP Jr.

Remind children that engineering is the area of science and technology that explores designing, building, and improving things to solve problems. Explain that engineers often collaborate, or work together, to solve a range of different problems from inventing tools that allow us to gather information about our world to building homes and planning cities, and much more! Lead a discussion about contributions made by the engineering and design community.

Review that engineers follow a process for solving problems. First they find and understand a problem. Invite children to think of a problem. What do people struggle with every day? What do people do or use that can be improved? Encourage children to think of a way to improve an invention that already exists. Recall that in the movie, the problem was the squirrels were eating the food in the birdfeeder. Annie and Moby understood that they needed to engineer a way to prevent the squirrels from getting inside the feeder.

The next step in the process is gathering information about the problem. Encourage children to research the problem they identified. Explain that this might include reading books, looking online, or talking to an expert. Have them take notes, draw pictures, take photos, or record video. Remind children that in the movie, Moby video recorded the squirrels to understand how they were getting into the birdfeeder.

The next step of the process is to make a plan. Using information they've gathered about the problem, engineers brainstorm different ways to solve it. Encourage children to draw pictures or make models of different ideas. Invite them to explore more than one design, and then list a step-by-step plan to test their design, including the required materials.

The final step is to test and improve the design. As children carry out their plan, have them observe by taking notes and collecting data to see if their design solves the problem. Tell them not to be discouraged if their first plan doesn't work. Explain that when a design isn't successful, engineers explore what did and didn't work, and come up with a new design to test. Some of the most important inventions were made by engineers and designers whose ideas didn't always work. They approached the problem in a different way to solve it!

Finally, it's important to explain to children that they can jump around the engineering and design process. If a plan doesn't work to solve a problem, they can go back and improve the design and test again. If the improvement still isn't successful, children can go back and brainstorm more ideas that solve the problem and choose a different idea to plan and test.

## Making Observations Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about making observations. It is designed to complement the **Making Observations** (http://www.brainpopjr.com/science/scienceskills/makingobservations/) topic page on BrainPOP Jr.

Help children develop science inquiry skills and empower them to ask questions and make observations about the world around them. In this movie, children will learn different ways to make observations. This movie can be helpful as a review before beginning science projects or experiments. We highly recommend revisiting the movie throughout the school year.

Remind children that when they observe, they pay close attention to something. They use their five senses to observe-seeing, hearing, touching, smelling, and tasting. Review the five senses with children and pick something to observe together, such as an apple. How does it look? Take a close look at the apple together and describe it. Remind children to observe it closely, noting its color, size, and shape. Remind them to look at all of its different parts. How does it smell? Have children compare it to other smells they know. Does it smell sweet like candy or a flower? Does it smell sour like a lemon? Then have them feel it, noting its weight and texture. Is it light or heavy? Is it smooth or bumpy? Is it soft or hard? Then have your students listen to the apple. How does it sound? While some objects don't make sound on its own, they make sound when you interact with them. Take a bite of the apple. What do you hear? Have children note how the apple tastes. Is it sweet, sour, crunchy, or soft? It is important for children to understand that they should *only* touch or taste something if an adult says it is safe. Encourage them to find other ways to describe the apple.

Remind children that when scientists observe something, they often look at it from different angles. Things can look different from different places. They also take their time to observe since things can change in surprising ways over time. Some scientists spend years studying the same thing and learn more and more as time goes on. Observe the weather with children. What is the weather like in the morning, afternoon, and night? How does the temperature change? If you chart the weather on a daily basis, you can look back over your calendars from the past months and observe how the weather changes over time and seasons. Help children understand that making observations over an extended period of time aids them in gathering more accurate information about something. What if you only recorded temperature at night? It would be difficult to understand how the temperature changes over the course of a day, week, month, or year.

Children should be familiar with different tools that can help them observe. Magnifying glasses and microscopes can help them see things up close, while binoculars enable them to see things that are far away. Rulers and measuring tapes allow them to measure length, width, and height, while scales help them measure weight. Balances help people compare different objects. Thermometers let them record how hot or cold something is. Children can use stopwatches and clocks to time something. Encourage them to use many different tools when they observe, and to learn what each tool best aids their observations.

Remind children that recording their observations is just as important as making them. They may want to write their observations in words or numbers. For example, the apple is red, shiny, and smooth and has six seeds. They may want to draw pictures, take photos, make videos, or even record sound. Encourage them to be thorough and creative. They should take notes and organize their observations in a chart, diagram, or other graphic organizer. Different organizers work best for different objects, so arm children with a variety of tools they can use as they observe and find the one that's best for them. It is important that children learn to be neat and organized when recording their observations, because they will need to be able to find and read the results at a later date.

Making Observations Background Information for Teachers, Parents and Caregivers | BrainPOP Educators

When scientists make observations, they learn the world around them and help answer questions. They can use what they learned to make predictions and their observations often lead to more questions and investigations. Help children develop strong inquiry skills and foster their curiosity and a love of science.

# Science Projects Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about science projects. It is designed to complement the **Science Projects (http://www.brainpopjr.com/science/scienceskills/scienceprojects/)** topic page on BrainPOP Jr.

Doing science projects is a fun way for children to explore the world around them, while developing critical thinking and research skills. Remind children that when they do a science project, they follow the scientific method. They ask a question, make a hypothesis, plan and carry out an experiment, observe and record data, draw conclusions, and share their results with others. We recommend screening BrainPOP Jr.'s movie on the **Scientific Method (http://www.brainpopjr.com/science/scienceskills/scientificmethod)** for review.

Children can get ideas for science projects just by looking at the world around them and ideas can strike at any time. Encourage children to carry notebooks with them and jot down any questions and ideas. Some children may wonder how a toy works, what causes a natural phenomenon, or wonder how people affect the environment. Some children may want to investigate a claim made by a commercial or advertisement or build a model to illustrate a scientific principle. Children can also get science project ideas from the myriad of resources available at the library and on the Internet. Remind children that they should choose a topic they are interested in and want to explore further. Science projects can take weeks or months, so it's important that they are interested and excited about their topics, and that they choose topics which are suitable for their time frame. Children should learn to plan ahead and assess whether or not they have enough time and resources to complete their proposed project. They may need to revise or rethink their project in order to complete it on time. Encourage children to research different topics and pick the right one for them, their resources, and their schedule.

The first step of the scientific method is to ask a question and set a purpose. Remind children that a good question is clear, simple, and specific. Children should be able to come up with a test that can answer the question. This may require further research and fine-tuning a question to fit the purpose of the project. Some children may ask a question that cannot be answered through a science project or is too challenging. Provide guidance to teach them to simplify their question into one that can be answered through an experiment completed by themselves or with very little help from adults. Review with children that good science project questions can be yes-or-no or making comparisons. Children should understand their questions before taking any step further in the scientific process.

After children have picked questions, the next step is to make a hypothesis, or prediction. Review that when they predict, they use what they know to explain what might happen. "If. . .then" statements can help them come up with a good hypothesis. Children should write their hypotheses down before proceeding with an experiment. It is a good idea for children to reserve a special notebook for their hypothesis and future notes, to make projects easier and more organized.

The next step is to plan and complete an experiment. As children plan their experiments, remind them to keep their science project questions in mind. Does their experiment answer their question? They may need to revise their experiment plan in order to answer their question. Make sure children have enough time and resources to finish their experiments. Experiments that involve building models or growing plants can take several weeks. Explain to children that many scientists repeat their experiments in order to confirm their findings. This requires careful organization and planning in order to finish the entire project before the deadline. Encourage children to think ahead and set checkpoints and goals throughout their projects. Have children write specific steps for the experiment and include all the materials they will need.

#### Science Projects Background Information for Teachers and Parents

As they do their experiments, remind them to observe and keep detailed notes. Some may want to take photos, draw pictures, or even take videos of their experiments. They can use charts and graphs to record their data as they complete their experiments. Noting any changes as they develop will not only keep children interested, but also provide data for them to create charts to share as the project develops.

After completing their experiments, children should draw conclusions about what they saw and learned. What happened in their experiments? Which developments were expected, and which were unexpected? Children should assess whether or not their hypotheses were correct. Teach children that an incorrect hypothesis does not mean the experiment is not successful. Experiments provide an opportunity to learn and the results can be used to gain and expand knowledge.

The final step of the scientific method is to share results with others. Children can create a poster, presentation, report, or even a video on their projects. Encourage them to be creative. As children share their work, have them ask questions and think about each project. Good science projects inspire and excite people and lead them to ask more questions they can investigate or research further.

## Parts of a Plant Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about the parts of a plant. It is designed to complement the Parts of a Plant (http://www.brainpopjr.com/science/plants/partsofaplant/) topic page on BrainPOP Jr.

In this movie, you'll learn that plants exist in different shapes, sizes, and colors, but most share similar structures. It is important for your child to understand the basic structures of a plant and their functions.

The root is the part of the plant that grows into the ground. The root not only anchors the plant into the soil, but it also absorbs water and minerals. Root systems can be bigger than the plant they support, though they tend to grow in length and not width due to their search for water, and roots often develop tiny hairs that help to maximize the absorption of nutrients.

The stem transports water and nutrients to the rest of the plant and also holds up the plant so it can receive as much sunlight as possible. There are two types of plant stems: herbaceous and woody. Flexible herbaceous plant stems, like those of tulips or chrysanthemums, die back to their roots every winter, and re-grow every spring. Woody stems, like the trunk of an oak tree, are less flexible and do not die back to the ground every year.

The leaves are the parts of the plant that are responsible for both converting sunlight, water, and carbon dioxide into food through photosynthesis and respiration. Flowers are structures responsible for producing seeds. Pollination, the transfer of pollen grains from a flower's anther to the stigma of the same or another flower, is necessary for plant reproduction. After flowers are pollinated, the flower turns into a fruit. The skin and flesh of the fruit protects the seeds inside. After the fruit ripens, it falls to the ground and the seeds inside have the opportunity to grow into new plants. Fruit can decay and release the seeds or animals can eat the fruit and leave the seeds behind in a new place. We recommend watching the Plant Life Cycle

(http://www.brainpopjr.com/science/plants/plantlifecycle/) movie together as a review or for extension.

In order to grow, plants need sunlight, soil, water, the right temperature conditions, and a safe place. Plants adapt in different ways to get the things they need to survive. An indoor plant near a window will bend toward the light. Many plants in shady places will grow larger leaves to maximize the amount of sunlight it receives. Plants that live in dry places will grow longer roots to find water deep below. Seeds will lie dormant until the right conditions for growth arise.

Plants are all around us—in our backyard and in our food. It's important for your child to understand how we use plants and how they are an important resource that needs to be conserved and protected.

Name:



#### Parts of a Plant Draw About It

What does your favorite plant look like? Remember to draw all the plant parts, like the roots, stem, and leaves!



# What do roots and stems do? Do the experiment and find out!

Celery Experiment	εψ <u>β</u>	ame:			
You'll need: -a clear cup -water -food coloring -a celery stalk with leav	1. Fill the cup halAdd a few dro2. Have an adultStick the stalk7es3. Leave the cele	<ol> <li>Fill the cup halfway with water. Add a few drops of food coloring.</li> <li>Have an adult trim the bottom of the stalk. Stick the stalk in the cup.</li> <li>Leave the celery stalk in the cup overnight.</li> </ol>			
Observe the celery the next day. How do the stem and leaves look?	Remove the celery and dry it off. Look closely at the root end. What do you see?	Have an adult slice a few pieces of the celery. What do you see?			

### What do you think would happen if you put a white flower in the cup?

### What do roots and stems do?

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# Plant Life Cycle Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about the plant life cycle. It is designed to complement the **Plant Life Cycle (http://www.brainpopjr.com/science/plants/plantlifecycle/)** topic page on BrainPOP Jr.

How does a seed grow? In this movie, you'll learn about the life cycle of a plant. You'll explore how a seed can germinate and sprout, grow into a seedling, and then turn into to adult plant. Adult plants can grow flowers and, when the flowers are pollinated, they can turn into fruit with seeds inside. After the fruit ripens, it can fall to the ground and the seeds inside can grow into new plants.

A life cycle shows how a living thing grows, changes, and reproduces itself. While plants' life cycles are continuous, the study of one plant's life begins with the seed. We recommend watching the Parts of a Plant (http://www.brainpopjr.com/science/plants/partsofaplant/) movie together as a review. Though we introduce the seed as a plant part that can grow into a new plant, it is important that children understand that plants can also grow from cuttings, bulbs, tuber pieces, or runners. Some seeds have an outer layer called a seed coat or hull, which provides protection and nourishment for the embryo inside. When a seed germinates, a small root begins to grow downward and a shoot grows upward. When the shoot breaks the surface, the plant is called a sprout. Sometimes the seed coat is still clinging to the sprout when it surfaces. The sprout uses water and nutrients from the soil along with sunlight and air to grow and change into a seedling. A seedling is a small plant with few leaves that is vulnerable to the elements. Eventually the seedling changes into a young adult plant. At this stage, the plant is bigger and may have more leaves. Thin branches will develop on young adult trees. Over time, the young adult plant will grow into an adult plant, which is sexually mature and has the ability to reproduce through spores or flowers. After flowers are pollinated, they enlarge and turn into fruit with seeds inside. The skin and flesh of the fruit protects the seeds and after the fruit ripens and decays, the seeds can start the life cycle all over again. Because there are so many threats to both seeds and seedlings, a plant will often produce large amounts of seeds to insure some will survive.

Many animals like birds, squirrels, deer, and bears eat fruit and their seeds. Some seeds can pass through their digestive tracts and get left behind in a different place. Seed dispersal allows plants to grow in different places and allows for a diversity of life in any given area. Wind can also disperse seeds to new places. Many trees, such as the maple, grow seeds with small "wings" that allow them to utilize the wind to travel to new places. Seeds for other plants, such as dandelions, are formed with small, light tufts of hair that enable them to float in the air. Plants can also use water to disperse their seeds. Lotus flower and mangrove plants drop their seeds into water, where they travel before taking root. Seeds of many plants often end up in streams, rivers, lakes, and even oceans—and can travel to different places. This is why some deserted islands have coconut trees; coconuts can travel miles in the ocean and wind up on land elsewhere.

Encourage your children to think of the life cycle of different plants and the importance of plants to our world. Understanding how living things grow and change will help your children understand their environment and the importance of caring for it.



A terrarium is a small container where a living thing is kept and observed. Grow your own plant inside a terrarium.



- 1. Remove the label from the bottle. Wash and rinse the bottle and cap.
- 2. Have an adult cut the bottle in half to make a top and a bottom part.
- 3. Fill the bottom part with soil. Add seeds to the soil and lightly water it.
- 4. Cover the bottom with the top half of the bottle. An adult may have to cut a slit in the top part to make it fit.
- 5. Place your terrarium in a sunny spot. Observe your seeds as they germinate and sprout over time.

### Draw a picture of your plant every few days to track its growth.

Date:	Date:	Date:
Date:	Date:	Date:
Date:	Date:	Date:



# Investigating Seed Germination Technical and teaching notes

This is a simple way to investigate the germination of seeds.

Another way of doing this is the 'Investigation Seed Germination on Agar' practical, also on our website.

### Apparatus

- A straight-sided 1.5 litre plastic bottle, with a diameter equal to that of your Petri dishes
- Wooden base, approx 30 x 7 x 2cm
- Bases from plastic bottles
- Circular grids photocopied onto acetate
- Petri dishes
- Filter paper
- Seeds
- Water, or other solution depending on the nature of the investigation

### Preparation of materials

#### To remove the label cleanly:

- Fill the bottle with hot water (not too hot or it will buckle)
- Screw the cap back on the bottle and in a short time the label should peel off.
- Empty the water out of the bottle.

#### To prepare the bottle:

• Use sharp scissors to cut the bottle as shown to create a reservoir which will support Petri dishes lying on their sides..



- If you leave a ragged cut edge it could cut fingers. You may wish to cover the cut edge with tape.
- Make a cradle for the bottle Use the coloured bases from plastic bottles, screwed to wood and cut to make the cradle

Wood base (30 x 7 x 2 cm approx.)

Acknowledgements to: Dr Jerry Roberts, School of Agriculture, University of Nottingham

# Plant Adaptations Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about plant adaptations. It is designed to complement the **Plant Adaptations (http://www.brainpopjr.com/science/plants/plantadaptations/)** topic page on BrainPOP Jr.

#### Before beginning this topic, we highly recommend reviewing the Parts of a Plant

(http://www.brainpopjr.com/topics/partsofaplant) and Plant Life Cycle (http://www.brainpopjr.com/topics/plantlifecycle) movies with children. This movie will build on the concepts taught in those movies, and explore how plants have different adaptations to help them survive in their habitats. For extension, you may want to explore the topics in the Habitats (http://www.brainpopjr.com/science/habitats) unit to learn about plants and animal adaptations in specific environments.

Remind children that plants need sunlight, water, air, and nutrients to survive. Explain that many plants get their nutrients—such as minerals—from soil. Living things also have ways to reproduce, or make individual organisms like themselves. Plants are found on nearly every continent and thrive in a large range of habitats—from the icy, windy <u>Arctic (http://www.brainpopjr.com/topics/arctichabitats)</u> to the hot, dry <u>Desert</u> (http://www.brainpopjr.com/topics/desert). Plants have different ways to meet these needs in their environments.

Review with children that a habitat is a place where a plant or animal lives. The desert habitat receives very little precipitation, and many deserts can reach very high or low temperatures, depending on their location. Plants have different adaptations to respond to lack of water. For example, cacti have thick stems that store water. Many species also have spines, which not only protect the plant against animals, but also provide shade to protect against water loss. Cacti roots are often shallow and widely spread under the surface. When it rains, the roots can absorb as much water as possible. Grasslands are areas that sometimes get rain but are subjected to long dry spells. The roots of many grasses grow very deep in order to reach water and moisture down below. Some plants are especially adapted to periods of rain and drought. The rose of Jericho is a plant found in the arid regions of the Middle East. During dry seasons, the plant sheds it leaves and curls up, protecting its seeds inside. Then during rains, it can open up and grow. The plant can lay dormant for many years until conditions are just right. The **Rainforests (http://www.brainpopjr.com/topics/rainforests)** receive large amounts of precipitation and plants are adapted to shed water easily to avoid fungus and bacterial growth. The leaves of many species of rainforest plants have waxy coatings and drip tips to shed and whisk away water quickly.

Help children understand that plants find ways to adapt to changing amounts of sunlight. For example, the rainforest floor is shady because of a thick canopy above. Plants that grow near the floor often have large leaves in order to take in as much sunlight as possible. Some vines, such as kudzu, will grow and climb upwards to reach sunnier areas. Kudzu can be seen in many parts of the United States, covering taller trees, shrubs, and even buildings. Some children may have seen plants that grow toward a light source, such as a sunny window. Phototropism is the movement of plants toward light and heliotropism is the turning of plants with the sun's direction. Examples of heliotropism include sunflowers that turn their leaves and flowers to track the Sun's movement across the sky. We encourage you to place a plant near a sunny window and observe how the plant grows over time to study phototropism.

Remind children that many plants get nutrients from the soil. But, some plants grow in areas where the soil lacks nutrients. Some plants, such as the Venus flytrap and the pitcher plant, have adapted by using animals for food to get the nutrients they need to survive. (Many carnivorous plants are now endangered—you may want to use the **Extinct and Endangered Species (http://www.brainpopjr.com/topics/extinctandendangeredspecies)** movie for further exploration.) Air plants have adapted to life without soil. They grow high in tree branches so they have better access to sunlight and they take in the nutrients they need from the air and rainwater. Some plants, such as the

mistletoe, are parasitic. This means they grow on a host plant and steal nutrients and water. Mistletoe does not usually kill the host plant, but the host does not benefit from the mistletoe's presence. Why might some plants steal nutrients from others? Discuss with children.

It is important for children to understand that reproduction is an important part of the life cycle. To reproduce, many flowering plants must spread their pollen to other plants. For example, when animals such as bees or hummingbirds drink flower nectar, pollen gets stuck to their bodies. They then carry it to other plants and enable them to reproduce. Flowers have many adaptations to attract animals, including scents and bright colors. Some plants use wind to help spread their seeds. Many children have experienced blowing on a dandelion and watching the seeds float away, with the help of the dandelion's light tufts of hair. The seeds of maple trees have thin wings that enable them to spin off and float with the wind. Some plants grow fruit that have seeds inside. When animals eat the fruit, seeds pass through them and they are left behind in new places where more plants can begin to grow. The devil's claw, or unicorn plant, gets its name from its seedpods, which have hooks that can attach themselves to passing animals. They are shaken off in new places and the seeds are dispersed.

Help children explore the world of plants! Teach them to appreciate how plants are adaptive organisms that have numerous ways to survive in their environments. Have children apply what they learn about adaptations to animals and even human beings. How have people in your community adapted to their environment?


## Plant Adaptations Talk About It

What are some ways plants have adapted to meet their needs for water, sunlight, air, and nutrients?

Need	Plant Adaptation
Water	
Sunlight	
Air	
Nutrients	

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1/1



Explore how plants adapt to their needs for light.

		Name:
You'll need: a plant sunny window	<ul> <li>1.Place the plant near a sunny window.</li> <li>2.Observe the plant after three days.</li> <li>3.Rotate the plant.</li> <li>4.Observe the plant over the next few days.</li> <li>Draw your observations.</li> </ul>	
Day 1		Day 3 - before you rotated it
Day 5		Day 7

### How did the plant change from Day 1 to Day 3?

### What happened a few days after you rotated the plant?

### How do plants adapt to meet their needs for light?

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# Butterflies Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about butterflies and moths. It is designed to complement the **Butterflies (http://www.brainpopjr.com/science/animals/butterflies/)** topic page on BrainPOP Jr.

The butterfly is an eye-catching insect that most children have noticed in their own communities. In this movie children can follow the caterpillar's transformation into pupa or chrysalis, before it becomes an adult butterfly or moth. Butterflies vary widely in size, shape, and color, and can be found practically everywhere on the planet, from woodland forests to the Arctic. **Migration (http://www.brainpopjr.com/science/animals/migration)** is also part of a butterfly's life cycle; the monarch butterfly has been known to make cross-Atlantic journeys! Studying butterfly life cycles is a great way for children to understand how living things grow, and change, and to learn about different animal adaptations.

Review with your children that a butterfly is an insect. Brainstorm different insects together. How are they like butterflies? How are they different? Like all insects, butterflies have three body segments (head, thorax, and abdomen), three pairs of legs, and a pair of antennae. Many insects use their antennae to "feel" their surroundings, but butterflies use them to smell. Butterflies have two wings, which often have bright colors and/or patterns. The delicate wings are covered in tiny, dry scales. They also have a special part called a proboscis (pronounced pro-BOSS-iss). Butterflies use the proboscis to suck up nectar from flowers. Your children can imagine it like a long straw that can curl up. In some species, the proboscis can be longer than the entire body of the butterfly. We recommend looking at different pictures of butterflies from resources in the library or researching on the Internet for a variety of images. What butterflies have your children seen in your area?

### Butterflies have numerous adaptations to stay safe. Some butterflies use camouflage

(http://www.brainpopjr.com/science/animals/camouflage/). Some species look exactly like dead leaves, and others have clear or translucent wings to help them hide in their environments. Many butterflies have noticeably bright colors and patterns. Many butterfly species are toxic and their brilliant markings serve as clear warnings to predators. Some butterflies even mimic the markings of toxic butterflies in order to stay safe. For example, the red-spotted purple butterfly looks just like the pipevine swallowtail butterfly. They have very similar markings and colorings, but the pipevine swallowtail is poisonous for predators, while the red-spotted purple butterfly is not—but the predator can't be sure which is which. Some butterflies are dark on one side of the wings and bright on the other side. When they flutter their wings, the sudden color can startle predators away.

Many children have seen a caterpillar. Explain that caterpillars can grow and change to become butterflies or moths. An adult butterfly lays several eggs, and soon a larva hatches from the egg. A larva is the young form of an animal that changes through metamorphosis. The larva of a butterfly is a caterpillar. The caterpillar eats and grows bigger and bigger, shedding its skin as it grows. The caterpillar soon slows its eating and enters the pupa, or chrysalis, stage of its life cycle. It begins to undergo metamorphosis, or big changes, to become an adult. It grows wings and develops into an adult butterfly. A fully developed, adult butterfly emerges from the pupa case and is able to mate and have young. Then the life cycle begins again.

It's a common misconception that the butterfly larva spins a cocoon. Moth larvae spin cocoons, but butterfly larvae turn into a pupa or chrysalis. This is the main difference between moths and butterflies. There are other subtle differences as well: Many species of moths are nocturnal, while butterflies are active during the day. Moths have thicker bodies and furrier wings than butterflies, protecting them against the colder temperature at nights. Moths also tend to be brownish in color, while butterflies are often brighter, or multi-hued. However, there are many species of butterflies that are nocturnal or are considered less colorful. Both butterflies and moths belong to the order *Lepidoptera* and share many characteristics.

Encourage your children to observe butterflies in their communities and look for caterpillars or even eggs. Help them explore the world around them and understand the startling diversity of life that can be found right in their own backyards.

Butterflies vary widely in size, shape, and color, and are a great subject for study as many children have observed them in their own communities. Butterflies can be found practically everywhere on the planet, from woodland forests to the Arctic. Studying butterfly life cycles is a great way for children to understand how living things grow and change and to learn about different animal adaptations.



Make a mobile that shows a butterfly's life cycle.



# Frogs Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about frogs. It is designed to complement the **Frogs (http://www.brainpopjr.com/science/animals/frogs/)** topic page on BrainPOP Jr.

Frogs can be found practically everywhere, from urban parks to woodland forests. They can even be found in some deserts! This movie will explain the life cycle of a frog and explore some reasons why frogs' populations are changing. We encourage you to learn about the frogs in your community as a way to extend and apply the material introduced in the topic. Before exploring frogs, you may wish to screen part of the **Classifying Animals** (http://www.brainpopjr.com/science/animals/classifyinganimals) movie, which introduces vertebrates and shares some information about amphibians. You might also be interested in the movie **Camouflage** (http://www.brainpopjr.com/science/animals/camouflage/), because frogs use both camouflage and mimicry to avoid predators.

Remind children that frogs are vertebrates, which means they have a spine, or backbone. Frogs are also amphibians, which means they have adapted to live both in water and on land. Remind children that amphibians are cold-blooded, which means they rely on their environment to control their body temperatures. They warm up on land and cool down in the water or mud. Frogs, toads, salamanders, newts, and caecilians are all types of amphibians.

Children may ask about the differences between frogs and toads. Both are in the same family, so technically toads are frogs. In general, people say that toads are fatter and squatter than frogs and have shorter legs. Frogs have bulging eyes, while the eyes in toads are more deeply set. Toads have rougher, drier skin with "warts," while frogs have smooth moist skin. (It may be important to note that toads' "warts" cannot transfer to people, despite what urban legends might say.) These general differences between frogs and toads may be applied to those found in North America, but not necessarily to species that live in habitats closer to the Equator. There the physical distinctions between frogs and toads are far more subtle, or may even be reversed, with toads being dampskinned and frogs having warts.

Remind children that adult frogs breathe through lungs, just like people. However, many frogs can breathe and drink water through their skin as well. Frogs have strong legs that help them jump and hop great distances relative to their body lengths. Many species of tree frogs have sticky feet and grasping toes to help them cling to leaves and branches. Some species have webbed feet, which help them swim. Flying or gliding frogs have large webbed feet to help them maneuver between trees. Most frogs have long, sticky tongues that help them snatch up insects and other prey. Remind children that prey is an animal that is eaten by other animals.

Where do frogs live? Ask children where they may have seen frogs. Frogs can only live in freshwater habitats, so they are not found in saltwater oceans and seas. Many frogs live near rivers, lakes, streams, and ponds, but they can also be found in jungles, rainforests, woodland forests, and even deserts. The Trilling frog lives in the deserts of Australia and burrows deep underground awaiting rain. It can spend months of its life underground. Frogs in colder, snowy areas may hibernate underground through the winter.

Remind children that living things have ways to survive in their environments. Review that a predator is an animal that eats another animal. Frogs have many predators, including snakes, birds, raccoons, fox, and even other frogs. Frogs therefore have many adaptations to stay safe and ward off predators. They can croak loudly to communicate with each other and scare off enemies. The sacs in their throat act like a drum to help magnify the sound. Many frogs, such as the laughing tree frog, use camouflage to blend in with their surroundings. Other frogs, like the fire-bellied toad, flash bright colors to scare off predators. Some of the most poisonous animals on the

#### Frogs Background Information for Teachers and Parents

planet are the brightly colored dart frogs. Some frogs have special glands that emit bitter toxins that make them unpalatable, or urinate on themselves to ward off would-be predators. Many frogs, such as the tomato frog, can puff their bodies up to appear larger—too large to swallow whole.

Review with children that a life cycle shows how a living thing grows and changes. Female frogs lay tiny, soft eggs in the water. Tadpoles hatch from the eggs, and they look very different from adult frogs. Tadpoles have long bodies and tails and live exclusively underwater, breathing through gills. As they develop, they grow back legs and then their front legs. They develop lungs and internal organs and eventually lose their tails. At this point, they are frogs and can live on land. When they become adult frogs, they can mate and start the life cycle again.

Today, many species of frogs are being threatened due to human activity. Some frogs are losing their habitats due to deforestation and wetland destruction. Pollution and pesticides are also a threat to many frog species. Since many frogs breathe through their skin, they are incredibly sensitive to toxins in the environment. In addition, invasive species are threatening frogs around the planet. For example, people have introduced trout to many freshwater rivers and streams. The trout have been eating eggs and tadpoles, harming frog populations. Bullfrogs are common in North America, but have been introduced to other countries as far away as Italy and Venezuela. The large bullfrogs often compete for food with smaller, native species of frog. As a result, bullfrog populations are exploding around the globe, taking over entire habitats. Climate change is affecting frogs as well. Rising temperatures are contributing to the spread of Chytrid fungus, a deadly fungus that infects frogs through their skins and is decimating frog populations.

Help children understand that frogs play an important role in many food chains and food webs. Many animals rely on frogs for food and if frog species are threatened or become endangered or extinct, the entire food chain can be affected. Help children understand that they should protect the environment and think about how their actions can affect living things around them. Encourage them to protect habitats in their community and be good global citizens.

#### 4/10/2020

Name:



### Frogs Draw About It

Imagine you are a frog. What would your habitat look like? Draw your answer.

# Mammals Background Information for Teachers, Parents, and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about mammals. It is designed to complement the **Mammals (https://jr.brainpop.com/topics/mammals)** topic page on BrainPOP Jr.

Together with children, brainstorm different animals they know and write them on chart paper or whiteboard. Ask how the animals are alike and different. Then ask how scientists group different animals. You may want to watch the BrainPOP Jr. movie **Classifying Animals (https://jr.brainpop.com/science/animals/classifyinganimals/)** for review. Explain that mammals are vertebrates, which means they have a spine, or backbone. They also have hair or fur, breathe air through lungs, and feed milk to their offspring. Most give birth to live young that require care from the parent. Share some examples of mammals such as cats, zebras, humans, and more. Children may not realize that some ocean animals, such as whales and dolphins, are mammals, too. Point out that they come up to the surface to breathe air through their lungs and that they are born with tiny hairs that eventually fall out.

How are mammals different from each other? Lead a discussion with children. Help them understand that mammals live in a range of habitats. You may want to explore the movies in the BrainPOP Jr. habitats unit, such as **Ocean Habitats (https://jr.brainpop.com/science/habitats/oceanhabitats/)**, **Deserts** 

(https://jr.brainpop.com/science/habitats/desert/), Rainforests (https://jr.brainpop.com/science/habitats/rainforests/), and Arctic Habitats (https://jr.brainpop.com/science/habitats/arctichabitats/]. Discuss how mammals' unique adaptations help them survive in their habitats. For example, explain how the camel's humps store body fat that can be turned into water—an important adaptation to the hot desert where it lives. Discuss how how the anteater's long, sticky tongue allows it to grab insects to eat and how chimpanzees have long, muscular arms that help it grab and swing from tree branches. Prompt children to consider the purposes of other adaptations such as a horse's hooves or an antelope's horns.

Point out that camouflage, or the ability to blend in with surroundings, is also an adaptation that helps animals survive in their habitats. Remind them that camouflage allows animals to hide from predators and sneak up on prey without being noticed. To review this concept, you may want to explore the BrainPOP Jr. **Camouflage** (https://jr.brainpop.com/science/animals/camouflage/) movie. Discuss the appearance of different mammals such as leopards, giant pandas, and deer and how their colorings help them survive in their habitats.

Explain to children that when an animal or plant is endangered, it means there are only a few left of its species. You may want to screen the **Extinct and Endangered Species** 

(https://jr.brainpop.com/science/conservation/extinctandendangeredspecies/) movie for further exploration. Discuss different reasons why species become endangered. One major cause is habitat destruction. People clear areas to make space for farmland or homes or to gather natural resources, like timber and minerals. When this happens, animals lose their homes, making it challenging for them to survive. Hunting also contributes to endangerment and even extinction. Animals are often killed for valuable parts, such as as elephants' tusks and snow leopards' fur. Fortunately, people are working together to save habitats and protect animals and plants.

Remind children that we share Earth with a wide array of living organisms, many of which are on the brink of extinction for reasons we can control. Encourage them to be global citizens by getting involved in ways to protect animals and our Earth. Actions may be as simple as recycling to conserve our natural resources, joining an organization that protects endangered organisms, or writing letters to local politicians.

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# Camouflage Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about camouflage. It is designed to complement the **Camouflage (http://www.brainpopjr.com/science/animals/camouflage/)** topic page on BrainPOP Jr.

Camouflage is how animals blend in with their environment. Before watching the movie, invite children to brainstorm reasons why animals would want to blend in with their habitats? Discuss their ideas and brainstorm different animals that use camouflage. How are they alike? How are they different? This movie will explore how different animals use camouflage to stay safe in their habitats, to help them hunt, or to communicate with others.

Animals can use camouflage to help them remain hidden from predators, particularly those who primarily hunt using vision instead of smell. Some animals are born with similar markings to leaves or stones that are always present in their environment. Walking sticks, with their dark skinny bodies and swollen joints, escape predators due to their resemblance to twigs. Other animals change their appearance as their surroundings change: An octopus can change the color and texture of its skin extremely quickly in order to hide in the changing terrain of the ocean floor. An Arctic fox will change the color of its fur based on the seasons. In the warmer months, the Arctic fox will grow brown fur to hide in the trees, and in the winter, it will grow white fur to hide in the snow.

Some animals change colors not to camouflage themselves, but to express their mood. Chameleons can turn yellow, dark blue, or even black if they become angry. Some animals have special patterns, or markings that help them blend in with each other and confuse predators. For example, zebras use their stripes to confuse their main predator, lions. Zebras' stripes prevent lions from focusing on one animal. Some animals use mimicry to confuse and avoid predators. Mimicry is a form of camouflage in which an animal resembles another animal. Some harmless snakes—and even some caterpillars—mimic rattlesnakes in appearance and behavior in order to be left alone. The robber fly's resemblance to a bumblebee makes predators give it a wide berth.

It is important for your children to understand that animals use camouflage as a way to stay safe. Discuss different animals and have your child think about how camouflage helps the animals to survive. We recommend watching the **Rainforest (http://www.brainpopjr.com/science/habitats/rainforests/)** movie together as an extension of this subject. Understanding camouflage will deepen your child's comprehension of the natural world.



## How does camouflage help animals hunt or hide? Do the activity to find out.



- 1. Cut out the squares at the bottom of this worksheet.
- 2. Fold the sheet of paper in half. Place the squares inside.
- 3. Open the cover and give your partner five seconds to pick up as many squares as he or she can, one by one.

How many squares of each color did your partner pick up?

Color	Number of squares
black	
white	
gray	

### Which color did your partner pick up the most?

Why do you think they picked up that color the most?





# Hibernation Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about hibernation. It is designed to complement the **Hibernation (https://jr.brainpop.com/science/animals/hibernation/)** topic page on BrainPOP Jr.

Before exploring this topic, discuss with children about what happens during winter. You may want to screen the **Seasons (http://www.brainpopjr.com/topics/seasons)** or **Winter (http://www.brainpopjr.com/topics/winter)** movies as a review. How do some animals survive winter in places that are very cold? Discuss with children and write down their ideas. Explain that some animals hibernate or go into a deep sleep during the colder months to save energy. This movie will introduce hibernation and explore how animals prepare for the winter.

Review with children that hibernation is a state that some animals enter in the winter in order to survive a period when food is not readily available. Animals that hibernate enter a temporary sleep-like condition in which their body temperatures drop significantly and their heart rate and breathing slow drastically. As a result, the animals use up less energy than when they are active. Hibernating animals, such as bats, ground squirrels, mouse lemurs, and European hedgehogs, do not need to eat or drink because their metabolism slows and their bodies can live off of stored fat.

Consequently, before going into hibernation, animals must store up fat. Some animals will lose half their weight over the winter, so it is important for them to bulk up in the fall. We recommend watching the **Fall** (http://www.brainpopjr.com/science/weather/fall/) movie together as a review. A black bear can gain as much as 30 pounds per week! Ground squirrels bulk up, too; they also create safe, dry nests for themselves, and line the nests with food for their awakening when the cold weather is over. Scientists believe that animals use temperature and amount of daylight to dictate when to begin eating and when to go into hibernation. When temperatures increase at the beginning of spring, the animals wake up. Some animals, such as bears, sleep for most of the winter but wake up intermittently and forage for food when the temperature is a little warmer. These animals are not true hibernators; they actually enter a milder state, called torpor, in the winter. During torpor, an animal's body temperature does not drop as much.

Hibernation, like <u>Migration (http://www.brainpopjr.com/topics/migration)</u>, is a way for animals to survive the changing seasons and environment. It is important for children to understand why some animals enter hibernation during the winter, and not to focus too much on what is a "true" hibernation and what is not. Instead, stress big ideas. Animals get energy by consuming food; because there is less food available in the winter, animals enter hibernation to conserve energy and to survive the winter. Also, for animals like the ground squirrel or the black bear, who have not developed winter <u>Camouflage (http://www.brainpopjr.com/topics/camouflage)</u>, it is a way to ensure avoiding predators.



Animals sleep through the winter in different places. Draw an animal that might hibernate in each place.



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## Migration Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about migration. It is designed to complement the **Migration (http://www.brainpopjr.com/science/animals/migration/)** topic page on BrainPOP Jr.

When an animal migrates, it moves to a different place. This movie will explore different migrating animals and investigate some of the reasons why they move and how they know when to migrate. As you watch the movie, we encourage you to pause and have children make predictions, summarize, and add their own ideas to the movie. We recommend watching the **Seasons (http://www.brainpopjr.com/topics/seasons)** movie together as a review.

Remind children that animals migrate for many different reasons. Some animals migrate to find better sources of food, water, or shelter. Other animals migrate to visit particular breeding grounds, rear their young, or to find warmer climates. The frequency of animals' migrations also differs: Some animals migrate seasonally, others migrate once in a lifetime or only to breed, and others are nomadic and migrate wherever the best resources and environments are at that time.

Not all migrations are the same. Grey Whales migrate between the warm waters of Mexico to the cold Arctic seas, while brown bats migrate only a very short distance. Certain animals take breaks along the way, while others travel nonstop. Hummingbirds bulk up before their big trek, or they may stop and eat along the way. Animals also differ greatly in the ways that they are able to navigate. Some animals, like homing pigeons, use their sense of smell, while others follow trails, use the Sun and stars, or follow coastlines. Yet others, like the arctic tern, feel the Earth's magnetic pull. Many animals know where to go instinctively, while others (like Canada geese) have to be taught by their parents. There are many reasons why animals may determine it's time to migrate; they may be prompted by a change in temperature, in the length of daylight, or even in hormones that cause them to eat more and save fat for the journey.

It's important for your children to realize that animals migrate for a reason. Kids can learn how to identify these reasons by comparing and contrasting the migrations of different animals. When your children grasp the various motives for animal migrations, they will gain a greater understanding about the natural world.



# Print out the puppets. Then act out the animal's migration journey!



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# Food Chain Background Information for Teachers, Parents, and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about the food chain. It is designed to complement the **Food Chain (https://jr.brainpop.com/science/animals/foodchain/)** topic page on BrainPOP Jr.

Food chains and food webs are crucial science concepts that help children understand how living things in nature are connected, and how humans' actions can affect the environment. Remind your children that living things are divided into different groups, including producers and consumers. Consumers are further divided into more groups such as herbivores, carnivores, and omnivores. A food chain shows how living things rely on each other for food and how energy is moved from one living thing to another. A food web is a group of connected food chains. Food chains and food webs show the interconnected relationships between predators and prey. Remind your children that a predator is a living thing that hunts animals, and that prey is an animal eaten by predators.

Living things are divided into many different groups, including producers and consumers. Producers, also called autotrophs, are living things that can produce, or make, their own food. Plants use photosynthesis to produce their own food and grow. We recommend watching the **Parts of a Plant** 

(http://www.brainpopjr.com/science/plants/partsofaplant/) movie together as a review. Tiny aquatic organisms such as plankton also rely on the Sun's energy to make their own food. Most of Earth's living things are made up of producers. Consumers are living things that eat other living things. Herbivores are animals that eat only plants, such as deer, squirrels, and butterflies. Carnivores are animals that eat only other animals, such as lions, sharks, and preying mantises. Omnivores are animals that eat both plants and animals, such as bears, hedgehogs, and humans. Although not mentioned in the movie, children might also like to learn that there are two rarer types of consumers, parasites (who feed off of other living organisms) and scavengers (who eat animal carcasses but do not hunt themselves).

All living things rely on each other for food and energy. A food chain shows this relationship and how energy gets transferred from one living thing to the next. For example, a plant uses the energy from the Sun to make its own food. Insects such as caterpillars rely on the plants for food. Small birds eat caterpillars, while other animals such as predatory birds, cats, and foxes hunt smaller birds. Review with your children that a predator is a living thing that hunts animals, and prey is an animal eaten by predators. In the example above, caterpillars are prey for small birds, and small birds are prey for cats and foxes. In turn, cats and foxes are vulnerable to larger predators. Remind your children that an animal can be both a predator and prey for another animal.

A food web is a group of connected food chains. In the ocean, plankton use sunlight to produce their own food. Krill feed on plankton, while squid, fish, seals, penguins, and some species of whale feed on krill. Seals and penguins also feed on krill and squid, and seals prey on penguins as well. Killer whales and sharks feed on both seals and penguins. Adult killer whales are considered to be at the top of the food web because they have no natural predators. The food web is a complex system that is delicately balanced.

Predators help control the population of prey. If certain predators become threatened, endangered, or extinct, the population of their prey might increase and create an imbalance within the ecosystem. If certain kinds of prey become endangered, a species of predator might find food difficult to find and their own numbers might decrease. Human involvement in the form of habitat destruction, pollution, use of pesticides, and overfishing can negatively affect food webs and food chains.

Help your children understand that humans' actions can affect countless other organisms. Let them know that, while extinction—the loss of a species—has always occurred within the ecosystem, its rate has increased more than 1000% since the industrial revolution began 200 yoars ago. Children should be aware of environmental

problems and actions they can take to help their world. Remind them that they are part of the food web, too. Exploring these concepts with your children will help them understand the world around them and foster a sense of global community and responsibility.

### **Extension Activities:**

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Name:\_\_\_\_\_



### Food Chain Word Play

Check out these key words from the Food Chain movie!



herbivore

an animal that eats only plants



## omnivore

an animal that eats both plants and animals



## carnivore

a living thing that eats other animals



## producer

a living thing that can make its own food, such as plants



### consumer

a living thing that eats another living thing for food and energy

## **Ocean Habitats Background Information for Teachers, Parents and Caregivers**

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about ocean habitats. It is designed to complement the **Ocean Habitats (http://www.brainpopjr.com/science/habitats/oceanhabitats/)** topic page on BrainPOP Jr.

The ocean is home to a startling array of living things. This movie will introduce and explore the three main zones of the ocean: the sunlit zone, the twilight zone, and the midnight zone. It will explore different marine plants and animals like coral, phytoplankton, krill, fish, eels, mollusks, dolphins, and whales. It will explore different ocean habitats and investigate some adaptations of living things that help them survive in their habitats. The movie will also explore how oil spills and other forms of pollution can change ocean habitats, and share ways people can help protect our environment.

About 70% of Earth is covered in water. More than 97% of this water is saltwater found in our oceans and seas. Scientists divide the ocean into different zones according to how much sunlight is received. Living things in each zone have different ways to survive in their habitats. Review with children that a habitat is a place where plants and animals live.

The sunlit zone is the top part of the ocean, and the area that receives the most sunlight. This zone goes from the surface to about 600 feet (roughly 200 meters) underwater. Help children understand that even though the sunlit zone is the smallest zone in the ocean, it actually supports about 90% of all marine life. Here enough light goes through the water to allow plants to grow, and for photosynthesis to take place. We recommend researching online or at the library to find different examples of ocean vegetation. How can plants grow in saltwater? How do they survive in their environment? In the sunlit zone, algae, plants, and phytoplankton thrive and are the basis of nearly all ocean food chains. Remind children that phytoplankton are tiny living things that can use the light's energy to make their own food, much like plants. Krill, fish, and other animals feed on the phytoplankton, and larger animals feed on the krill. Energy is transferred up the food chain to even larger animals such as dolphins and whales. We recommend screening the **Food Chain (http://www.brainpopjr.com/science/animals/foodchain/)** movie for review.

Coral reefs are also found in the sunlit zone. Remind children that coral is an animal that grows a very hard skeleton. Coral can come together to form reefs that are home to many living things, such as fish, eels, and mollusks. Nutrient-rich plants grow within coral reefs, including seaweed, various algae, and seagrass (which is the only flowering plant in the water). Many people call coral reefs the "rainforests of the ocean."

The twilight zone is below the sunlit zone, extending from 600 feet to about 3,300 feet (roughly 200 meters to 1,000 meters). Less sunlight is able to penetrate the twilight zone. Many animals migrate between the twilight and sunlit zone in search of food, including the sperm whale and swordfish. Other twilight zone animals include crabs and other crustaceans, dragon fish, viperfish, and many worms. Help children understand that as you get further and further away from the ocean's surface, less light is filtered through the water. As a result, the water gets colder and colder.

The midnight zone is below the twilight zone, extending from about 3,300 feet (1,000 meters) downward. The depth of the ocean averages around 13,000 feet (4,000 meters). Here no light can penetrate and waters can reach close to freezing temperatures. However, the midnight zone is still able to support creatures that have specially adapted to their environment, and scientists are constantly discovering new forms of marine life even in the deepest part of the ocean. Food can be difficult to find, but bits of dead animals and nutrients can 'rain' into the midnight zone and provide food. Some fish, like the fangtooth and the umbrellamouth gulper, have large mouths so they can grab and eat anything that comes their way <sup>M</sup>Ost animals in the midnight zone are blind or have very

#### Ocean Habitats Background Information for Teachers and Parents

large eyes to allow light to pass through. Many animals in this zone are also bioluminescent, which means they can emit light through special biological processes. They can glow to attract mates or prey, or to scare off predators. Remind children that the ocean floor is a dark and rocky place. The ocean floor has mountains, trenches, and flat areas just like land. In some places there are vents in the Earth's crust that give off heat and chemicals. Bacteria feed on the chemicals and other animals use the bacteria for food. Thus, hydrothermal vents can provide an ecosystem for different living things, such as tubeworms and deep-sea clams and mussels. This means the deep sea can support an entire food chain that does not start with the Sun's energy.

Even as the U.S. Census Bureau counts the American population, marine scientists are conducting a census of their own—of every living thing in the ocean. More than 2,000 biologists from over 80 nations working with the international Census of Marine Life are nearing the completion of a 10-year project. This project has discovered more than 5,000 new forms of marine life, encompassing 16,000 species of sea worms, hundreds of tiny crustaceans and—most numerous of all—microbes. Scientists now estimate that the seas may contain a billion different kinds of microbes. The number of marine microbes may total nonillion—a number represented by 1 followed by 30 zeroes. Microbes may constitute 90% of the seas' biomass. Large, whitish mats of multicellular microbes can be found on the seafloor throughout the world and one such mat of bacteria, off the coast of Chile, is about the size of Greece. Scientists say they were astonished by the diversity and sheer amount of life in the seas, even at depths once considered too dark, cold, and hostile to support life at all. According to some scientists, the deep sea rivals highly diverse ecosystems such as tropical rainforests and coral reefs.

Review with children that most of Earth is covered by oceans and seas, but they are changing due to human involvement. In many parts of the world, overfishing is a big problem. This is causing certain kinds of fish and other animals to become endangered. For example, in the northeastern part of the Atlantic Ocean, herring and capeling were overfished. This led to decline of the numbers of Arctic cod and also of seabirds, which both relied on these fish for food. Shark, blue fin tuna, and Atlantic salmon are also currently suffering from low stock due to overfishing. Review with children that when something is endangered, very few of its species is left in the wild. Endangered fish can affect food chains and impact life throughout the ocean. You may want to screen the **Extinct and Endangered Species (http://www.brainpopjr.com/topics/extinctandendangeredspecies)** movie for review or extension.

Oil spills and other forms of pollution can cause problems for many living things and affect ocean food chains. Oil spills cover marine plants and animals with a film of oil which prevents them from obtaining oxygen or regulating body temperatures. Garbage in our communities can sometimes end up in the oceans through sewers that drain to bays. Illegal ocean dumping is a huge source of pollution in our oceans and seas. Today there are several "islands" of garbage; one such example in the Pacific Ocean is larger than the state of Texas. Remind children to recycle whenever possible and throw their trash into the proper receptacles. Just a simple act can help protect the environment and promote a healthy ocean habitat.

Discuss different ways you can help protect the environment. Encourage children to write to government leaders to make their voices heard about the changing planet. You may want to watch the **Sending a Letter** (http://www.brainpopjr.com/readingandwriting/communication/sendingaletter/) or **E-mail** 

(http://www.brainpopjr.com/artsandtechnology/technology/email/) movies for review. Another simple way children can help protect the environment is to educate one another. They can discuss issues with different people and share what they have learned about pollution and the environment. Encourage children to be good global citizens!

### **Related:**

Filed as: Habitats, K-3, Ocean Habitats, Science

### Comments

Name:



### Ocean Habitats Draw About It

Choose one of the ocean's zones. What lives in that zone? Draw your answer.

# Rainforests Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about rainforests. It is designed to complement the **Rainforests (http://www.brainpopjr.com/science/habitats/rainforests/)** topic page on BrainPOP Jr.

This movie will explore rainforests, which are home to over half of the world's plant and animal species. It will describe the different layers of the rainforest and explain how different plants, insects, and animals have special adaptations to survive in their environment. The movie will also explore how and why the rainforests are changing and how many plants and animals are becoming endangered or extinct.

Review with children that a rainforest is a thick, dense forest with a high annual rainfall. The minimum normal rainfall in the rainforest is around 78 inches per year, but many rainforests receive around 200 inches of rain in that time. Children should understand that many rainforests are in hot, humid areas, like in tropical areas near the Equator, but they also exist in cooler, temperate areas, such as in the Pacific Northwest of the United States. Tropical and temperate rainforests cover just 6% of our planet, but over half of the world's plant and animal species live in them. Review with your children that a species is a scientific group of animals that share the same characteristics and have the same names. For example, howler monkeys are a species of monkey that live in tropical rainforests, but other species, such as spider monkeys and capuchin monkeys also live there.

The rainforest is divided into several different layers, and children should be able to identify the three main ones: canopy, understory, and forest floor. The canopy is the "roof" of the rainforest and is made up of the thick, leafy tops of tall trees. The canopy receives plenty of sunlight, and provides food and homes for many animals who use the canopy as shelter from predators on the forest floor. Some experts believe that the canopy could contain about half of all rainforest plant species and a quarter of its insect species. Other rainforest animals that live in the canopy include monkeys, birds, and sloths.

The understory is the layer between the canopy and the forest floor. The understory receives significantly less light than the canopy, which provides shade for the area beneath. Many plants that grow in the understory have large leaves in order to absorb as much sunlight as possible. Seedlings also grow in the understory; they are protected from direct sunlight by larger trees. Animals such as butterflies, lizards, tree boas, and even jaguars can be found in the understory. The understory is the area many animals travel through to get to the canopy or the forest floor.

The forest floor is the bottom of the forest and it receives the least amount of light. As a result, few plants are able to grow there and the floor is relatively clear. It is important for your children to understand that soils in many rainforests tend to be infertile. However, the rainforest floor is a crucial part of the ecosystem. The hot, humid conditions and the presence of many fungi and microorganisms allows dead plants and animals on the forest floor to be scavenged or to decompose quickly, thereby recycling essential nutrients. Many children believe that jungles and rainforests are similar. Jungles grow when the canopy breaks down and more light can reach the forest floor, allowing plants to grow densely. Rainforest floors tend to be relatively clear of plants. Many animals such as snakes, insects, elephants, and tapirs make their homes on the rainforest floor.

The rainforest is home to millions of living things and they all have special adaptations to survive in their habitat. Many rainforest plants have smooth, waxy leaves with special tips to help them easily drain excess water. Since rainforest soil tends to be infertile, some plants, such as pitcher plants, feed on animals. Plants like bromeliads can grow on the sides of tall trees to reach more sunlight. Such plants are often called "air plants" because they grow high in the branches. Many trees have special roots which give them extra support in shallow, wet ground. Plants have adapted to have bright colors, large flowers, or fruit to attract animals and spread their pollen or seeds. The torch ginger plant grows up to four feet high, with large flowers of brilliant red, white, and yellow. The pelican flower has purple spotted petals and can grow up to two feet in width.

Rainforest animals also have special adaptations to compete and survive. Many use camouflage to blend into their surroundings. Clearwing butterflies have transparent wings so they can disappear in the rainforest. Sloths move so slowly that algae grows in their fur and they can hide in the rainforest canopy, and provide a home for tiny animals that live in their fur. Leopards, ocelots, and jaguars have spots or dark coloring to help them disappear within the rainforest shadows. Some animals wish to be seen, such as the poison dart frog, whose bright skin warns predators. Poison dart frogs, which can be many bright colors, including teal, red, or neon yellow, are some of the most poisonous animals on the planet. Many indigenous people have used their poison for their weapons. Other animals have more unique adaptations, such as the hoatzin, which is a bird that emits a strong, foul odor that keeps predators away.

Rainforests are often called the "lungs" of the Earth because they emit oxygen into the air and take in carbon dioxide, a gas that contributes to global climate change. Rainforests also help regulate Earth's temperature and weather patterns: The moisture released by the rainforest's dense plant life forms clouds overhead, which then are blown to other areas to release cooling water and shade. Many foods and spices we eat today come from the rainforest, including coffee, ginger, coconut, vanilla, ginger, and cacao, which is used to make chocolate. Furthermore, many modern medicines, particularly those that treat cancer, have come from rainforest plants.

Unfortunately, the world's rainforests are being felled and cleared for land and timber. Some experts estimate that each year about 50 million acres of rainforests are cut down, which is approximately the size of the United Kingdom. Because of its diversity, experts believe that over one hundred species become extinct a day due to deforestation. Remind your children that when a living thing becomes extinct, none of its kind if left in the world. When a living thing becomes endangered, only a few members of its species are left. Many of the plants and animals in rainforests have become endangered and millions more are at risk. Fewer rainforests mean less cloud-cover, which results in an increased temperature for the Earth. Furthermore, indigenous people who rely on the rainforest have been displaced and they are forced to change their way of life.

Children should understand that people impact the environment and that their actions can affect other living things around them. Empowering children with information about the environment can help them understand how all living things are connected and allow them to make better choices in their daily lives.

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## Rainforests Talk About It

Date: \_\_\_\_\_\_ Name: \_\_\_\_\_\_ Class: \_\_\_\_\_

How do special adaptations help plants and animals survive in the rainforest?

Living Thing	How They Survive
Poison Dart Frog	
Jaguar	
Howler Monkey	
Air Plant	
Pitcher Plant	

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# Sun Movie Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about the sun. It is designed to complement the **Sun (http://www.brainpopjr.com/science/space/sun/)** topic page on BrainPOP Jr.

The Sun is the center of our Solar System and the planets, moons, and other bodies in our Solar System orbit, or go around, the Sun. The Sun is a star, which is a body of hot gases that makes its own light and heat. This movie will describe the Sun and how it affects our planet. We highly recommend reviewing the **Earth** (http://www.brainpopjr.com/science/space/earth) movie before beginning this topic. The Sun plays an important role in many food chains, powers the water cycle, and affects changes in weather. You may wish to review the **Food** Chain (http://www.brainpopjr.com/science/animals/foodchain/) movie and explore the Water Cycle (http://www.brainpopjr.com/science/weather/watercycle) to reinforce information that is summarized in this movie. The Seasons (http://www.brainpopjr.com/science/weather/seasons) movie also provides a review of basic concepts.

Your children should understand that the Sun is a star and not a planet. According to the International Astronomical Union, a planet is a body that orbits a star. It is massive enough to be rounded by its own gravity, but not massive enough to cause thermonuclear fusions. The Sun is capable of thermonuclear fusion, and it is so enormous that it accounts for over 98% of the entire Solar System's mass. The Sun is about a million times bigger than Earth by volume, and over one hundred Earths could fit across the middle of the Sun. Even though the Sun is over 93 million miles away, it's Earth's closest star. It appears largest in the sky because it is closer than other stars in our galaxy.

Help your children understand that the Sun is made of gases; primarily hydrogen and helium. Some children may make the connection that some balloons are filled with helium. In the Sun's core, hydrogen is converted to helium through nuclear fusion. As a result, an enormous amount of energy is released. The outer layer of the Sun, called the photosphere, is about 9,900 degrees Fahrenheit, which is about 5,500 degrees Celsius. The core, or center, is significantly hotter with temperatures reaching to 27 million degrees Fahrenheit or about 15 million degrees Celsius. Temperatures this high might be hard for many children (and adults) to comprehend. We recommend putting these measurements in context. For example, a typical oven only goes to 500 degrees Fahrenheit and water boils at a mere 212 degrees Fahrenheit. What was the hottest day of the year? What is the temperature of the hottest place on Earth? Help your children understand the Sun's energy.

Almost everything on Earth depends on the Sun's energy in some way. Have your children think about how they rely on the Sun. What did they eat for lunch or dinner? How did their vegetables grow? What did the grass and grain used to feed livestock need to grow? The Sun plays an important role in most food chains. Together, come up with a food chain that relies on the Sun. For example, a plant uses the Sun's energy to grow. An insect might eat the plant, and a mouse might eat the insect. A snake might eat the mouse, and an owl might eat the snake. Thus, the animal at the top of the food chain relies on the Sun in order to survive.

The Sun also plays an important role in the water cycle. The water cycle shows how water moves through, on, and under Earth's surface. The Sun warms water in our lakes, streams, and oceans. Water evaporates and goes into the atmosphere. As it cools, water droplets come together to form clouds. When the clouds can no longer hold water, precipitation, such as rain, snow, sleet, or hail, might fall. Water then returns to our lakes, streams, and oceans to be warmed by the Sun and the cycle begins again.

The Sun also plays a crucial role in weather changes. Remind your children that Earth is tilted at an angle. As Earth orbits the Sun, the Sun shines light on Earth at different angles. While one part of Earth is tilted toward the Sun, another part is tilted away from the Sun. The angle at which the Sun hits Earth causes different parts of Earth to experience different seasons.

#### Sun Movie Background Information for Teachers, Parents and Caregivers | BrainPOP Educators

Your children should understand that people have been studying and tracking the Sun for thousands of years. Stonehenge is a monument in England that scientists believe was erected sometime between 2500 and 2200 BC. Different parts of the monument line up with the summer and winter solstice, and the spring and autumn equinox. Over two thousand years ago, ancient Chinese studied the Sun and kept careful records of their observations. They were the first to record sunspots, which are cooler, darker areas in the Sun's outer layer. Ancient people who lived in the area that is now Mexico built pyramids to honor and track the Sun, and Aztecs created calendars based on their observations of the Sun's path. People have been using sundials for hundreds of years. Today scientists use powerful tools to study Earth's closest star. The European Space Agency and NASA launched the Solar and Heliosphere Observatory (SOHO) in 1995. The goal is to study the internal structure of the Sun and gather information about solar phenomena.

Remind your children that they should never look directly at the Sun. The harmful rays can damage eyes. Instead students can research images on the Internet or at their local library. They can visit a local science museum or observatory to learn more. They can also create their own pinhole camera by poking a small hole in a piece of paper and holding it up to the light. This will cast an image of the Sun on to another piece of paper.

Earth is just a small part of our vast Solar System and even a smaller part of the Milky Way. Encourage your children to ask questions about the world around them and beyond. Challenge them to make predictions and research to find the answers to their questions.





- 1. Find a spot on the ground where it will be sunny most of the day.
- 2. Put a stick in the ground to use as the center of your sundial.
- **3.** Every hour, place a rock where the stick's shadow ends. Write the hour on the rock with chalk.



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# Seasons Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about seasons. It is designed to complement the **Seasons (http://www.brainpopjr.com/science/weather/seasons/)** topic page on BrainPOP Jr.

In this movie, children will learn about different seasons and different types of weather. They'll learn how Earth is tilted on its axis, and how as our planet orbits the Sun, seasons change in different parts of the world!

Review with children that we divide the year into seasons, or sets of consecutive months that have similar weather patterns and length of days. There are four seasons in many parts of the world: winter, spring, summer, and fall (also called autumn). Other parts of the world have two seasons: wet and dry. Children should observe that seasons happen in the same cycles year after year and that different types of weather occur during different seasons.

Which is the coldest season? Which is the hottest? Children should know that temperature is how hot or cold something is, and this can be measured with a thermometer. Though temperatures and amount of precipitation varies across different areas, winter typically has lower temperatures than the rest of the year. Snow, sleet, hail, and rain are common forms of precipitation in the winter. In snowy areas, many animals have difficulties finding food and some will even hibernate to conserve energy. Children can learn more about hibernation by watching the **Hibernation (http://www.brainpopjr.com/topics/hibernation/)** movie. December, January, and February are considered winter months in the northern hemisphere, though some countries acknowledge November to be a part of winter. Children should understand that during winter they may wear heavier clothing like coats, hats, and scarves and participate in cold-weather activities such as sledding or skiing.

As the winter ends, spring begins and temperatures slowly rise as the days get longer. Snow and ice melt and more rain tends to fall during this season. Flowers and plants grow and bloom, and animals become active again. Many animals will have their young in the spring when food is plentiful. Furthermore, their young will have time to grow before experiencing a cold winter themselves. The United States marks the beginning of spring with the vernal equinox in March and the end of spring with the summer solstice in June. Children should understand that in spring they may wear lighter coats and rain gear, and also begin outdoor activities like baseball, softball, or gardening.

After spring is summer, which begins in June and ends around September in the United States. Summer is the warmest season and has the longest days, because our part of Earth is tilted toward the Sun throughout the season. Most areas receive the least amount of precipitation during this season. Children should understand that in summer they may wear shorts, skirts, shirts, hats, and sunglasses and go swimming or take a vacation. The Sun stays high in the sky during the summer and children should understand the importance of using sunscreen and staying covered and cool.

As the summer ends, the weather gets cooler again and the days get shorter. In the northern hemisphere, fall (or autumn) begins in September and ends in December with the Winter Solstice. During fall, leaves of some trees will turn colors and fall off. Some plants bear fruit, such as apple and pear trees. Autumn squash or gourds ripen, too, which is why pumpkins are abundant at Halloween. Some animals will begin to migrate, or move to warmer areas for the coming winter. You may want to watch the **Migration (http://www.brainpopjr.com/topics/migration)** movie for further exploration and extension of the topic. Other animals will store and eat food to prepare for hibernation or dormancy. Football is a common fall sport in many schools and community programs, and other fall activities include apple-picking or collecting autumn leaves. Children should understand that in fall they may wear coats and sweaters.

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#### Seasons Background Information for Teachers, Parents and Caregivers | BrainPOP Educators

Seasons change because as the Earth orbits, its hemispheres are titled towards or away from the Sun. It takes Earth 365 days, or one year, to go around the Sun. When the northern hemisphere is tilted toward the Sun, the southern hemisphere is tilted away from the Sun. During this time, the northern hemisphere experiences summer, while the southern hemisphere experiences winter. The areas near the Equator, the imaginary line around the middle of the Earth that separates the two hemispheres, do not tilt much toward or away from the Sun. This means their weather is more consistent throughout the year, and usually is quite warm. Tropical countries in South America such as Ecuador, Colombia, and Brazil, are good examples of areas that do not vary much in temperature during the year.

Because of the Earth's tilt and orbit around the Sun, different constellations can be seen during different seasons. While people living in the northern hemisphere might see a particular constellation in the summer, people living in the southern hemisphere might see the same constellation in the winter.

For children who want to learn more information about the seasons, we recommend watching other movies in the **Weather (http://www.brainpopjr.com/science/weather)** unit.

# Water Cycle Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about water cycle. It is designed to complement the **Water Cycle (http://www.brainpopjr.com/science/weather/watercycle/)** topic page on BrainPOP Jr.

The water cycle describes the movement of water on, above, and below the surface of the Earth. This movie explains the major points of the cycle, including evaporation, condensation, and precipitation. Children will learn how water from precipitation contributes to groundwater and creates runoff into our streams, lakes, and oceans. Children will also learn the importance of conserving water, a crucial natural resource needed by all living things. We highly recommend reviewing the **Changing States of Matter** 

(http://www.brainpopjr.com/topics/changingstatesofmatter/) movie, which teaches about evaporation and condensation, concepts children should be familiar with to understand the water cycle. You can also extend the topic by screening the **Reduce, Reuse, Recycle, (http://www.brainpopjr.com/topics/reducereuserecycle/)** movie.

Remind children that the water cycle shows how water moves on, above, and below land. The entire cycle is powered by the Sun. Energy from the Sun heats up water in our rivers, streams, lakes, oceans, and other bodies of water. The water evaporates, or changes from a liquid to a gas. This evaporated water, called water vapor, is made up of tiny droplets that can float in the air. Help children understand that even though we cannot always see water vapor, it is all around us. Water vapor rises into our atmosphere, or the air surrounding our planet. The atmosphere high above land is cooler, and as the water vapor rises, it cools. The water vapor can condense, or turn from a gas to a liquid. Tiny droplets in the water vapor can condense and collect to form larger droplets. The larger droplets can collect to form clouds. Help children understand that water vapor in our atmosphere can move to other places. Have they ever seen a cloud move across the sky? That cloud is part of the water cycle.

When air can no longer hold more condensed water, it falls to the ground as precipitation. Remind children that precipitation is water that falls to the earth from the sky. Snow, rain, sleet, and hail are all forms of precipitation. Several things can happen to water that falls to the earth. Water can fall into streams, rivers, lakes, oceans, and other bodies. Land can also soak up water and it can become groundwater. Explain to children that groundwater is found underground in spaces between soil, sand, or rocks and is important to plants, animals, and people. Have they ever seen a well? Have they ever dug a hole and found the soil deep down to be damp? Groundwater is important because we use it for drinking water, in addition to many other uses. Some water from precipitation can flow down and reach streams, rivers, and oceans. This is called runoff.

About 75% of Earth is covered by water. Most of it is saltwater in our oceans. Less than 1% of it is freshwater found on Earth's surface. Remind children that all people and animals need freshwater in order to live. You may want to explore the **Freshwater Habitats (http://www.brainpopjr.com/topics/freshwaterhabitats)** movie for extension. Water is an important natural resource that all living things need in some way or another. Pollution can affect water and, in turn, affect everyone. Pollution may leach into our soil and reach our groundwater. Together with children, brainstorm ways to cut down on water pollution. This can be as simple as throwing garbage in a wastebasket and not on the ground where it can be washed away into our sewers. Then explain the importance of conserving, or saving, water. If everyone in the United States saved one gallon of water a day, we could save over 85 billion gallons of water per year! This could fill a substantial lake! Think of ways to save water, such as turning off the faucet when it is not being used, taking shorter showers, running dishwashers and washing machines only when they are full, and only using water that we need. For every glass of water we drink, it takes two glasses of water to wash it! Children can save water simply by reusing their water glass.

Help children understand that their actions impact the environment. Encourage them to be ecologically conscious and find ways they can change their daily habits. Even small changes can add up to a big difference.

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Water Cycle Talk About It

Date:
Name:
Class:

What happens in the water cycle?



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## Where do you think water for rain comes from? Do this experiment to find out!

Name:

<b>/</b> c	ou'll need:
а	medium zip top plastic bag
а	cup
w	ater
Sa	and or dirt

- 1. Fill the cup half way with sand or dirt.
- 2. Add half a cup of water to the cup.
- 3. Seal the cup in the plastic bag and put it in a sunny place.
- 1. What do you think will happen? Make a prediction.

### 2. After a few hours, observe what happened. Write or draw your observations.

### 3. Write a conclusion about what you observed.

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# Earth Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about the Earth. It is designed to complement the **Earth (http://www.brainpopjr.com/science/space/earth/)** topic page on BrainPOP Jr.

A solar system is made up of a star and all the bodies that orbit it. Our solar system consists of the Sun and all the planets, moons, and other bodies that orbit it. We recommend watching the <u>Moon</u> (http://www.brainpopjr.com/science/space/themoon/) movie together as a review. It is important for your children to understand that the Sun is our closest star but that there are other stars and planetary systems in the universe. Earth is the third planet from the Sun and, thus far, it is the only planet that scientists know can sustain life as we know it.

The Sun's gravitational force is strong enough to pull bodies near it. As a result, planets and other bodies in our solar system orbit, or go around, the Sun. It takes about 365 days, or one year, for Earth to orbit the Sun. Since the Earth's orbit around the Sun is a little more than 365 days, leap years with 366 calendar days were established. Earth's gravity attracts one moon (other planets, such as Jupiter, have more moons) which orbits the Earth about once per month.

Your children should understand that there are different biomes that exist on our planet, including deserts, mountainous areas, grasslands, tundra, forests, and freshwater and saltwater environments. Water covers about 70% of our planet, which is why people call it the Blue Planet. Earth sustains a startling diversity of life and different plants and animals live in different environments. Many living things call Earth home and your children should understand that they should respect and protect our natural resources. Over 6 billion people live on Earth and the population grows everyday. Help your children to understand that people put an enormous strain on Earth's natural resources and create environmental problems that can harm other living things. Recycling, reducing waste, and reusing items are all ways your children can be active participants in protecting their environment. Children should understand that Earth is our only home and it is our responsibility to take care of it and secure its future.

Earth Background Information for Teachers and Families

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Start the discussion				
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Make a mini-book about a journey to the center of the Earth.



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# Soil Movie Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about soil. It is designed to complement the **Soil (http://www.brainpopjr.com/science/land/soil/)** topic page on BrainPOP Jr.

Soil is one of Earth's most important natural resources. This movie will explore soil and how people and animals rely on it for survival. It will also explore the contents of soil. We recommend doing plenty of hands-on activities with soil and have children analyze soil samples using hand lenses or microscopes.

Review with children that most plants rely on soil to grow. Animals rely on soil for shelter and on plants for food. People rely on plants and animals for food, and on plants and soil for shelter. Soil is so important that a whole field of science is dedicated just to its study—soil science. Emphasize the importance of soil to children, and discuss all the things people get from soil directly and indirectly.

Soil contains living and nonliving things including rocks, plants, and animals. There are also bits of dead plants and animals in soil. When living things die, they decompose and release nutrients into the soil. You can teach the cyclical pattern of nature through the study of a plant's growth and decomposition in the soil. Plants use the nutrients of decomposed plants for another growth cycle in the soil. Plants also absorb minerals from the soil; many of these minerals come from rocks.

Not all soils are alike—there are different soils in different places. For example, forest soil tends to be dark, damp, and to contain a lot of humus. Humus-rich soil is able to hold plenty of water, and also is plentiful in nutrients. This allows the growth of a wide range of plants, and consequently supports different kinds of animals. In contrast, sandy soil drains water. Sandy soil can be found in drier areas like deserts or in some areas near lakes or ponds. Sandy soil tends to be loose, dry, and light brown. There is less humus, and therefore fewer nutrients, in sandy soil than in forest soil. Clay soils usually contain a high percentage of mineral in the soil, often causing clay soil to be dark red in color. Clay soil also holds plenty of water and tends to be thick and heavy when wet. Certain kinds of plants, like certain species of grasses, sunflowers, and ironweed, can grow well in clay soil. Clay soil also creates business and also provides shelter for many people through the construction of bricks, which are made of clay that has been molded and baked.

The soil can be divided into three main layers: topsoil, subsoil, and bedrock. Topsoil contains the most humus, which is the dark part of the soil that is rich in nutrients. Under the topsoil are several layers that make up the subsoil. These layers tend to be sandier, and have less humus. Under the subsoil is bedrock, which is solid rock.

Encourage your children to think of ways to keep our soil clean. Pollutants can impact soil negatively and prevent plants from growing. This in turn can affect animals and people. Recycling, using organic products, and throwing litter away in proper receptacles are just a few easy ways to care for our soil.



Collect different types of soil in paper cups. Print out the labels below. Circle the words that describe each type of soil. Tape the labels on the cups.

Co	olor: red black brown tan
ot	ther:
Co	ontents: rocks bugs sand roots
ot	:her:
Te	exture: thick light sandy dry damp
cla	ay squishy other:
Aı	mount of humus: a lot of humus a little humus
Co	olor: red black brown tan
ot	:her:
Co	ontents: rocks bugs sand roots
ot	:her:
Te	exture: thick light sandy dry damp
cla	ay squishy other:
Aı	mount of humus: a lot of humus a little humus
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Co	ontents: rocks bugs sand roots
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T∉	exture: thick light sandy dry damp
cla	ay squishy other:
A	mount of humus: a lot of humus a little humus

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# Fossils Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about fossils. It is designed to complement the **Fossils (https://jr.brainpop.com/science/land/fossils/)** topic page on BrainPOP Jr.

Learning about fossils is a terrific way for children to explore Earth's past. Most children have probably looked at fossils in natural history museums or have read about them in books. Nearly every child has learned about dinosaurs and prehistoric animals. Encourage children to view fossils as clues to Earth's history, clues that help us understand how life has changed on our planet. Remind children that a fossil is a preserved clue left from a plant or animal that lived long ago. It is important for your children to understand that fossils do not have to be bones or parts of plants, but they can be a variety of remnants of life, such as nests, footprints, and droppings. Fossils can form in many ways and your children should understand that the process takes millions of years.

Many fossils are preserved remains of living things that are extinct. Remind your children that when a living thing is extinct, it is no longer living and none of its kind is left on Earth. Your class may want to screen the **Extinct and Endangered Species (http://www.brainpopjr.com/topics/extinctandendangeredspecies/)** movie, so children understand more about extinction. Some living things die out due to natural causes, such as dinosaurs, while others die out because of human interference, such as the dodo. People have found fossils of leaves, seeds, and cones of plants that lived millions of years ago, as well as fossil bones, shells, claws, teeth, and even whole skeletons. People have also discovered fossil footprints, eggs, nests, and droppings, which give insight into how living things moved or behaved.

Fossils can form in different ways, but some fossils form when a living thing dies and gets buried. Over time, the soft parts get eaten by bacteria or other organisms. The soft parts decompose, or break down, and the hard parts, such as shells, teeth, bones, or claws, are left behind. Over millions of years, layers of sediment pile on top of these remnants, creating pressure, which helps turn the lower layers into rock. Water can seep into the area and bring in minerals. Minerals slowly replace the hard parts and create a slow chemical change that turns the hard parts into a fossil of the same shape. Slowly, erosion causes the top layers to recede and wear away and the fossil can be found. Many fossils are found in riverbeds or on cliff sides, where water has eroded an area for thousands of years.

Sometimes a living thing dies and gets buried under sediment. It decomposes, but its outline remains in the sediment. Over millions of years the sediment turns to rock, but an imprint of the living thing is still left behind. Your children have probably seen fossil imprints of plants and shells and may have made imprints on their own using clay and different objects.

People have also found living things trapped in ice, such as woolly mammoths. The ice preserves the living thing and prevents it from fully decomposing. Woolly mammoths discovered in caves and river banks were found with tusks, fur, and even whiskers intact. Some species of trees release a resin, which is similar to tree sap. Insects and small animals can get trapped in the resin and over time it hardens into amber with the animal inside preserved. While these resin fossils and are not considered true fossils, they still provide valuable clues to Earth's history and sometimes even contain small fragments of an organism's DNA.

### Scientists use fossils to learn about Earth's history. We recommend watching the Earth

(http://www.brainpopjr.com/topics/earth/) movie together as a review. Remind your children that a paleontologist is a scientist who studies fossils and the remains of all life forms. You may want to explain that an archaeologist is slightly different; an archaeologist studies the remains of human life and culture. Explain to children that each fossil tells a story. For example, fossil footprints tell scientists about whether an animal walked on two or four legs, its length of stride, and its stalking behavior. A fossil bone can give clues about the size of an animal, its shape, and

#### Fossils Background Information for Teachers, Parents and Caregivers | BrainPOP Educators

(due to carbon dating) when it lived. Scientists often compare living animals with fossil bones to draw conclusions. For example, today's carnivorous animals often have sharp teeth for tearing meat, while herbivorous animals often have flat teeth for grinding and chewing. Scientists can draw comparisons with fossil teeth to today's animals to infer what a living thing ate millions of years ago. Fossils of animals' nests reveal a lot about their behavior and their habitat, and fossil droppings can also give clues about what an animal ate. Some fossil droppings show traces of plant materials or bones of other animals.

Encourage your children to learn about Earth's history. Your children will probably have many questions about fossils, so encourage them to look up information on the Internet or in the library to learn more. This will help develop their research skills and support their natural curiosity about our world.

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Brain POP	Fossils	Talk	About	lt
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Date:	
Name:	
Class:	

Fossils give us clues about the past. What does this fossil tell you about how the animal lived?



### How did this animal live?

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Cut out the fossils. Put the pieces together to form the shape of a woolly mammoth, an animal that lived over 100,000 years ago!



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# Moon Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about the moon. It is designed to complement **The Moon (http://www.brainpopjr.com/science/space/moon/)** topic page on BrainPOP Jr.

Children are naturally curious about the world around them. Every child has looked up at the sky and stared at the Moon in wonder. Most have heard folktales or read stories about the Moon. Learning the fundamental principles of the Earth, Moon, and the Sun will help children grasp a deeper knowledge about their world. Review with your children that the Moon is Earth's closest neighbor in space. The Moon orbits the Earth, and together the Earth and Moon orbit the Sun. We recommend watching the **Earth (http://www.brainpopjr.com/science/space/earth/)** movie together as a review. Help children understand that we see the Moon rise and set just like the Sun and that it goes through different phases, such as the new Moon, crescent Moon, half Moon, and full Moon.

The Moon is about one-quarter the size of our planet, and it is about 238,857 miles from Earth. Moons are natural satellites, or celestial bodies that orbit a planet. Some planets, like Jupiter, have several moons; Earth has only one. Remind your children that the Moon is like a ball of rock that orbits, or goes around, Earth. Review with your children that Earth spins on its axis. It takes about 24 hours for Earth to spin once. It takes about 28 days for the Moon to orbit Earth. Together the Moon and Earth orbit the Sun, which takes about 365 days. The Moon's surface is rocky and dusty and full of craters, most likely made by rocks that crashed into the Moon. The surface is not flat, but has mountains and valleys. Your children should know that scientists have not yet found evidence of plants or animals (or aliens) on the Moon. However, scientists believe there might have been water on the Moon.

Some children might notice that the Moon rises and sets in the night sky. Explain that the Sun rises in the east and sets in the west, and the Moon does the same thing. Sometimes you can even see the Sun and the Moon in the sky at the same time. The Moon appears to rise and set because of Earth's spin on its axis and the Moon's orbit around Earth. You may ask volunteers to model the Earth's spin and the Moon's orbit around Earth. It is important for children to understand that the Moon still exists and keeps orbiting Earth even if they cannot see it.

Ask your children if the Moon always looks the same in the night sky. Remind your children that the Moon does not make its own light or heat like the Sun. We can only see the Moon because the Sun's light shines on it. You may want to turn off the lights and shine a flashlight on an object to illustrate your point. If the flashlight only shines on part of an object, you can only see part of the object. This phenomenon explains why we see different parts of the Moon throughout a month. Explain that the Moon goes through phases, or periods of time when we see different parts of the Moon. The first phase is the new Moon. We do not see the Moon in the sky at all during this phase because the Sun shines on part of the Moon that faces away from Earth. After the new Moon, we begin to see the Moon get bigger in the sky. It turns into a crescent Moon, then a half Moon (also called a quarter Moon) and then after 14 days, we see a full Moon. Then we see the Moon get smaller in the sky. It changes to a half Moon, then a crescent Moon, then it becomes a new Moon again and the cycle starts over. When we see the Moon get bigger, we say that it is waxing. When we see it get smaller, we say that it is waning.

Space exploration is an exciting topic for most children, but how do people explore space? Telescopes are powerful tools that help people see objects in the sky that are very far away. Observatories are places with powerful telescopes and many are open to the public. Scientists have launched space shuttles and satellites to help them learn more about space. In 1969, Neil Armstrong became the first person to walk on the Moon.

The Moon has played an important role throughout history. Ancient civilizations such as the Aztecs built temples to honor the Moon and observed its phases. Different Native American communities have passed down folktales about how the Moon came to be. Some cultures have passed down stories about the "Man in the Moon," and other cultures have seen rabbits, women, and even buffolo in the Moon. Poems, essays, plays, novels, and music

have all been written about the Moon. Talk to your children about what books they have read or stories they have heard about the Moon. A Moon study provides a wonderful opportunity to make cross-curricular connections and get children excited about the world around them.



## Look at the Moon and observe its phases.



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## Solar System Movie Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about solar system. It is designed to complement the **Solar System (http://www.brainpopjr.com/science/space/solarsystem/)** topic page on BrainPOP Jr.

Space is a subject that engages children and encourages them to ask questions about the world around them. Through learning about our Solar System, children can apply and build on concepts they have already learned and develop an understanding of the vast world beyond our planet. We recommend screening the movies on <u>the</u> <u>Moon (http://www.brainpopjr.com/science/space/themoon)</u> and <u>Earth (http://www.brainpopjr.com/science/space/earth)</u> and completing the accompanying features and activities before diving into the Solar System topic.

Remind children that our Solar System is a group of planets, moons, and other bodies that orbit, or go around, the Sun. Celestial bodies include comets and asteroids. It is important to note that a solar system is a group of bodies that orbit a star. In our Solar System, the Sun is the star at the center of our Solar System and bodies orbit around it. A star is a body of hot gases that makes its own light and heat. The center of the Sun is about twenty-seven million degrees Fahrenheit, or about fifteen million degrees Celsius. The diameter of the Sun is about 1.4 million kilometers, or roughly 870,000 miles. About 109 Earths can fit across the Sun. Despite its large size, the Sun is actually a medium-sized star. There are many stars that are significantly larger. Even though the Sun is millions of miles away from Earth, it is the closest star to our planet. The Sun provides heat and light and enables living things to survive.

The Solar System is divided into two main sections. The inner Solar System contains four planets, Mercury, Venus, Earth, and Mars. The planets of the inner Solar System are considered terrestrial, which means they are rocky. Many have craters, ridges, and volcanoes.

Mercury is the planet closest to the Sun. It rotates slowly, taking about fifty-eight Earth days to rotate. It takes nearly eighty-eight Earth days for Mercury to complete its orbit around the Sun. The side of Mercury that faces the Sun is extremely hot, while the side facing away is extremely cold. Temperatures on the planet can range from -183 degrees Celsius to 427 degrees Celsius.

Venus is the second planet from the Sun. Its size is similar to that of Earth and thus it is often called Earth's "sister planet." Venus's atmosphere is made mostly of carbon dioxide and its clouds trap in heat, much like the greenhouse effect. Venus is the hottest of all the planets with surface temperatures reaching up to 460 degrees Celsius. All the planets of our Solar System rotate counter-clockwise, from west to east, except for Venus and Uranus. Scientists believe Venus rotates backwards because an asteroid collided with it long ago and disturbed its rotation.

Earth is the only planet where scientists have found life so far. It is known as the "blue planet" due to the presence of water which covers about 70% of its surface. Children can learn more about our planet by exploring our **Earth** (http://www.brainpopjr.com/science/space/earth) movie.

Mars is known as the "red planet" due to the reddish color of its rocks. For years, scientists believed the planet was once covered by liquid water, and in July of 2008, ice was discovered by the Phoenix Mars Lander.

The outer Solar System contains the gas giants, which are large planets made mostly of gases. Jupiter, Saturn, Uranus, and Neptune are the gas giants of the outer Solar System. Jupiter is the largest of all the planets, and it is composed mostly of hydrogen. Scientists have discovered over sixty moons that orbit the planet and there is also

#### Solar System Movie Background Information for Teachers and Parents

a faint ring that circles the planet. There is a permanent storm on the planet called the Great Red Spot, which you can see in images of the planet. Scientists believe that this storm has lasted well over three hundred years.

Saturn is the second largest planet, and it is most recognizable by its rings, which are made of ice, rocks, and dust. Like Jupiter, Saturn is composed mostly of hydrogen. There are sixty known moons that orbit Saturn and one of them, Rhea, may have rings. This would be the first discovery of a moon that has a ring system.

Uranus and Neptune are sometimes considered "ice giants" because their composition differs from Jupiter and Saturn. While the atmospheres of both Uranus and Neptune are comprised mostly of hydrogen and helium, there is also the presence of ice and frozen volatile gases such as ammonia and methane. Uranus is the coldest planet in our Solar System, with temperatures reaching -224 degrees Celsius. Uranus also has a faint ring system. The most notable feature of Uranus is its axis of rotation. While most planets spin like a top, Uranus spins on its side, much like a rolling ball. Therefore, the poles of Uranus are located where most planets have their equators. Many scientists hypothesize that a planet may have knocked Uranus off its axis soon after it was formed.

Neptune is the farthest planet from the Sun, and is similar in size and composition to Uranus. Neptune's striking blue color is most likely from the presence of methane in its atmosphere. Like Jupiter, Neptune has a permanent storm, called the Great Dark Spot. Neptune also has a ring system which is composed mostly of ice. It is important for your children to understand that many of the planets, and not just Saturn, have rings. In fact, all the gas giants (including the ice giants) have rings.

For decades, Pluto was considered the ninth planet of our Solar System. However in 2006, astronomers revised their definition of a planet and decided that Pluto is actually a dwarf planet, or minor planet. Many scientists now believe that Pluto is the largest dwarf planet in the Kuiper belt, a large group of bodies that orbit beyond Neptune. Pluto is markedly different from the major planets. It is significantly smaller and its unique orbit occasionally brings it closer to the Sun than to Neptune.

Encourage your children to explore beyond this movie and visit their local library or research on the Internet to learn more. NASA's website contains a wealth of current, grade-appropriate information. A visit to a natural history museum or planetarium will help inspire children to learn more and explore the world beyond Earth.



## Make a mobile of the Solar System that shares a cool fact about each planet!

#### You'll need:

crayons or markers · pen or pencil · scissors · hole-puncher · string · hanger

- 1. Color all of the planets and write a fact about each one.
- 2. Cut out the cards and punch a hole at the top of each card.
- 3. Tie string to each card.
- 4. Tie the cards on to the hanger in order, starting with the Sun.



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# Mars Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about mars. It is designed to complement the **Mars (//www.brainpopjr.com/science/space/mars/)** topic page on BrainPOP Jr.

Help children explore the universe without going into space! Before beginning the Mars topic, you may want to play the **Solar System (http://www.brainpopjr.com/science/space/solarsystem/)** movie for a review and overview of the planets. This movie will introduce Mars and explore its topography and atmosphere. It will also investigate signs of water found on the planet and their implications.

Remind children that Mars is the fourth planet from the Sun in our Solar System. It is often called the "Red Planet" because of the iron oxide found in its terrain that gives it a reddish, rusty appearance. Help children draw comparisons between Earth and Mars. Point out that Mars has two moons, Phobos and Deimos, while Earth only has one. Mars is about half the diameter of Earth and about one-ninth of its mass. Mars, like Earth, has a variety of landforms on its surface, such as canyons, plains, valleys, mountains, and inactive volcances. Mars' Olympus Mons is a large volcanic mountain that is about three times taller than Mount Everest. Valles Marineris is a system of Martian canyons that is one of the biggest canyons in our entire Solar System.

Mars is farther from the Sun than Earth, so it receives less solar energy. This is one reason why Mars can get very, very cold, with surface temperatures reaching -87 °C (-125 °F) during the winters and -5 °C (23 °F) in summers. It's important to note that distance from the Sun is not the only contributing factor to the average temperature of a planet. Atmosphere is also an important factor. Venus, which is farther than both Earth and Mars from the Sun, is actually the hottest planet because of its atmosphere. Mars, on the other hand, is a cold, dry place. Explain to children that it does not rain on Mars, but it can get very, very windy. Dust storms on Mars can last for weeks or even months.

Mars' atmosphere is made of about 95% carbon dioxide, whereas Earth's atmosphere is a mixture of different gases. In some places on Mars, carbon dioxide is frozen into an icy solid. We can see ice caps on the planet in satellite images. It is important for children to understand that Mars does not have enough oxygen for us to breathe.

Since Mars has less mass than Earth, the surface gravity on Mars is less than the surface gravity on Earth. The surface gravity on Mars is roughly 38% of the surface gravity here, so a person who weighs 100 pounds on Earth would weigh only 38 pounds on Mars. You may want to explore this concept further by screening the **Gravity** (http://www.brainpopjr.com/topics/gravity) movie.

We know much about Mars because scientists have been studying and observing the planet for centuries. We can use telescopes to observe Mars and scientists are launching spacecraft to get a closer look at the planet. Some spacecraft, such as the Mars Reconnaissance Orbiter, orbits the planet and uses special tools to look for signs of water and collect information about the weather. It takes pictures of the surface so we can get a closer look and track changes in the environment. Vehicles call rovers explore the planet's surface. Part of their mission is to look for signs of water. The Mars Curiosity is a rover that launched in 2012 and has a traveling laboratory to study samples. Explain to children that living things are often found in and around water and scientists are looking for an environment that could be friendly for life. Scientists have not found any Martians, but there is evidence of bacteria that might have been present on the planet.

Explain to children that Mars does have water, but most of it is frozen. A Mars rover found frozen water underground, and evidence in the surface shows that liquid water might have once been present on the planet. Mars has dried channels that look much like dried chan ' found on Earth and there are trails that were probably

left behind by flowing water. There is even topographical evidence of dried oceans on Mars. Help children understand that we can compare land on Mars and Earth to help us understand the history of both planets. There's still a lot to learn about Mars, but scientists constantly collect information about the planet.

Help children explore the universe! Encourage them to learn more about the bodies in our Solar System and draw conclusions about life on other planets.



Scientists believe there was liquid water on Mars a long time ago. Could water be related to Mars' red surface? Do an experiment to explore.





### Name:

- 1. Cover the bottom of the baking pan with a thin layer of sand.
- 2. Wearing gloves, cut the steel wool into tiny pieces. Add the pieces to the sand.
- 3. Add enough water to wet all the sand and steel wool.
- 4. Observe the mixture for a few days.

### Draw and/or write your observations.

Day 1	Day 2	Day 3
Day 4	Day 5	Day 6

What happened to the mixture after a few days?

Steel wool has iron in it. Iron rusts when it contacts oxygen or water over time. How do you think rocks on Mars got their reddish color?

### What do you think Mars was like long ago?

## **Reading Maps Background Information for Teachers and Parents**

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about reading maps. The information is designed to complement the BrainPOP Jr. movie **Reading Maps** (http://www.brainpopjr.com/socialstudies/geography/readingmaps/). It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

Reading maps is an important skill that even the youngest of students can learn and develop from an early age. Reading maps combines reading and math skills and helps build spatial sense and visual literacy. Remind your children that a map is a tool that shows details about an area. A map can show continents, countries, states, and cities or show the roads and landmarks of a town. It can show routes of a transportation system, such as bus or subway lines, different landforms and elevations, different kinds of natural resources, or varying temperatures in a specific area. A map can also show historical data, such as changes in population, housing development, or crime. A globe is a map on a round model that shows places on Earth. Display different maps for your children and discuss what information each map communicates. Then point out different parts of the map such as the map key or map legend, scale, and compass rose.

Review with your children that a map key or map legend is a chart that explains what symbols mean on a map. On many navigational maps, a black dot stands for a city, a star stands for a state's capital, and a star inside a circle stands for a country's capital. Airplanes stand for airports and black or yellow lines stand for highways, roads, or streets. Different maps have different symbols, though many share the same basic symbols. Remind your children that they should always look at the map key or legend to figure out what the symbols mean. There are also other symbols or markings that may not be in a typical map key. Green shading usually stands for a park; blue shading usually stands for a body of water such as a pond, lake, sea, or ocean; thin blue lines stand for rivers, streams, or creeks; and brown shading sometimes stands for deserts or plains. Non-navigational maps, such as temperature maps or rainfall maps, use different symbols, so children should look at the map key to gain a better understanding.

Many maps have a compass rose, which is a tool that displays directions. The cardinal directions are north, east, south, and west. The intermediate directions are the points in between the cardinal directions: northeast, northwest, southeast, and southwest. You may want to teach your children a mnemonic to remember the cardinal directions, such as "Never Eat Soggy Waffles" or "Never Eat Shredded Wheat." Encourage your children to come up with their own mnemonics. Many maps also have a scale, which is a tool that compares distance on a map to distance on Earth. The scale helps the user figure out real-life distances by looking at a map. For example, suppose there is a map where 1 inch represents 1 mile. Two landmarks that are 3 inches apart on the map are 3 miles apart on Earth. Different maps have different scales so children should always refer to the map key or legend to look for the scale.

Maps help people navigate, or find their way around an area. Display a simple map and have children give verbal or written directions to go from one location to another. You may wish to model an example first. Children should use sequence words, such as *first, second, third,* and *then*. We recommend watching the <u>How-to Essay</u> (<u>http://www.brainpopjr.com/writing/essay/howtoessay/)</u> movie together as a review. They should also use language that describes direction, such as *left, right, straight,* and *turn*, and use cardinal directions and landmarks to make their directions as clear and easy as possible for the listener or reader.

Maps are not only useful tools, but they also give people a sense of place in a world. Maps vary greatly, so encourage your children to analyze maps and find different examples. Maps allow children to explore their world without having to leave their homes!

Filed as: K-3, Reading Maps

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#### Robyn • 4 years ago

After viewing the movie, I would give children more experiences exploring and manipulating maps.

One activity I would implement is having children create maps in an Active Inspire Template. I would create the template with land and then have them using guiding questions to place symbols onto the map (ex. Everyone gets lost in HappyVille. The mayor has asked you to place the following locations on a map so that visitors know where to go. Put the school in the Northwest", etc.

AN additional activity I would implement is having students create a map of well-known neighborhood locations in Google My Maps. I would have them add place markers, then add descriptive photos and captions.

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## **Continents and Oceans Background Information for Teachers, Parents and Caregivers**

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about continents and oceans. It is designed to complement the **Continents and Oceans** (http://www.brainpopjr.com/socialstudies/geography/continentsandoceans/) topic page on BrainPOP Jr.

The world is a big place! Help children develop a better understanding of geography and learn about the world around them. In this movie, children will learn about Earth's continents: North America, South America, Europe, Asia, Africa, Australia, and Antarctica. Children will learn a few key details about each continent, including their location on a map. They will also explore our planet's five oceans: the Atlantic, Pacific, Indian, Southern, and Arctic Oceans. We recommend looking at maps together and helping children find their own location and other places of interest around the world. You may want to screen the **Reading Maps** (http://www.brainpopjr.com/topics/readingmaps/) movie as a review.

Remind children that a continent is one of Earth's large landmasses. It is important to note that some cultures divide the continents differently. For example, some people group North and South America as one continent because it is separated only by an isthmus; others consider Europe and Asia as one continent since it is one land mass divided by the Ural Mountain range. But many people feel that the enormous historical and cultural differences between the Americas, and between Europe and Asia, justify their separation into distinct continents.

Most people agree that there are five main oceans in the world. The Arctic Ocean is in the far north, and the Southern Ocean surrounds Antarctica. The Pacific Ocean is to the west of the North and South Americas, while the Atlantic Ocean is to the east. The Indian Ocean is bordered by Africa, Asia, and Australia. Remind children that there are other smaller bodies of water, such as the Caribbean Sea and the Mediterranean Sea. Look at a map together and point out other bodies of water. Are any bodies of water near your school visible on the map?

Find North America on a map. Remind children that North America includes the United States of America, Canada, and Mexico. It also includes Central America, which is the long, narrow part of the continent that connects to South America. Discuss different landforms in North America together. You may want to review the Landforms (http://www.brainpopjr.com/topics/landforms/) movie together. Remind children that plains are wide, flat areas of land that often have rich soil. The Great Plains covers over 500,000 square miles of the central United States and Canada. The Rocky Mountains also covers parts of the United States and Canada—they stretch over 3,000 miles from the southern part of British Columbia in Canada to New Mexico in the United States. What are some other noteworthy landmarks in North America? Discuss with children and look at their location on a map.

Remind children that the Equator is an imaginary line that goes around the middle of the Earth. Most of South America lies in the southern hemisphere, the area below the Equator. The Amazon rainforest is in South America and it is the largest rainforest in the world. You may want to screen the **Rainforests** (http://www.brainpopjr.com/topics/rainforests/) movie as an extension, and highlight differences between North and South American climates and rainforests. South America is also home to the longest mountain range in the world, the Andes Mountains. This mountain range is over 4,000 miles long and extends across seven countries.

Show a map of Africa and point out that parts of Africa lie in the northern hemisphere and other parts lie in the southern hemisphere. The largest desert in the world is the Sahara Desert and it is in Africa. This desert covers nearly 3,700,000 square miles and is almost as large as the entire United States. Africa is also home to the longest river in the world, the Nile River. Help children understand that people have been relying on the river for thousands of years, not only for drinking water but for food and transport. You may want to view the **Ancient Egypt** 

(http://www.brainpopjr.com/topics/ancientegypt/) movie as an extension. Many children are familiar with animals such as giraffes, elephants, zebras, lions, cheetahs, and hippos. These are animals that are native to Africa and in some cases the only places where they are found in the wild.

There are about fifty countries in Europe, but twenty-seven of them have come together to form the European Union to share resources and exchange in commerce more easily. The Alps are a mountain range that stretches across parts of Europe. In northern Europe there are fjords, which are long, narrow inlets with steep sides. Fjords are created by glaciers, or large, slow-moving bodies of ice that cut large valleys.

Asia is the world's largest continent and the most populated. About 60% of the world's population lives in Asia. The world's tallest mountain, Mount Everest, is in Asia, on the border between Nepal and Tibet. Mount Everest is nearly 30,000 feet high. Asia is also home to the lowest place on Earth, the Dead Sea, which is a salt lake on the border between Israel and Jordan. The Dead Sea is one of the saltiest bodies of water—over 8 times saltier than the oceans—and is about 1,385 feet (422 meters) below sea level.

Australia is the smallest continent. Help children understand that Australia is not only a continent, but also a country! Australia is entirely in the southern hemisphere, which is why people call it the land "down under." The Outback is the remote, arid region of Australia that is far from urban areas. But, Australia is also home to rainforests and the Great Barrier Reef, which is the largest reef system in the world and the largest structure made by living organisms, the coral polyps. It can even be seen from space! You may want to view our **Ocean Habitats** (http://www.brainpopjr.com/topics/oceanhabitats/) movie to learn more.

Antarctica is the southernmost continent and it is where the South Pole is located. Help children understand that the continent is cold and windy and frozen in ice all year long—even in the summer. Although it is not hot like the Sahara, Antarctica is still considered a desert because its maximum rainfall is approximately eight inches along the coasts, with even less inland. There are no permanent residents in Antarctica, but scientists do visit there for research.

Understanding about the different continents and oceans helps children build a better understanding about the world around them. Introduce them to places and cultures beyond their everyday experiences, and teach them their role as responsible global citizens.

## Natural Resources Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about natural resources. It is designed to complement the <u>Natural Resources</u> (http://www.brainpopjr.com/science/conservation/naturalresources/) topic page on BrainPOP Jr.

Natural resources are something of value people get from the environment, such as air, water, plants, animals, rocks, and minerals. This movie will introduce and explore different renewable and non-renewable resources and explain how people use them to meet their needs. Help your children understand how people's need for natural resources and their activities impact the environment. Encourage your children to practice ecologically conscious habits that help conserve natural resources.

Remind your children that air, water, and sunlight are natural resources that nearly all living things need to survive. Brainstorm different natural resources together, such as soil, land, plants, and animals. Some resources are renewable, which means they can be replaced or grown back. For example, many crops are renewable natural resources. After they are harvested, more seeds can be planted and grown. Wind power is a renewable resource that has been used for thousands of years to pump water, irrigate crops, and also to sail boats. Other resources, however, are non-renewable. They cannot be replaced or they take a very, very long time to be replaced or grow back. Fossil fuels are non-renewable natural resources. There are three major forms of fossil fuels: coal, oil, and natural gas. Explain to your children that fossil fuels are formed in the Earth from the remains of plants and animals. It takes millions and millions of years for fossil fuels to form, so they are non-renewable natural resources. We are using fossil fuels that have existed for more than 300 million years, since before the time of dinosaurs.

Brainstorm different ways people use natural resources with your children. It is important that children learn how much in their daily lives comes from the Earth and its environment. We use plants for food, clothing, and many other uses. We use trees to make paper products, but we also harvest wood for building materials and to make furniture. We use animals like cattle for food and dairy products, but we also rely on them for leather. We use rocks and minerals to make a variety of materials, including glass, metal, and ceramics. We convert fossil fuels into energy to power and heat our homes and fuel modes of transportation, including planes, buses, boats, and cars. We also use petroleum, a fossil fuel, to make a variety of materials, including planes, including planets.

Help your children understand that people are using up natural resources faster than they can be replaced. For example, forests are being cut down in order to supply our demand for wood and land. Experts say our rainforests, often called the "lungs" of the Earth, are being cut down at the rate of 50 million acres a year. You can share more information about the environmental importance of the rainforest by watching our **Rainforests** (http://www.brainpopjr.com/science/habitats/rainforests) movie. Our dependence on natural resources is creating many problems in the environment, including pollution and the loss of habitat for plants and animals. Collecting and burning fossil fuels for energy can damage the environment, polluting air, water, and land. Children should understand that finding and using renewable sources of energy will be one of the most important tasks of future generations.

Natural resources take time to replace, so it is important that we use them wisely. Brainstorm different ways people can conserve natural resources. We can conserve water by taking shorter showers, turning off faucets when we do not need running water, and fixing leaky pipes. We can recycle glass, metal, paper, and plastic to conserve and protect our natural resources. We can reduce the amount of fossil fuels we use by turning off lights and appliances when we do not need them. We can also cut down on emissions and save fossil fuels by using public transportation and carpooling, and riding bikes instead of driving. Encourage your children to come up with more ways to conserve our natural resources. We recommend watching the **Reduce, Reuse, Recycle** (http://www.brainpopjr.com/science/conservation/reducereuserecycle) movie to reinforce ideas and concepts.

#### 4/10/2020

#### Natural Resources Background Information for Teachers and Parents

Teach your children about ways people use alternative sources of energy. Solar power and wind energy come from sustainable, renewable natural resources. Many homes, buildings, and even appliances use solar energy. Geothermal energy extracts power from the heat within the earth, and provides sustainable energy for more than 25% of Iceland, the Philippines, and El Salvador. About 5% of the electricity in California comes from geothermal sources. Some vehicles run on biodiesel, a fuel that is made from vegetable oils, animal fats, or recycled greases. These alternative sources can create less pollution than burning fossil fuels. Together research other renewable sources of energy.

We depend on natural resources to live, and it's important that we conserve them. Help build your children's awareness of how their actions and choices affect the environment. Instill ecologically conscious habits and encourage them to find new ways to help protect natural resources.

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## How much water do you think you use each day?

Name:

## 1. Record daily activities that use water. Then, predict how much water you think each activity uses.

Activity	Amount of Water

### 2. Use the chart below to see how much water each activity normally uses.

Activity	Amount of Water	
Shower	20 gallons	
Bath	35 gallons 📃 💻	
Washing hands	5 gallons	
Brushing teeth (if I leave water running)	5 gallons	
Brushing teeth (with faucet off)	2 gallons	
Flushing toilet	20 gallons	
Dishwasher	10 gallons	
Washing dishes by hand	20 gallons	
Leaky faucet	20 gallons	

Compare your predictions with the second chart. How are the charts different?

### How can you use less water?

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# **Needs and Wants Background Information for Teachers and Parents**

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about needs and wants The information is designed to complement the BrainPOP Jr. movie **Needs and Wants** (http://www.brainpopjr.com/socialstudies/economics/needsandwants/). It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

The relationship between needs and wants is an important lesson for your children to learn and understand. A need is something an organism must have in order to survive. For example, people need air, food, water, and shelter. A want is something someone would like to have. For example, bikes, video games, and televisions are all wants; people can survive without them. Encourage your children to think about their needs and wants.

Many people have jobs and work to earn money in order to meet their needs and wants. We recommend watching the **Dollars and Cents (http://www.brainpopjr.com/math/money/dollarsandcents/)** movie together as a review. Explain to your children that people can use their money to buy goods and services. Goods are things that are made or grown and usually something you can see or touch. Have your children look around them and find examples of different goods. Remind your children that crops are goods. A service is work that someone does for someone else. For example, an auto mechanic provides the service of repairing vehicles, a teacher provides the service of instructing students, and a doctor provides the service of monitoring patients health and treating illnesses. Discuss different services that people need and offer. A producer is someone who makes or grows goods or offers services. Farmers, carpenters, librarians, and manufacturers are examples of producers. A consumer is someone who buys goods and services. Have your children identify different items they consume and think about who might have produced them.

Your children should understand that people often want much more than they need. As a result, people must make choices about what they truly need and what they can afford. Offer different scenarios to help your children learn how to make smart choices with money. Should someone buy pet food and groceries or buy a new video game? Children should learn to buy what they need before what they want. Also help children become smart consumers by researching products and learning about where their money goes when they purchase a good or service. Why should you buy products made from recyclable materials? Why should you support local businesses in your community? By teaching the basic principles of economics and instilling responsible consumer skills now, your children will learn how to make smart and globally conscientious choices as adults.



Create an ad for an item that people might want.



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# Saving and Spending Background Information for Teachers and Parents

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about saving and spending money responsibly. The information is designed to complement the BrainPOP Jr. movie **Saving and Spending (http://www.brainpopjr.com/socialstudies/economics/savingandspending/)**. It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

Promote financial literacy! Help your children learn how to save and spend money wisely. Empower your children with the skills to be conscious consumers. Help them understand the difference between needs and wants and teach them ways to budget and plan. Practicing financial management skills will help them become more responsible and organized.

How do people earn money? Brainstorm with your children and write down their ideas. Some people provide services for other people. For example, dentists, teachers, and bus drivers provide services. Other people sell goods, or items that are made or grown. For example, farmers grow and sell goods. You may want to review the **Goods and Services (http://www.brainpopjr.com/socialstudies/economics/goodsandservices/)** movie with your children. Many children receive an allowance, or a regular amount of money earned from a parent or family member. Discuss the ways kids might earn an allowance, such as doing chores or helping out family members with tasks. Remind your children that it is their responsibility to save and spend their money wisely.

Discuss with your children the differences between needs and wants. We recommend reviewing our **Needs and Wants (http://www.brainpopjr.com/socialstudies/economics/needsandwants/)** movie. People buy what they need, such as food and medicine, and they also buy things they want, such as toys and treats. Encourage children to think about what they need versus what they want. They should buy the things they need *before* they buy the things they want. People work hard to earn their money, so it's important that they spend it wisely. When purchasing an item, it's a good idea to shop around and compare prices to find the lowest price. You can visit different stores, research prices online, find money-saving coupons, look for a cheaper or used alternative, or wait until the item goes on sale and the price is lower. Brainstorm other money-saving tips together and help your children to become conscious consumers.

Explain to your children that a budget is a plan for spending and saving money. A budget can help organize and keep track of how money is used. Create a sample budget together. A budget can show how much money has been earned, how much has been spent so far, and how much is left. It can also show expected expenses, in order to plan how much to save. Teach children how to predict their expenses and find out how much money is left for non-essential purchases. What might happen if they use up their allowance on one purchase? They should understand that they should get the things they need first, and they might not have enough money left to get things they want. However, they can save up for the things they want!

Brainstorm different ways your children can save money. By saving just a few cents a day, they can have a good amount saved by the end of the week, month, or year. For example, saving just 10¢ each day will yield about \$3.00 by the end of the month. That's enough to spend on a special treat or a book. Now imagine the savings you might have in a year or more! People can save just a little a day to help them pay for big purchases and expenses, such as college tuition, a car, or even a home.

Encourage your children to share. Discuss times when people have come together and pooled money and resources. Some communities have bake sales and fundraisers to raise money for a community center or library. Students in a class might pool their money to fund a trip. Remind your children that when they donate, they give something away. People donate clothes, money, and services. One person can put aside a penny a day to donate.

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But, if many people put aside a penny a day for a common cause, it all adds up! Review with your children that a charity is a group that helps a community. Brainstorm charities in your neighborhood, town, or state. What charities can benefit an entire country? This is a great opportunity to raise awareness on global issues.

Help your children become conscious consumers and empower them with the skills to manage their personal finances at an early age. Help them understand that it is their responsibility to spend, save, and share their money thoughtfully.

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## Plan a weekly budget by filling out the chart.

### Weekly budget

Name:

Date:

What I Will Earn

### How I Will Earn Money How Much I Will Make


### Total Earned: \$

What I Will Spend Money On	How Much It Will Cost

Total Spent: \$

Subtract the Total Spent from the Total Earned. This is how much you will save this week.



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## **Branches of Government Background Information for Teachers** and Parents

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about the branches of government. The information is designed to complement the BrainPOP Jr. movie **Branches of Government** (http://www.brainpopjr.com/socialstudies/government/branchesofgovernment/). It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

Help children understand how their government is organized and run. Encourage them to learn about their local, state, and federal governments and how they can be involved and become active members of their communities, states, and country. This movie will explain the responsibilities of the three branches of the United States government: the legislative branch, the executive branch, and the judicial branch.

Review with children that before the United States was a country, there were thirteen colonies that were ruled by the King of Great Britain. The king made most of the decisions about the government and how people lived. The colonists rebelled and established independence so they could elect their own leaders. Many colonists did not want one person or body to have too much power, like a king. The founding fathers drafted and signed the Constitution of the United States, which is the set of laws of the country that explains how the government should be organized and run. The Constitution specifically outlines a separation of powers and describes a system of checks and balances so that one person, leader, or group does not hold too much power.

Remind children that the federal government, or the government of the country, is divided into three branches. The legislative branch is in charge of creating laws. Congress makes up the legislative branch and it is divided into the Senate and the House of Representatives. Explain that each state elects two senators, which means there are a total of 100 senators. Senators are elected every six years. Then share with children that the House of Representatives has 435 seats. The number of seats each state gets to elect depends on the number of people that live in the state. So, for example, a more populous state such as California has 53 seats in the House of Representatives, while a less populous state such as Wyoming only has 1 seat. Why might seats in the House of Representatives be based on population? Discuss with children. Representatives are elected every two years. Explain that the main job of Congress is to create laws. Members of Congress write a bill and it gets put to a vote. If the bill passes both houses, it gets sent to the president

The executive branch is in charge of carrying out laws and recommending and approving new ones. The president of the United States heads this branch. If the president signs the bill, it becomes a law. The president can also veto, or reject, the bill and it gets sent back to Congress. There it can be changed and resubmitted to the president, or Congress can decide to override the president's veto with another vote. The president's veto power and Congress' power to override a veto allow for the balance of power. What if the president could create any law he or she wanted to? Discuss with children. The president is also commander-in-chief of the military and leads the armed forces, and also meets with leaders from other countries to discuss and help solve problems. The president and vice president are the only leaders that are elected by the entire country. The president can serve just two terms, for a total of eight years. Why might the president have term limits? Discuss with children. For more information about the president's duties, we recommend sharing the **President** (http://www.brainpopjr.com/socialstudies/government/president) movie.

The judicial branch reviews laws and makes sure they follow the Constitution. The United States Supreme Court heads the judicial branch. There are nine justices, or judges, of the U.S. Supreme Court, and they are appointed by the president and approved by the Senate. Supreme Court justices are not elected and there are no term limits:

justices serve until they decide to retire and step down, or if Congress decides to remove them. Explain that the U.S. Supreme Court is the highest court in the land. Its decisions guide all other courts in the country. The judicial branch makes sure that new laws and existing ones follow the Constitution.

Remind children that the government has a system of checks and balances. Each branch checks each other to make sure there's a balance of power. What if Congress could pass any law? What if the president vetoed every bill created by Congress? Discuss possible outcomes together.

Encourage children to get involved with their local governments and be active citizens. They can write letters and e-mails to their representatives and senators to help make changes and make their voices heard. What problems do they see in their communities? How can they be addressed?

## **President Background Information for Teachers and Parents**

This page contains information to support educators and families in teaching K-3 students about the President. The information is designed to complement the BrainPOP Jr. movie **President** (http://www.brainpopjr.com/socialstudies/government/president/). It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other

BrainPOP Jr. resources can be used to scaffold and extend student learning.

Remind your children that a president is the leader of a group, company, or government. The president of the United States is an elected leader who has many responsibilities, including creating policies, leading the armed forces, and meeting with world leaders to discuss issues. The president also plays an important role in the law-making process. The Constitution of the United States was established to create a new system of government and outlines the responsibilities of the judicial, legislative, and executive branches. Remind your children that the president is the head of the executive branch. We recommend watching the Local and State Government (http://www.brainpopjr.com/socialstudies/government/localandstategovernments/) movie together as a review.

Review with your children that before the United States was even a country, there were thirteen colonies that were under British rule. It may be helpful to identify the thirteen colonies and England on a map to show the vast distance between North America and England. The colonists no longer wanted to be ruled by a faraway monarch and wanted to establish their own system of government independent from England. They wanted to elect their own leaders and make their own decisions about taxes and welfare. A group of leaders drafted the Constitution to outline a new government and soon the United States of America was born. The Constitution explains a system of checks and balances and describes the role of the president. We recommend reviewing BrainPOP's Constitution movie and other movies in the U.S. History unit. You may wish to screen a few of these movies for enrichment or have your children explore them independently.

The president has many responsibilities and your children should understand that the president does not have absolute power. Many decisions are made after approvals from all three branches of the government. Explain that Congress can suggest and discuss a bill and then vote to pass it. If the bill is passed, it gets sent to the White House. If the president passes and signs the bill, it becomes a law. But the president can also veto, or reject the bill. Then the bill gets sent back to Congress for another vote to override the president's veto or further discussion and changes can be made to the bill. The president's veto power is an important part of checks and balances in the United States government.

Other duties of the president include choosing judges to serve on the Supreme Court and leading the armed forces as commander-in-chief. Remind your children that the armed forces include the army, navy, air force, marines, and coast guard. The president also creates policies, or plans for the whole country to follow. For example, some policies might outline standards for cutting down air pollution or outline ways to improve schools. The president also meets with world leaders to discuss issues and make agreements as well as make decisions on how the government will work with other governments.

The president has many responsibilities and he or she gets assistance from the vice president, who can step in to do the job if the president is unable. The Cabinet is made up of a group of experts that specialize in specific areas, such as transportation, education, agriculture, and defense. The president chooses his or her own Cabinet members and relies on them to help make decisions.

Remind your children that a man or woman can be president and he or she can be of any race or religion. The president must be a natural born U.S. citizen, be at least thirty-five years of age, and have lived here for at least fourteen years. People can vote for their president ever four years. This means that a president serves four years at a time, which is called a term. A president can only serve for two terms. This allows others the opportunity to lead the country. Remind your children that a person who runs for an office is called a candidate. During an election, people listen to the candidates and vote for the person they think will do the best job. Have your children

#### President Background Information for Teachers and Parents

think about their school election and discuss the importance of making informed decisions about picking their leaders. Encourage your children to get involved with student and local governments and find ways to be active citizens.

Filed as:	President, Social St	tudies	
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# George Washington Background Information for Teachers and Parents

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about George Washington. The information is designed to complement the BrainPOP Jr. movie. It explains the type of content covered in the movie **George Washington (http://www.brainpopjr.com/socialstudies/biographies/georgewashington/)**, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

Many children have studied or read about George Washington and the birth of the United States. There are many stories about this historical leader, but not all of them are true. Some are wildly exaggerated and others are more legend than fact. We recommend encouraging your children to ask questions about his life and explore the answers themselves using the countless biographies, histories, and other resources available at your local library. Many of his letters, journals, and notes are readily available online as well. This movie will explore his life, including his birth, the American Revolutionary War, and his path to becoming the first president of the United States.

George Washington was born on February 22, 1732 to planters in Virginia. Remind your children that Virginia was one of the thirteen colonies, which were under the rule of George III, the king of Great Britain. Young George did not attend school, but instead was educated by his father and older brother. He received an equivalent of an elementary school education. He excelled at math and geometry and at seventeen he applied his knowledge and skills as a surveyor. A surveyor is a person who records the boundaries of different properties. Washington spent weeks in the wilderness recording tracks of land and creating maps of the area. He learned ways to survive in the wilderness and became familiar with the native peoples that lived in different areas.

In 1754, the British and French began fighting over territory in North America, and thus began the French and Indian War, also known as the Seven Years' War. Washington joined the British army, and was quickly promoted to major and then to lieutenant colonel. A skilled cartographer, Washington was able to draw maps for soldiers to navigate the area. Washington left the British army and returned to civilian life. In 1759, he married Martha Dandridge Custis, a wealthy widow with two children. Washington was well respected in the community as a war hero and a large landowner, and in 1758 he was elected to the House of Burgesses, Virginia's provincial legislature.

As an elected official, Washington spoke out against British rule. He opposed taxation without representation; British parliament taxed the colonies, but colonists could not elect their own leaders. He believed that the colonies should separate from Great Britain and become independent. In 1775 fighting broke out between colonists and British soldiers and Washington was chosen to lead the Continental Army as commander-in-chief.

Many children learn about a few noteworthy moments of the American Revolutionary War. On Christmas Day of 1776, Washington led his men across the frozen Delaware River and took the opposition by surprise at the Battle of Trenton. In 1777, Washington and his men camped at Valley Forge, Pennsylvania for six months. He lost a quarter of his men to disease, starvation, and freezing temperatures. Washington rallied his men, encouraging them to persevere and that the fight for independence was well worth the hardships. In 1778 the French joined forces with the colonists, and together in 1781 they helped to defeat the British at the Battle of Yorktown, in Virginia, ending the Revolutionary War.

Washington was elected as the first president of the United States in 1789. He is the only president in U.S. history to be elected unanimously. As president he had many decisions to make to lead the fledgling country. He was opposed to political parties and appointed people with differing opinions to high-level positions. He was known for listening to different points of view before making important decisions. During his presidency, he oversaw the ratification of the Bill of Rights. Remind your children thet the Bill of Rights is the first ten amendments to the

#### George Washington Background Information for Teachers and Parents | BrainPOP Educators

United States Constitution. It explains certain freedoms such as the right to free speech and religion. Washington was re-elected unanimously for a second term, but when people encouraged him to run for a third term, he refused. He decided that the country should be led by different people. Washington set a precedent, or an example to be followed by others. However, it was only after Franklin Delano Roosevelt was elected three times that the precedent became law.

When he left the presidency, he moved back to his estate at Mount Vernon. He died of pneumonia on December 14, 1799. Remind your children that we celebrate Washington's life in many ways. His head is on the quarter and on the dollar bill. His face is carved on Mount Rushmore, and the Washington Monument was erected in his honor. Furthermore, streets, parks, and schools have been named after him to keep his memory alive. Encourage your children to think of other ways people celebrate George Washington's life.


### Draw three events from George Washington's life.



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### George Washington Carver Background Information for Teachers, Parents and Caregivers

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about George Washington Carver. It is designed to complement the **George Washington Carver** (https://jr.brainpop.com/science/plants/georgewashingtoncarver/) topic page on BrainPOP Jr.

George Washington Carver was born into slavery around 1864 on a plantation in Diamond Grove, Missouri. The exact year of his birth is unknown. When he was an infant, he and his mother were kidnapped by slave raiders. The owner of the farm traded a horse as ransom for the baby, but the mother was never seen again.

As a young boy, Carver loved to collect and learn about plants. We recommend watching the **Parts of a Plant** (http://www.brainpopir.com/science/plants/partsofaplant/) movie together as a review. He had a strong ambition to go to school, but the ones in his area did not accept African Americans. He learned to read and write at home, and at ten years old, he put himself through different schools. As a student, he loved art and showed great skill as a painter. Carver decided to pursue college and was accepted to Highland University, but was promptly denied when administrators discovered that he was black. After repeated rejections, he was finally accepted to Simpson College in Iowa, where he was the second African-American student to attend. There, he studied art but realized his true love was science, and after a year, he transferred to Iowa State Agricultural College, which is now Iowa State University. He was the first African-American student to attend and faced many challenges, but his passion for botany and agricultural science led him all the way to become the first African-American faculty member at the college.

Later African-American political activist and leader Booker T. Washington invited Carver to teach at the Tuskegee Institute, an esteemed university specifically for African Americans. Carver accepted the position and taught there until his death.

Carver realized that farmers in the South relied heavily on growing cotton, but the plants depleted the soil of its nutrients. After several seasons, the soil would not sustain new plants as well as before. Carver discovered that certain crops, such as peanuts, sweet potatoes, cowpeas, and soybeans returned proteins and nutrients into the soil. Carver suggested farmers plant soybeans one year and then plant cotton the next. His method of crop rotation saved countless acres of farmland in the South.

Carver began experimenting with peanuts and sweet potatoes because they were now readily available as cash crops. He developed hundreds of uses for peanuts alone, including lotion, shaving cream, wood stain, leather and cloth dye, rubbing oil, hair tonic, and even a laxative. He also made food products from peanuts, including vinegar, instant coffee, cocoa, mayonnaise, salad oil, and peanut punch. He developed over one hundred uses for sweet potatoes, including flour, sugar, instant coffee, yeast, wood stains, paint, medicine, and meal for livestock. During his lifetime, Carver only held three patents, all for cosmetic uses. He believed that food products came from a higher power and should not be a source of profit but rather available to all.

Carver died in 1943 and gave his entire life savings to science. In both 1948 and 1998, the U.S. Postal Service released commemorative stamps in his honor.

Name:

#### George Washington Carver Draw About It

If you were a farmer, what crops would you grow? How would you use those crops?

## Helen Keller Background Information for Teachers and Parents

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about Helen Keller. The information is designed to complement the BrainPOP Jr. movie **Helen Keller.** (http://www.brainpopjr.com/socialstudies/biographies/helenkeller/) It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

Encourage children to learn about historical figures and draw inspiration from their lives and work. This movie will explore the life of Helen Keller, from her childhood and tutelage under Anne Sullivan, to her rise as a writer and activist. What does Helen Keller's life teach us? Have children keep this question in mind as they watch the movie and explore the topic further.

Helen Keller was born in Tuscumbia, Alabama, on June 27, 1880. Helen was not born blind and deaf. When she was about nineteen months old, she became sick and lost the ability to see and hear. Still, Helen was able to communicate with her family and recognize people by touching their faces, feeling their clothes, or even by their scent. But it was still difficult for young Helen to communicate many of her thoughts and feelings. She got frustrated and upset and often threw tantrums. Her family reached out to experts to find someone who could teach Helen and help her communicate. They consulted many doctors and specialists, including Alexander Graham Bell, who had been working with deaf students. Eventually, a tutor by the name of Anne Sullivan came to the Keller home in 1887, when Helen was seven years old.

Sullivan began spelling words using sign language. Remind children that sign language is communicated through hands shapes and body movements. Sullivan spelled words into Helen's hand so she could feel the letters. However, young Helen didn't understand that she was spelling words or that the words were associated with objects. Sullivan remained patient and was determined to provide a structured environment for her student to learn. One day, Helen was washing her hands and Sullivan spelled the word "water" into Helen's hand. Something clicked in Helen's head and she understood that the words were associated with objects. Helen began asking about everything around her. Sullivan read books to Keller by signing words into her hand, and Keller learned how to write by using a ruler to guide her. Until her death in 1936, Sullivan remained as Keller's companion and mentor.

Keller learned to read lips by lightly touching the speaker's lips and throat to feel vibrations of the vocal cords. To demonstrate this concept, you may want children to lightly feel their throats and lips as they read a sentence out loud. Keller also learned to read Braille. Remind children that Braille is the set of raised dots that stand for letters, numbers, and symbols. The dots can be read by touch. Keller read books in Braille and also wrote in Braille on a special typewriter.

One of Keller's goals was to attend college. With the help of Sullivan, Keller enrolled in Radcliffe College and became the first deaf and blind person to graduate college. Soon after, Keller published an autobiography and described how she overcame challenges with hope and determination. Remind children that an autobiography is a book a person writes about his or her own life. Today, Keller's autobiography [i]The Story of My Life[/i] has been translated into dozens of languages and published all around the world.

Helen Keller became an activist and spent the rest of her life helping others and fighting for her beliefs. Explain to children that at the time, women did not have the right to vote. Keller wrote articles, essays, and letters and campaigned for equal rights and suffrage. She was one of the founding members of the American Civil Liberties Union and later during the Depression, she called for support for the unemployed and needy. Keller met with presidents to get fair treatment for people with disabilities and traveled the world to encourage leaders to improve

https://educators.brainpop.com/lesson-plan/helen-keller-background-information-for-teachers-and-parents/?bp-jr-topic=helen-keller

conditions for people with disabilities. Everywhere she traveled, she gave speeches about determination and hope and encouraged people to work together and overcome challenges. She raised funds and awareness for nonprofit organizations that supported people with disabilities, including the American Foundation for the Blind.

Help children draw inspiration from Helen Keller's life. What can we learn from Keller's character and experiences? Encourage children to find positive role models in their lives.

Filed as: Helen Keller, K-3, Social Studies

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## Amelia Earhart Background Information for Teachers and Families

This page contains information to support educators and families in teaching K-3 students about Amelia Earhart, the first woman to fly solo across the Atlantic. Designed to complement the BrainPOP Jr. movie <u>Amelia Earhart</u> (<u>https://jr.brainpop.com/socialstudies/biographies/ameliaearhart/</u>)</u>, you will find ideas for how teachers and parents can develop related understandings, and ways to use other BrainPOP Jr. resources to scaffold and extend student learning.

Help your children explore the lives of key figures who changed history and deepen their understanding of how our lives today differ greatly from long ago. This movie explores the life and accomplishments of Amelia Earhart, the inspiring aviator, author, teacher, and women's rights activist. Throughout the movie, your children will discover how Earhart learned to fly—an unusual feat for a woman of that era—and how she encouraged other women to follow their dreams. They'll also learn about her historic attempt to fly around the world, and her mysterious disappearance.

Amelia Earhart was born in Atchison, Kentucky in 1897, a time when women had very few opportunities. It would be over 20 more years before they were even granted the right to vote. As a child Earhart was active and rambunctious, spending time outdoors with her sister. She climbed trees and performed stunts, while most girls her age were expected to stay indoors. Hold a discussion with your children about how boys and girls had different experiences growing up in the early 1900s. How is life different for children today?

Earhart's love of flying began at a 1920 visit to an airshow in California. After getting a chance to ride in a plane for a mere 10 minutes, she knew she had to fly. She worked very hard to achieve this goal, first earning money for flying lessons and eventually earning her pilot's license. She learned to fly from the aviator Neta Snook, who was the first woman to own her own aviation business. Soon, Earhart purchased her first plane, nicknamed the "Canary" and set a new altitude record for women pilots. She was just getting started! In June 1928, Earhart set another record for women when she became the first woman to fly across the Atlantic. Her role, however, was not as a pilot or a co-pilot, but as a passenger. While Earhart was celebrated for the achievement, she was not satisfied. Like Charles Lindbergh, Earhart wanted to cross the Atlantic solo. She accomplished this only four years later, in May of 1932. Upon her return, she became the first woman to be awarded the Distinguished Flying Cross from Congress.

Earhart started establishing new records: she became the first woman to fly solo from coast to coast, and the first person to fly solo from Oakland, California to Honolulu, Hawaii, and from Los Angeles, California to Mexico City, Mexico. She broke more speed and altitude records along the way. She also published a book about her accomplishments with help from her publicity agent, George Putnam, who later became her husband. Later Earhart was asked to join the aviation faculty at Purdue University where she was passionate about helping young women realize their potential and career options while recognizing, but not giving into, the limitations society imposed on the them.

Earhart set her eyes on a new goal: To be the first woman to fly around the world. In June of 1937, Earhart and her navigator Fred Noonan launched their infamous flight. They made it successfully all the way across Africa and Asia to the South Pacific. After taking off on July 2 from New Guinea toward Howland Island in the Pacific Ocean, they were never seen again. The U.S. government searched for Earhart and her plane, but to no avail. Experts believe her plane ran out of fuel and crashed.

An early supporter of equal rights, Earhart worked tirelessly on behalf of women. She encouraged women to study science and engineering—fields not considered open to women. She inspired women to follow their dreams and pursue careers and opportunities that were usually blocked to women. Help children understand that a role model is someone who sets examples for others. How is Amelia Earhart a role model? Who are other role models that inspire us? Lead a discussion.

https://educators.brainpop.com/lesson-plan/amelia-earhart-background-information-teachers-families/?bp-jr-topic=amelia-earhart



Color, cut, and fold the paper to make an airplane. Fly it outside with a partner. Measure how far it goes.



# Susan B. Anthony Background Information for Teachers and Families

Grade Levels: K-3

This page provides information to support educators and families in teaching K-3 students about Susan B. Anthony and women's suffrage. It is designed to complement the **Susan B. Anthony** (https://jr.brainpop.com/socialstudies/biographies/susanbanthony/) topic page on BrainPOP Jr.

Help your children explore the lives of key figures who changed history and increase their understanding of how life in the past was dramatically different than it is today. This movie will explore the life of the civil rights leader Susan B. Anthony and her role in the women's rights movement. It will discuss how she advocated equal rights and fair treatment and stood up for her beliefs.

Susan B. Anthony was born on February 15, 1820 near Adams, Massachusetts. She grew up in a Quaker family. Tell your children that Quakers are members of a Christian group that supports equal rights for all people and believes in living simple, peaceful lives. Susan's father, Daniel Anthony, was an abolitionist, which is a person who works to end slavery. He often held anti-slavery meetings in their home. Susan's mother, Lucy Read, was an activist who had attended the 1848 Women's Rights Convention in Rochester, New York. As a child, Susan learned to read from a very early age and excelled in school. When a teacher refused to explain long division to Susan because of her gender, Susan's father pulled her out of the school and put her in a group home school.

Susan's family owned a cotton mill, and occasionally young Susan worked to manufacture cotton. She balked at the fact that she earned less than her male counterparts. At the time, women earned a quarter of the pay for doing the same jobs. Susan was also upset that skilled women laborers at the mill were not promoted to managerial positions. Though her father was quite liberal in his views, even he believed that certain jobs were inappropriate for women.

At sixteen, Susan spoke out against slavery and collected the names of people who wanted to abolish it. When she was in her late twenties, Anthony spoke out against alcohol abuse and encouraged temperance. Explain to your children that temperance is the act of drinking little or no alcohol. Anthony wrote pamphlets and articles and gave speeches promoting abstinence from alcohol.

In 1865, slavery was finally abolished in the United States. However, African-Americans and women still did not have the same rights as white men. Women and most blacks could not own property or vote. Anthony demanded suffrage, or the right to vote, for all people. She and other suffragists traveled the country and made speeches. She started a newspaper called *The Revolution*, which demanded equal rights and fair treatment to all people regardless of race or gender. In 1870, African-Americans won the right to vote, but women were still not allowed to elect their leaders. Anthony began focusing her efforts on women's suffrage.

Anthony cast her ballot in the 1872 presidential election,, claiming that voting was a civil right protected under the Constitution. Two weeks later she was arrested. Ultimately she was fined \$100, which she promised to never pay, and never did. Anthony continued working for women's suffrage, traveling the country making speeches and writing articles. She was met with much ridicule and was the subject of many negative political cartoons. Still she continued her fight for equal rights. By 1900, a few states allowed women to vote. Susan B. Anthony died on March 13, 1906, before all women had the right to elect their government leaders.

The women's rights movements continued, and finally in 1920 the Nineteenth Amendment passed, giving all women the right to vote. It is sometimes called the Susan B. Anthony amendment to honor her hard work and her beliefs. Help your children understand the importance of standing up for their beliefs and making their thoughts and ideas heard. What might life be like today if Susan B. Anthony remained quiet about the injustices she saw? What if she had not spoken out or debated with people ' o hold dissenting opinions?



Write and illustrate your own story about Susan B. Anthony.

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<ol> <li>Write about Susan B. Anthony's life. What was life like when she was alive? How did she help change the country?</li> </ol>	The Life and Times of Susan B. Anthony
<ol><li>Add pictures to your story. Cut out the pages.</li></ol>	
3. Staple the pages together. Write your name on the cover.	
	by:
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## Jackie Robinson Background Information for Teachers, Parents, and Caregivers

This page contains information to support educators and families in teaching K-3 students about Jackie Robinson. Designed to complement the BrainPOP Jr. movie **Jackie Robinson** 

(https://jr.brainpop.com/socialstudies/biographies/jackierobinson/), you will find ideas for developing related understandings and ways to use other BrainPOP Jr. resources to scaffold and extend student learning.

Jackie Robinson was born in 1919 and grew up in Pasadena, California. As a young man, he excelled in different sports: basketball, tennis, track and field, football, and baseball. He attended the University of California, Los Angeles where he was the first student to earn a varsity letter in four different sports.

Help children understand that during Jackie Robinson's lifetime, African Americans were treated unfairly just because of their skin color. Review that segregation is the separation of people based on their race, culture, religion, or other reason. Explain to them that during this period in history, nearly every sector of the United States was segregated–schools, government institutions, buses, trains, restaurants, and even sports teams.

The Negro League was a baseball league for African-American players. Help children recognize that while there were many talented players, they weren't allowed to play in the major leagues with white players. Major league players enjoyed more visibility and fame, higher pay, and even better stadiums and playing conditions than Negro League players. It was yet another example of Jim Crow laws at work.

Jackie Robinson excelled at playing shortstop for the Negro League's Kansas City Monarchs. Brooklyn Dodgers' general manager Branch Rickey, who was looking to sign black players, noticed Robinson. Although Rickey had expressed interest in other black players, he was drawn to Robinson's intelligence and drive. By many accounts, Robinson was not the strongest player in the Negro Leagues, but Rickey saw potential. He knew that a black player would face discrimination and unfair treatment in the major leagues. Review with children that treating people differently because of their race, religion, culture, or other characteristic is called discrimination. Rickey wanted to know that Robinson would not resort to violence in the face of discrimination, and that he would handle it peacefully.

Jackie Robinson's autobiography describes how he asked Rickey, "Are you looking for a Negro who is afraid to fight back?" Rickey replied that he needed a player "with guts enough not to fight back." In 1946, Rickey signed Robinson to the Montreal Royals, the minor league team that fed the Dodgers. In 1947, Jackie Robinson became the first African American to break through the color barrier and join Major League Baseball.

As Rickey predicted, bringing Robinson into the major leagues was met with outrage. Some baseball players refused to play with him, including a few of his teammates. (Those players were chastised and told to leave if they couldn't play alongside Robinson.) During games the crowd jeered and even threw things at him. But Robinson refused to fight back, rising above the mistreatment. Many of Robinson's teammates supported him, as did some players on opposing teams. Robinson ignored vitriolic epithets and threats, and let his talent speak for itself. In his first season with the Dodgers, Robinson led the league in stolen bases and sacrifice hits, earning the Rookie of the Year award for his stellar performance.

### **RIghts and Responsibilities Background Information for Teachers and Parents**

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about rights and responsibilities The information is designed to complement the BrainPOP Jr. movie **Rights and Responsibilities (http://www.brainpopjr.com/socialstudies/citizenship/rightsandresponsibilities/)**. It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

Empower your children to become good citizens by helping them understand rights and responsibilities. A citizen is a member of a community. Explain that a community can be small, like a classroom or school, or large, like a city, state, or country. The global community includes everyone on Earth. Remind your children that everyone is a member of a community and everyone has a responsibility to maintain it. Invite your children to name different communities that they are a part of, such as a family, sports team, club, religious affiliation, class, school, neighborhood, or town.

A responsibility is a duty or something someone should do. A responsibility can be a chore at home or school or it can be following rules, helping other community members, and making positive changes. When someone works to help the whole community, he or she works for the common good. Obeying laws is an important responsibility. A law is a rule set by a community that tells how to behave or act. Different communities have different laws. For example, the United States has laws that govern the entire country, while a state has laws that govern the state. Cities, towns, and neighborhoods have their own laws to govern themselves. Help your children understand that if a community member breaks a law, there are consequences. Laws help protect citizens' rights. If a law is unfair, it is the community's responsibility to change the law. Laws can be amended or changed when responsible citizens take action. We recommend watching the Local and State Government

(http://www.brainpopjr.com/socialstudies/government/localandstategovernments/) movie together as a review.

A right is a freedom that is protected. Citizens of different countries have different rights. In the United States, the Bill of Rights is part of the Constitution and states certain freedoms that cannot be taken away from any citizen. These rights include freedom of speech, freedom of expression, and freedom of religion. Another freedom is the right to assembly, which means people can gather and discuss. Leaders establish laws to help protect peoples' rights. Older students may wish to watch BrainPOP's movie on the **Bill of Rights** 

(http://www.brainpop.com/socialstudies/usgovernmentandlaw/billofrights/preview.weml) to learn about each of the amendments.

Help children to understand that they have rights, but they also have responsibilities. Everyone has the right to practice their own religion, but everyone has the responsibility to respect people of different religions. In school, every child has the right to learn, but every child has the responsibility of arriving to school on time, completing homework, and following school and class rules.

Voting is a right and a responsibility. In the United States, a citizen can vote if they are a legal citizen and at least 18 years old. Voters have the responsibility to learn about the candidates and proposed laws. Encourage your child to become an active citizen and learn about issues that affect them in the classroom, at school, and in their communities. Empower them to make changes in areas they see need improvement and vote for leaders they believe support their own opinions and views.



#### Rights and Responsibilities Draw About It

What can you do to make your community better? Draw your answer.

Name: \_\_\_\_\_

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# **Community Helpers Background Information for Teachers and Parents**

Grade Levels: K-3

This page contains information to support educators and families in teaching K-3 students about neighborhood and community helpers. The information is designed to complement the BrainPOP Jr. movie **Community Helpers** (http://www.brainpopjr.com/socialstudies/communities/communityhelpers/). It explains the type of content covered in the movie, provides ideas for how teachers and parents can develop related understandings, and suggests how other BrainPOP Jr. resources can be used to scaffold and extend student learning.

How can you be involved with your community? This movie will describe different community helpers and how they help out. It will also share ways children can be active, responsible, and conscientious members of the community. Encourage children to be active citizens and help them understand that everyone plays an important role.

Remind children that a community helper is anyone who works to help the community. Civil servants such firefighters, police officers, and paramedics make sure that the community and its members are safe. Remind children that a firefighter puts out fires and also teaches people how to be safe during an emergency. Police officers help prevent crimes and make sure people in the community follow rules and laws. Review with children that a law is a rule set by the community. Paramedics are also community helpers. Explain to children that they help keep people safe during emergencies and take them to the hospital. Who else keeps the community safe? Discuss with children and brainstorm together.

Talk about which community helpers work to keep people healthy. Doctors, nurses, doctor's assistants, dentists, dental hygienists, and dental assistants are just a few community helpers in this category. A veterinarian is a doctor who treats animals and makes sure pets in the community are healthy. Who else keeps community members healthy? Discuss and record children's ideas.

Remind children that many people are involved in the community. Sanitation workers collect garbage and help keep communities clean. Maintenance workers, including electrical and sewage technicians, make sure the community is functioning from the ground up. Letter carriers make sure everyone receives their mail. Bus drivers, train conductors, and cab drivers move people from place to place. Farmers are also community helpers. They grow crops and raise livestock that feeds the whole community. Drivers transport, or move, things around the communities. Store owners and clerks sell goods and services to the community. Teachers are community helpers who help people learn, and a librarian helps people find books and other resources in a library. Who else is a part of the community?

Remind children that a government is a group of people who sets rules and runs a community. A mayor is an elected leader of a town or city and makes important decisions that affect everyone, including the creation and maintenance of schools, libraries, roads, and public programs. Remind children that many government officials are elected and people from the community get to vote on who will do the best job and keep the community's best interests in mind. Instilling the importance of voting at an early age is a great way to help children become active community members.

There are many people who are involved with the community's safety, health, and general well being. This includes parents, teachers, and students. Remind children to keep their communities clean, recycle, and treat everyone in the community with respect. Also encourage children to volunteer in their communities. Explain that when people volunteer, they give their time to help out in the community and work to make it a better place for everyone. Discuss different volunteering opportunities, such as starting a recycling awareness program, helping out in a shelter, or raising money for a program or cause in the community. Encourage children to think about ways

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#### Community Helpers Background Information for Teachers and Parents

to help the community and consider why being an active community member is important. Social responsibility can begin at an early age. Explain that since there are many people who live in a community, it is important to work together to improve and maintain it.

https://educators.brainpop.com/lesson-plan/community-helpers-background-information-for-teachers-and-parents/?bp-jr-topic=community-helpers

Name: \_\_\_\_\_



#### Community Helpers Draw About It

What community helper would you like to be? Draw your answer.

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