

DRAFT

For Review Purposes Only

These draft materials are intended to provide teachers with insight into the content and structure of the Listening & Learning strand of Core Knowledge Language Arts materials.

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The Core Knowledge Language Arts Program

Grade 2

Listening & Learning Strand



Tell It Again! Read-Aloud Anthology

Cycles in Nature

Version 2.0

Published by the Core Knowledge Foundation
www.coreknowledge.org

Pilot Edition
Version 2.0

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Introduction to Cycles in Nature



This introduction includes the necessary background information to be used in teaching the Cycles in Nature domain. The *Tell It Again! Read-Aloud Anthology* for Cycles in Nature contains eleven daily lessons, each of which is composed of two distinct parts, so that the lesson may be divided into smaller chunks of time and presented at different intervals during the day. The entire lesson will require a total of sixty minutes.

In this domain, we have used actual trade books as the read-alouds in Lessons 1–11. We have included page references as well as the end of the applicable sentence from the trade book in bold as the cue for when to use the Guided Listening Support prompts. In these cases, we especially recommend that you take a few minutes to see how the material is organized prior to your presentation of each read-aloud.

We have included two Pausing Points in this domain, one after Lesson 5 and another after Lesson 11. You may wish to pause and spend one to two days reviewing, reinforcing, or extending the material taught prior to the Pausing Point. You should spend no more than fifteen days total on this domain.

Along with this anthology, you will need:

- *Tell It Again! Image Cards* for Cycles in Nature
- *Tell It Again! Workbook* for Cycles in Nature
- *Tell It Again! Posters* for Cycles in Nature

The following trade books are used as read-alouds:

1. *Sunshine Makes the Seasons*, by Franklyn Branley (HarperCollins, 1985) ISBN 0060592052 (Lesson 1)
2. *The Reasons for Seasons*, by Gail Gibbons (Holiday House, 1995) ISBN 0823412385 (Lesson 2)

3. *How Do Birds Find Their Way?*, by Roma Gans (HarperCollins, 1996) ISBN 0064451505 (Lesson 3)
4. *Bean*, by Barrie Watts (Smart Apple Media, an imprint of Black Rabbit Books, 2005) ISBN 1583405038 (Lesson 4)
5. *From Seed to Maple Tree*, by Laura Purdie Salas (Picture Window Books, 2009) ISBN 1404849310 (Lesson 5)
6. *Monarch Butterfly*, by Gail Gibbons (Holiday House, 1989) ISBN 0823409099 (Lesson 6)
7. *From Tadpole to Frog*, by Wendy Pfeffer (HarperCollins, 1994) ISBN 0064451232 (Lesson 7)
8. *Where Do Chicks Come From?*, by Amy E. Sklansky (HarperCollins, 2005) ISBN 0060288930 (Lesson 8)
9. *The Water Cycle*, by Rebecca Olien (Capstone Press, 2005) ISBN 0736851828 (Lesson 9)
10. *The Water Cycle*, by Bobbie Kalman and Rebecca Sjonger (Crabtree Publishing Company, 2006) ISBN 077872310 (Lesson 10)
11. *Clouds*, by Anne Rockwell (HarperCollins, 2008) ISBN 0064452205 (Lesson 11)

You will find the Instructional Objectives and Core Vocabulary for this domain below. The lessons that include Student Choice/ Domain-Related Trade Book Extensions, Image Cards, Parent Letters, Instructional Masters, and Assessments are also listed in the information below.

Why Cycles in Nature Are Important

This domain will introduce your students to the fact that there are many natural cycles which make life on Earth possible. Your students will increase their knowledge of cycles in nature by learning more about seasonal cycles, beginning their study of plant and animal life cycles, and studying the importance of the water cycle. Students will also learn about the effect seasonal changes have on plants and animals as well as gain deeper insight into the importance of Earth's water cycle.

Throughout this domain, students will also gain exposure to several poems related to cycles from famous authors such as Emily Dickinson, Robert Louis Stevenson, and Rachel Field. As students learn that all organisms go through the developmental stages of the life cycle (birth, growth, and reproduction), they will also learn how their growth and development are influenced by Earth's seasonal cycles as well as their overall dependence on Earth's limited water supply.

What Students Have Already Learned in Core Knowledge Language Arts During Kindergarten and Grade 1

The following Kindergarten and Grade 1 domains are particularly relevant to the read-alouds your students will hear in *Cycles in Nature*:

- *Plants* (Kindergarten)
- *Farms* (Kindergarten)
- *Seasons and Weather* (Kindergarten)
- *Taking Care of the Earth* (Kindergarten)
- *Astronomy* (Grade 1)
- *Animals and Habitats* (Grade 1)

Listed below are the specific content objectives your students targeted in these domains. This background knowledge will greatly enhance your students' understanding of the read-alouds they are about to enjoy.

Students will:

- Explain that seeds are the beginnings of new plants
- Understand that some plants produce fruit to hold seeds
- Compare and contrast fruits and seeds of different plants
- Understand the basic life cycle of plants
- Identify the petals on a flower
- Describe how bees collect nectar and pollen
- Understand how bees make and use honey

- Describe the important role bees play in plant pollination
- Compare and contrast deciduous and evergreen plants
- Sequence the seasonal rhythm of planting, growing, and harvesting
- Demonstrate understanding of the following units of time and their relationship to one another: day, week, month, year
- Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
- Characterize winter as generally the coldest season, summer as generally the warmest season, and spring and autumn as transitional seasons
- Name at least one month in a specific season while referring to a calendar
- Describe any unique seasonal differences that are characteristic of their own locality (change of color and dropping of leaves in autumn; snow or ice in winter; increased rain and/or flooding in spring; etc.)
- Identify ways in which weather affects daily routines, such as dress, activities, etc.
- Identify a thermometer as an instrument used to measure temperature and describe how it works: i.e., when the liquid in the thermometer rises, it is hotter outside; when the liquid descends, it is cooler
- Describe daily weather conditions of their own locality in terms of temperature (hot, warm, cool, cold); cloud cover (sunny, cloudy); and precipitation (rain, snow, or sleet)
- Identify the four seasons and name activities that are associated with those seasons
- Understand why weather prediction is important in their daily lives
- Compare and contrast fresh water, salt water, and wastewater
- Understand that many living things, including humans, need fresh water to survive, and that there is a limited supply of fresh water on Earth

- Understand why people have a special responsibility to take care of the earth
- Identify the four phases of the moon—new, crescent, half, full
- State that the moon orbits the earth
- Explain that our solar system includes the sun and the planets that orbit around it
- Understand that living things live in habitats to which they are specifically suited
- Classify water habitats as either freshwater or saltwater habitats
- Identify the characteristics of the freshwater habitat
- Understand that saltwater covers most of Earth and is found in several oceans

Instructional Objectives for Cycles in Nature

The following chart contains all of the Core Content Objectives and Language Arts Objectives for this domain, broken down by lesson.

Cycles in Nature Overview											
Objectives	Lessons										
	1	2	3	4	5	6	7	8	9	10	11
Core Content											
Recognize that Earth orbits the sun	✓	✓									
Explain that it takes one year for Earth’s orbit of the sun	✓	✓									
Explain that a cycle is a sequence of events that repeats itself again and again	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Describe the seasonal cycle: spring, summer, autumn (fall), winter	✓	✓	✓	✓	✓	✓	✓				
Identify that the tilt of Earth’s axis in relation to the sun causes the seasons	✓	✓									
Demonstrate familiarity with the poem “Beel I’m Expecting You!”	✓										
Explain effects of seasonal changes on plants and animals		✓	✓	✓	✓	✓	✓				
Demonstrate familiarity with the poem “Bed in Summer”		✓									

Objectives	Lessons										
	1	2	3	4	5	6	7	8	9	10	11
Core Content											
Describe animal processes in spring, summer, autumn (fall), winter			✓								
Demonstrate familiarity with the poem “Something Told the Wild Geese”			✓								
Define the term <i>life cycle</i>				✓	✓		✓	✓			
Identify the stages of the life cycle: birth, growth, and reproduction				✓	✓	✓	✓	✓			
Describe the life cycle of a flowering plant (seed to seed)				✓	✓						
Describe the life cycle of a butterfly (egg to egg)						✓					
Explain <i>metamorphosis</i>						✓	✓				
Describe the life cycle of a frog (egg to egg)							✓				
Demonstrate familiarity with the poem “Discovery”							✓				
Describe the life cycle of a chicken (egg to egg)								✓			
Recognize that most of Earth’s surface is covered by water									✓	✓	
Identify the three states of matter in which water exists: solid, liquid, and gas									✓	✓	
Define the term <i>water cycle</i>									✓		
Understand that there is a limited amount of water on Earth									✓	✓	
Describe evaporation and condensation									✓	✓	✓
Identify forms of precipitation									✓	✓	
Define <i>humidity</i> as the amount of moisture in the air									✓	✓	
Describe the formation of clouds									✓	✓	✓
Understand that not all water cycles back into the air									✓	✓	
Identify groundwater as a water resource for humans										✓	
Identify three types of clouds: cirrus, cumulus, and stratus											✓
Language Arts											
Use agreed-upon rules for group discussions . . . (L.2.1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Objectives	Lessons											
	1	2	3	4	5	6	7	8	9	10	11	
Language Arts												
Ask questions to clarify directions, exercises, and/or classroom routines (L.2.2)										✓		
Carry on and participate in a conversation . . . (L.2.3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Identify and express physical sensations . . . (L.2.4)	✓											✓
Follow multi-step, oral directions (L.2.5)								✓		✓		
Request or provide simple explanations (L.2.7)							✓					
Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related . . . (L.2.10)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Listen to and understand a variety of texts . . . (L.2.11)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Make predictions (orally or in writing) prior to and during a read-aloud . . . (L.2.12)	✓	✓	✓		✓	✓	✓	✓	✓			✓
Describe illustrations (orally or in writing) (L.2.13)		✓				✓	✓	✓	✓			✓
Use pictures accompanying the read-aloud to check and support understanding . . . (L.2.14)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Learn and use (orally or in writing) new words from read-alouds and discussions (L.2.15)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Learn synonyms and antonyms (L.2.17)				✓	✓							
Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud . . . (L.2.18)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interpret information (orally or in writing) presented, and ask questions to clarify information . . . (L.2.19)			✓	✓			✓		✓			
Summarize (orally or in writing) text content and/or oral information presented by others (L.2.20)							✓					
Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions . . . (L.2.22)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compare and contrast (orally or in writing) similarities and differences . . . (L.2.23)					✓			✓				
Make personal connections (orally or in writing) . . . (L.2.24)	✓	✓	✓		✓					✓	✓	
Interpret information from diagrams, charts, graphs, graphic organizers (L.2.27)	✓		✓			✓						✓
Draw pictures, dictate, or write simple sentences to represent details or information from a read-aloud (L.2.29)				✓			✓	✓		✓		
Share writing with others (L.2.34)							✓	✓				
Retell (orally or in writing) important facts and information from a read-aloud (L.2.41)	✓		✓		✓	✓			✓			
Sequence four to six pictures illustrating events from a nonfiction read-aloud (L.2.42)				✓		✓	✓	✓				✓

This domain gives students exposure to the Informational/ Explanatory writing genre.

Core Vocabulary for Cycles in Nature

The following list contains all of the boldfaced words in *Cycles in Nature* in the forms in which they appear in the read-alouds. The inclusion of the words on this list *does not* mean that students are expected to immediately be able to use all of these words on their own. However, through repeated exposure throughout the lessons, they should acquire a good understanding of most of these words and begin to use some of them in conversation.

<i>Lesson 1</i>	<i>Lesson 5</i>	<i>Lesson 9</i>
axis	germinate	evaporation
rotates	sapling	condensation
tilted	seedling	humidity
<i>Lesson 2</i>	thaws	precipitation
absorbing	<i>Lesson 6</i>	water vapor
hibernation	larva	<i>Lesson 10</i>
migrate	metamorphosis	dew
prepare	molting	downpour
revolve	transparent	groundwater
<i>Lesson 3</i>	<i>Lesson 7</i>	humid
code	burrow	steam
guide	gills	<i>Lesson 11</i>
migration	hideaway	atmosphere
ornithologists	tadpole	clouds
position	<i>Lesson 8</i>	particles
<i>Lesson 4</i>	albumen	ragged
anchors	wobbly	swell
attract	yolk	
protects		
sprouts		
supply		

Student Choice and Domain-Related Trade Book Extensions

In the *Tell It Again! Read-Aloud Anthology* for Cycles in Nature, Student Choice activities are suggested in Pausing Points 1 and 2. Domain-Related Trade Book activities are also suggested in Pausing Points 1 and 2. A list of recommended titles is included at the end of this introduction, or you may select another title of your choice.

Cycles in Nature Image Cards

There are twenty-five Image Cards for Cycles in Nature. The Image Cards may be used to help students sequence the seasonal cycle, the life cycle of particular plants and animals, and the water cycle. In the *Tell It Again! Read-Aloud Anthology* for Cycles in Nature, Image Cards are referenced in both Pausing Points and in Lessons 4–8, and 11.

Cycles in Nature Posters

There are eight Posters for Cycles in Nature. The Posters can be used to review with students the various cycles that occur in nature which are discussed throughout the domain. The Posters are referenced in both Pausing Points and in Lessons 4–8, 10, and 11.

Instructional Masters and Parent Take-Home Letters

Blackline Instructional Masters and Parent Take-Home Letters are included in the *Tell It Again! Workbook*.

In the *Tell It Again! Read-Aloud Anthology* for Cycles in Nature, Instructional Masters are referenced in the Domain Assessment, and in Lessons 4B–7B. The Parent Letters are referenced in Lessons 1B and 6B.

Assessments

In the *Tell It Again! Read-Aloud Anthology* for Cycles in Nature, Instructional Masters DA-1, DA-2, and DA-3 are used for this purpose. Use the following *Tens Conversion Chart* to convert a raw score on each assessment into a Tens score.

Recommended Trade Books for Cycles in Nature

If you recommend that your students read each night for homework, you may suggest that they choose titles from this trade book list.

Used as a Domain Read-Aloud

1. *Bean*, by Barrie Watts (Smart Apple Media, an imprint of Black Rabbit Books, 2005) ISBN 1583405038
2. *Clouds*, by Anne Rockwell (Harper Collins, 2008) ISBN 0064452205
3. *From Seed to Maple Tree*, by Laura Purdie Salas (Picture Window Books, 2009) ISBN 1404849310
4. *From Tadpole to Frog*, by Wendy Pfeffer (HarperCollins, 1994) ISBN 0064451232
5. *How Do Birds Find Their Way?*, by Roma Gans (Harper Collins, 1996) ISBN 0064451505
6. *Monarch Butterfly*, by Gail Gibbons (Holiday House, 1989) ISBN 0823409099
7. *The Reasons for Seasons*, by Gail Gibbons (Holiday House, 1995) ISBN 0823412385
8. *Sunshine Makes the Seasons*, by Franklyn Branley (Harper Collins, 1985) ISBN 0060592052
9. *The Water Cycle*, by Bobbie Kalman and Rebecca Sjonger (Crabtree Publishing Company, 2006) ISBN 077872310
10. *The Water Cycle*, by Rebecca Olien (Capstone Press, 2005) ISBN 0736851828
11. *Where Do Chicks Come From?*, by Amy E. Sklansky (HarperCollins, 2005) ISBN 0060288930

Trade Book List*

12. *Autumn: An Alphabet Acrostic*, by Steven Schnur (Clarion Books, 1997) ISBN 0395770432
13. *Bean*, by David M. Schwartz and photographs by Dwight Kuhn (Creative Teaching Press, 1999) ISBN 1574715804
14. *Clouds*, by Gail Saunders Smith (Capstone Press, 1998) ISBN 0736849181
15. *A Dandelion's Life*, written and illustrated by John Himmelman (Children's Press, 1998) ISBN 0516264028
16. *Down Comes the Rain (Let's-Read-and-Find-Out-Science)*, by Franklyn M. Branley and illustrated by James Graham Hale (HarperCollins Publishers, 1997) ISBN 0064451666
17. *Fluffy, Flat, and Wet: A Book About Clouds*, by Dana Meachan Rau and illustrated by Denise Shea (Picture Window Books, 2006) ISBN 1404817298
18. *Four Seasons Make a Year*, by Anne Rockwell and pictures by Megan Halsey (Walker & Company, 2004) ISBN 080278831
19. *From Beginning to End (A Song About Life Cycles)*, by Laura Purdie Salas and illustrated by Viviana Garofoli (Picture Window Books, 2009) ISBN 1404852938
20. *From Caterpillar to Butterfly (Let's-Read-and-Find-Out-Science)*, by Deborah Heiligman and illustrated by Bari Weissman (HarperCollins Publishers, 1996) ISBN 0064451291
21. *From Seed to Daisy*, by Laura Purdie Salas (Picture Window Books, 2009) ISBN 1404849198
22. *From Seed to Plant*, by Gail Gibbons (Holiday House, 1991) ISBN 0823410250
23. *From Seed to Pumpkin*, by Wendy Pfeffer and illustrated by James Graham Hale (HarperCollins Publishers, 2004) ISBN 0064451909
24. *From Seed to Sunflower*, by Dr. Gerald Legg (Franklin Watts, 1998) ISBN 0531153347

25. *The Gift of the Tree*, by Alvin Tresselt (Lothrop, Lee & Shepherd, 1992) ISBN 0688106843
26. *Hibernation (Nature's Cycles)*, by Mel Higginson (Rourke Publishing LLC, 2007) ISBN 1600441777
27. *How Do Apples Grow (Let's-Read-and-Find-Out-Science)*, by Betsy Maestro and illustrated by Guilio Maestro (HarperCollins Publishers, 1992) ISBN 0064451178
28. *How Do You Know It's Spring?*, by Allan Fowler (Children's Press, Inc., 1991) ISBN 0516449141
29. *How Do You Know It's Winter?*, by Allan Fowler (Children's Press, Inc., 1991) ISBN 051644915X
30. *I Get Wet*, by Vicki Cobb (HarperCollins, 2002) ISBN 0688178383
31. *The Life Cycle of a Bean*, by Linda Tagliaferro (Capstone Press, 2007) ISBN 0736867104
32. *The Life Cycle of a Sunflower*, by Linda Tagliaferro (Capstone Press, 2007) ISBN 0736867147
33. *The Life Cycle of an Oak Tree*, by Linda Tagliaferro (Capstone Press, 2007) ISBN 0763867112
34. *A Log's Life*, by Wendy Pfeffer (Aladdin Paperbacks, 1997) ISBN 1416934839
35. *The Moon Seems to Change*, by Franklyn Branley (HarperCollins, 1987) ISBN 0064450651
36. *North Country Spring*, by Reeve Lindbergh (Houghton Mifflin Company, 1997) ISBN 0618809066
37. *One Bean*, by Anne Rockwell (Walker Publishing Company, 1998) ISBN 0802775721
38. *A Pill Bug's Life*, by John Himmelman (Children's Press, 1999) ISBN 0516267981
39. *Plant Cycle (Nature's Cycles)*, by Ray James (Rourke Publishing LLC, 2007) ISBN 1600441806
40. *The Reason for a Flower*, by Ruth Heller (Penguin Putnam Books for Young Readers, 1999) ISBN 0698115597

41. *Red Leaf, Yellow Leaf*, by Lois Ehlert (Harcourt, Inc., 1991) ISBN 0152661972
42. *The Seasons of Arnold's Apple Tree*, by Gail Gibbons (Voyager Books, 1984) ISBN 015271245
43. *The Snowflake: A Water Cycle Story*, by Neil Waldman (Milbrook Press, 2003) ISBN 0761323473
44. *Spring: An Alphabet Acrostic*, by Steven Schnur (Clarion Books, 1999) ISBN 0395822696
45. *Spring Thaw*, by Steven Schnur (Viking, 2000) ISBN 0670879614
46. *This Is the Ocean*, by Kersten Hamilton (Boyd's Mills Press, 2001) ISBN 1563978903
47. *The Water Cycle*, by Helen Frost (Pebble Books, 2000) ISBN 0736804099
48. *Water (Nature's Cycles) [Spanish & English]*, by Dana Meachen Rau (Marshall Cavendish Corporation, 2010) ISBN 0761447924
49. *Water, Water Everywhere*, by Melvin and Gilda Berger and illustrated by Bobbi Tull (Ideal's Children's Books, 2003) ISBN 0824953126
50. *Water, Water Everywhere*, Mark J. Rauzon and Cynthia Overbeck Bix (Sierra Club Books for Children, 1994) ISBN 0871563835
51. *Wet All Over (The Magic School Bus)*, based on the books by Joanna Cole (Scholastic Inc., 1996) ISBN 0590508334
52. *What Makes Day and Night*, by Franklyn Branley (HarperCollins, 1986) ISBN 0064450508
53. *When Autumn Comes*, by Robert Maass (Henry Holt and Company, LLC, 1990) ISBN 0805023496
54. *Why Do Leaves Change Color?*, by Betsy Maestro (HarperCollins, 1994) ISBN 0064451267

* Some of these titles may be put into the classroom book tub for various reading levels.

1

Sunshine Makes the Seasons



Lesson Objectives

Core Content Objectives

Students will:

- Recognize that Earth orbits the sun
- Explain that it takes one year for Earth's orbit of the sun
- Explain that a cycle is a sequence of events that repeats itself again and again
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Identify that the tilt of Earth's axis in relation to the sun causes the seasons
- Demonstrate familiarity with the poem "Bee! I'm Expecting You!"

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say "excuse me" or "please," etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner's comments, with either an adult or another child of the same age (L.2.3)
- Identify and express physical sensations, mental states, and emotions of self and others (L.2.4)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)

- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)
- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or inferring cause/effect relationships (L.2.22)
- Make personal connections (orally or in writing) to events or experiences in a read-aloud and/or make connections among several read-alouds (L.2.24)
- Interpret information from diagrams, charts, graphs, or graphic organizers (L.2.27)
- Retell (orally or in writing) important facts and information from a read-aloud (L.2.41)

Core Vocabulary

Sunshine Makes the Seasons, by Franklyn M. Branley is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

axis, n. (p. 14) A straight line around which an object spins

Example: The axis of Earth is an imaginary line drawn through the North and South Poles.

Variation(s): axes

rotates, v. (p. 7) Turns or causes to spin around a center point

Example: The ballerina spins around and around and rotates on her toes.

Variation(s): rotate, rotated, rotating

tilted, v. (p. 19) Slanted or placed at an angle instead of straight up and down

Example: Jason tilted his bowl of soup to drink the very last drop.

Variation(s): tilt, tilts, tilting

<i>At a Glance</i>	Exercise	Materials	Minutes
Introducing the Read-Aloud	Domain Introduction		10
	What Do We Know?		
	Sharing the Title and Trade Book Cover		
	Purpose for Listening		
Presenting the Read-Aloud	Sunshine Makes the Seasons	<i>Sunshine Makes the Seasons</i> , by Franklyn M. Branley globe	15
Discussing the Read-Aloud	Comprehension Questions		10
	Word Work: Tilted		5
 Complete Remainder of the Lesson Later in the Day			
Extensions	Demonstration of Earth's Movements	globe, hula hoop, pin, flashlight [It is recommended that you practice this demonstration in its entirety prior to the lesson.]	20
Take-Home Material	Parent Letter	Instructional Masters 1B-1 and 1B-2	

1A

Sunshine Makes the Seasons



Introducing the Read-Aloud

10 minutes

Domain Introduction

(Note: Students who have been in the Core Knowledge Language Arts program will already be familiar with certain aspects of cycles from the *Seasons and Weather* Kindergarten domain as well as the *Astronomy* domain in Grade 1.)

Ask students to share what the word *repeat* means to them and if they can think of any events that occur over and over again. Have students think of some examples that they have learned about where something repeats or cycles over and over again, such as the days of the week or the phases of the moon. Explain to students that the word *cycle* means a sequence of events that repeats again and again. Tell students that for the next few weeks they will learn about four different kinds of cycles that occur in nature. Explain to students that in some cases nature's events cycle quickly, while other cycles in nature take longer to complete.

What Do We Know?

Lead the students in a discussion about what they already know or remember about how Earth revolves around the sun and how Earth's rotation creates day and night. Ask students what they experience when it is daytime compared to nighttime. How does the pattern of day and night repeat? Do we have day, day, night, night? Ask students if they remember what the four seasons are and in what order they occur, and if this order repeats in a pattern that is the same way every time.

Tell students that you are going to read a poem titled "Bee! I'm Expecting You!" by Emily Dickinson. Tell them to listen carefully to identify the season Ms. Dickinson is describing in her poem.

Bee! I'm Expecting You!

By Emily Dickinson

Bee! I'm expecting you!

Was saying Yesterday

To Somebody you know

That you were due—

The Frogs got Home last Week—

Are settled, and at work—

Birds, mostly back—

The Clover warm and thick—

You'll get my Letter by

The Seventeenth; Reply

Or better, be with me—

Yours, Fly.

Ask: “Why is the fly *expecting* the bee? What season is coming?” Make sure students make the connection with “expecting” and the *repeating* aspect of the seasonal cycle. Take a poll asking students which season they most look forward to each year and why. Tell students that the first cycle in nature they will study is the seasonal cycle.

Sharing the Title and Trade Book Cover

Share the title and author/illustrator information of the trade book. Have students identify the seasons that are represented in the illustration and explain how they were able to identify them. Ask students to think about the cover and title of the story, and to predict how they think sunshine actually *makes* the four seasons.

Purpose for Listening

Tell the students to listen carefully to find out whether or not their predictions are correct.

Sunshine Makes the Seasons

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The prompts below are listed by page number. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 4

- . . . **warms the earth.** Do you think the sun warms every place on Earth to the same temperature?

Page 5

- . . . **earth would freeze.** *Freeze* means to harden into a solid by cooling. Would life be possible on the earth without the warmth of the sun?

Page 7

- . . . **in twenty-four hours.** The word **rotates** means turns or causes to turn about a center point. Who can use the globe to show how the earth rotates? So it takes Earth twenty-four hours, one entire day, to rotate once all the way around.
- . . . **and then night.** What do you think would happen if the earth stopped rotating? Remember, the rotation of the earth causes the *cycle* of day and night.

Page 8

- . . . **around the sun.** So the earth is moving in two ways at the same time: it doesn't just rotate or spin in place; it also travels around, or revolves around, the sun. How long does it take for Earth to go all the way around the sun once?

Page 9

- . . . **the length of our day** . . . the length of time when we have daylight
- . . . **hours of sunshine.** So is the temperature warmer or colder on Earth with fewer hours of sunshine in the winter?

Page 10

- . . . **back to school.** The amount of daylight hours changes depending on the season. Which season has the longest amount of daylight hours and the warmest temperatures? Which season has the shortest amount of daylight hours and the coldest temperatures?

Page 13

- (You may want to pause and point to the illustration to see if students can fill in the words *North Pole*, *South Pole*, and *equator* as you read this page.)
- . . . **the equator.** Remember, the equator is an imaginary line around the middle of the earth that divides the earth into two equal halves.

Page 14

- . . . **of the orange.** An **axis** is a straight line around which an object spins.
- . . . **from pole to pole.** Can you actually see the earth's axis? What cycle is caused by the rotation of the earth on its axis?

Page 16

- . . . **spin the orange.** Remember, the pin represents where we live. In the picture, are we experiencing daytime or nighttime?

Page 17

- . . . **be a year.** How long does it take for the earth to orbit the sun?

Page 18

- . . . **no change in seasons.** Is this what really happens? Do you see and feel changes in nature from season to season where you live?

Page 19

- . . . **is tilted.** The word *tilted* means to be slanted or on an angle. So if the earth's axis were not tilted, would we have a change in seasons?

Page 20

- . . . **axis is tilted.** What does the word *tilted* mean?

Page 21

- . . . **it is cold.** (Point to the North Pole on the orange in the picture.) What season does the North Pole have when it is tilted away from the sun?

Page 22

- . . . **are getting longer.** If the days are getting longer in the North, is the North Pole experiencing more or less daylight? What is happening to the earth's temperature at the North Pole?

Page 23

- . . . **is summer.** So we have discovered that it is not always wintertime at the North Pole; there is a spring and summer, too. Although the North Pole experiences a season of summer, the temperature never gets much warmer than freezing, thirty-two degrees Fahrenheit.

Page 24

- . . . **it is warm.** Remember, the pin in the orange represents where we live. When our part of the earth is tilted toward the sun, what season is it?

Page 25

- . . . **back to winter.** What happened to Earth [the orange] as it made its orbit around the sun?

Page 26

- . . . **earth is tilted.** Do you remember what a cycle is? What causes the seasonal cycle?

Page 27

- . . . **skating and skiing.** We are currently in the season of _____. What season is the southern half of the earth having?

Page 28

- . . . **is no night.** What do you think it would be like to live in places where there is no night or no daytime? Do you think people have to do anything special or different during these times?

Page 29

- . . . **the North Pole.** Think about what season you are experiencing right now where you live. Can you tell me what season it is at the North Pole? How about the South Pole? Remember, it's very cold at the North and South poles even in summer.

Page 30

- . . . **spring and fall.** Do you think people who live near the equator experience seasonal cycles in the same way as people who live at the North or South Pole, or even where we live?

Page 31

- . . . **in the fall.** If you had a choice among cold weather all the time (like at the poles), warm weather all the time (like at the equator), or the changes in seasons, which would you choose? Why?

Page 32

- . . . **earth is tilted.** So why is it that we have seasonal cycles?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. It is highly recommended that you ask students to answer in complete sentences by asking them to restate the question in their responses.

1. Were your predictions correct? Why or why not? (Answers may vary.)
2. The title says sunshine makes the seasons. What else causes the seasons? (the tilt of the earth's axis)
3. Why are Earth's four seasons considered a seasonal cycle? (They repeat over and over again.)
4. Describe the seasonal cycle. (spring, summer, autumn/fall, winter)
5. How does the tilt of the earth's axis affect temperatures on the earth? (The part of the earth tilted toward the sun is warmer than the part tilted away from the sun.)
6. What does the earth orbit? (the sun) How long does it take for the earth to make one orbit around the sun? (one year, or about 365 days)
7. Why does the amount of daylight and darkness vary from season to season? (The tilt of the earth changes the amount of sunlight a particular place receives at a particular time of the year.)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

8. *Think Pair Share:* How does the seasonal cycle vary at different places on the earth? (Answers may vary, but should include the equator is generally warm throughout the seasons, the poles are generally cold throughout the seasons, and that the areas in between experience distinct seasons.)

Word Work: Tilted

(5 minutes)

1. The trade book states, "It is *tilted*."
2. Say the word *tilted* with me.
3. *Tilted* means slanted or placed at an angle.
4. Andrea tilted her water bucket so every drop could spill onto her plants.
5. Can you give examples of things that are tilted? Try to use the word *tilted* when you tell about them. (Ask two or three students. If necessary, guide and/or rephrase the students' responses: "A _____ is tilted when . . .")
6. What's the word we've been talking about? What part of speech is the word *tilted*?

For follow-up, have students discuss which season they prefer and describe how the earth is tilted where they live during their favorite season.



Complete Remainder of the Lesson Later in the Day

1B

Sunshine Makes the Seasons



Extensions

20 minutes

Demonstration of Earth's Movements

(Note: For this demonstration, you will need to obtain a globe, a hula hoop, a pin, and a flashlight in advance. If you wish to replicate the demonstration in the trade book exactly, you can use an orange with a pencil through it for the axis instead of using a globe.)

Remind students that they learned from the read-aloud that the earth moves in two different ways. Tell students that you want them to help do a demonstration of the two ways the earth moves. You may want to gather students in a circle around you so that they can clearly see the demonstration.

Using a flag or pin, mark the approximate location of your town on a globe. Tell students that this is where you live, and emphasize that you live on the planet Earth, which is represented by the globe. Tell students that even though you can't feel it, the earth is spinning. Explain that when the earth spins around, we say it "rotates." Remind students that the earth rotates around an imaginary line drawn through the North and South Poles or around its _____. Ask: Who remembers what a straight line around which an object spins is called? (*axis*) Spin the globe to demonstrate this rotation. Then, ask students to rotate or spin in place around their "axes."

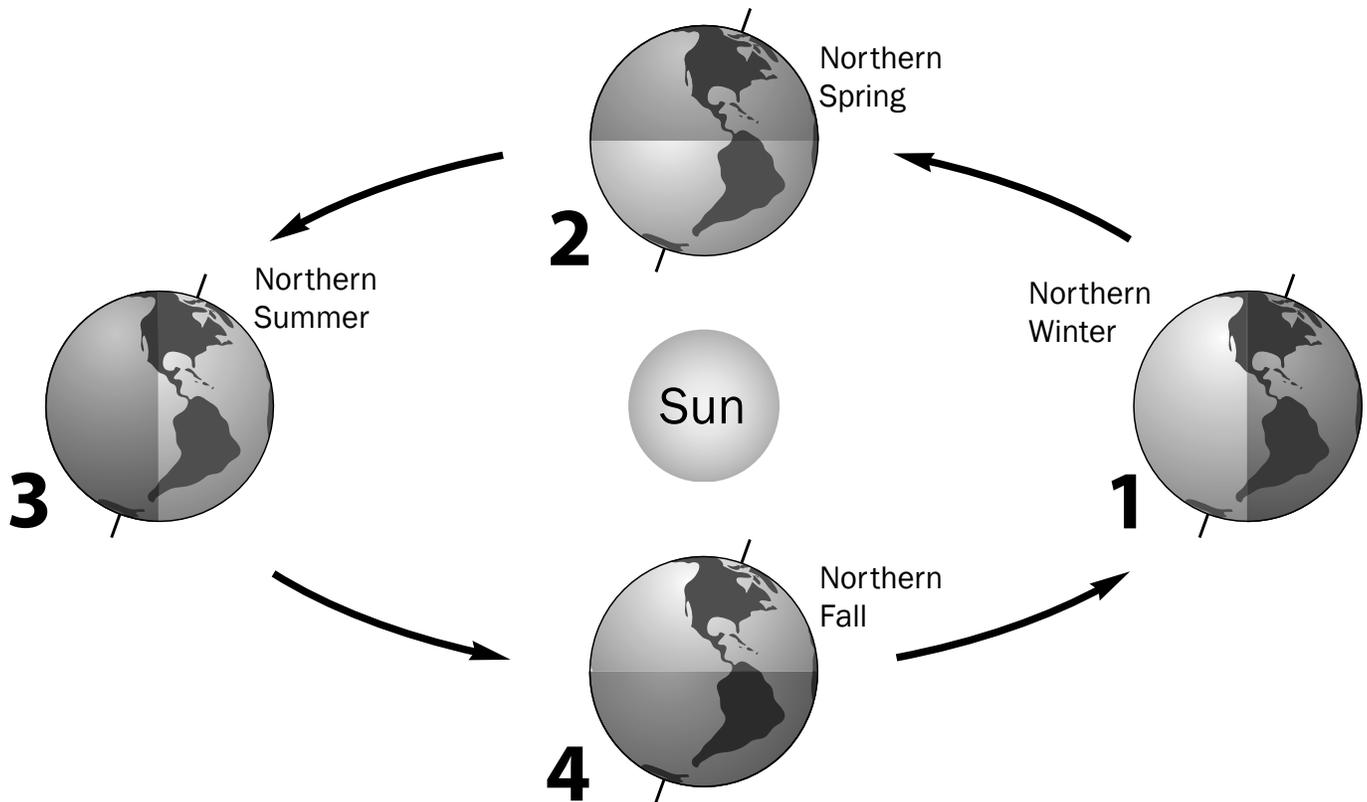
Ask: Who remembers what cycle the rotation of the earth on its axis causes? (*day and night*) Explain that you will now repeat the demonstration but will use a flashlight this time to demonstrate day and night. First remind the students that the marked area shows where they live. Darken the room. Ask a volunteer to point the flashlight at the globe while you hold it steady. Tell students that the flashlight represents the sun. Tell the students that when the marked area is directly in the path of the sun, it is day in your

town. Explain that when it is day in your town, it is night on the opposite side of the globe or Earth. Identify the country directly opposite of your town. Have students observe that when it is daytime in your town, this country is not illuminated and is in shadow. Then slowly spin the globe counterclockwise until that country is hit directly by the flashlight's beam. Ask a volunteer to point to the flag or pin for your town without spinning the globe. Ask students if they can guess whether it is day or night in your town when the sun is hitting the opposite side of the globe. (night) Now continue spinning the globe counterclockwise slowly, until the flag or pin representing your town is once again directly in the beam of light. Explain that when the globe spins in a full rotation, one whole day, or twenty-four hours, has passed on the earth. Remind students, however, that when it is day in one place on the globe, it is night on the opposite side. Ask: So the rotation of the earth on its axis causes what cycle? (day and night) You may also wish to ask the following question: Why does the sun look like it's moving across the sky from sunrise to sunset? (because the earth is moving or rotating)

Tell students that you have now demonstrated one of the two ways the earth moves in space. Then share that the earth doesn't just rotate or spin in place; it also travels around, or revolves around, the sun. Place a hula hoop on the floor and tell the students that you will now pretend that the hula hoop is the sun. Explain that the real sun is much bigger than the earth, just like the hula hoop is much bigger than the globe. Begin walking around the hula hoop while holding and continuing to spin the globe. Tell students the path the earth follows as it revolves or travels around the sun is its "orbit." Ask one or two students to walk around or "orbit" the hula hoop sun. Tell students that it takes the earth one year to travel all the way around the sun. Now share that the earth is always orbiting the sun *at the same time* that it is also always rotating on its axis.

In the read-aloud, we learned the axis of the earth is not straight up and down. Ask: Who remembers the word that means slanted or placed at an angle? (tilted) Who remembers what the tilt of Earth causes? (the seasons) Explain that you will now repeat the demonstration they saw in the trade book to show why we have

four seasons. First remind the students that the marked area shows where they live, and tell them to keep an eye on North America as you show them Earth in four different positions. [Make sure the tilt is always pointing in the same direction. In other words, as you “revolve” around the hula hoop sun, the axis should be “pointing” towards the same wall or corner of the room.] Use the diagram below to guide you.



Darken the room. Tell students that the flashlight represents the sun. Ask a volunteer to stand in the middle of the hula hoop and to point the flashlight at the globe while you hold it steady in position 1 (Northern winter) shown above. Say: “When the North Pole is tilted away from the sun, the northern half of the earth does not get as much sun; we have fewer daylight hours and longer nights.” Ask: “What season is it when we get less sunshine and as a result colder temperatures?” (winter)

Ask another volunteer to stand in the middle of the hula hoop and point the flashlight at the globe while you rotate a quarter of the way around, keeping the tilt pointed in the same direction and stopping at position 2 (Northern spring) shown above. Say: “After winter, as the tilted Earth continues to orbit the sun, both poles receive light. The amount of daylight hours in the northern half of the earth, where we live, starts to increase. If we have more daylight hours, the temperature starts to get warmer.” Ask: “What season is it after winter when we begin to get more sunshine and as a result warmer temperatures?” (spring)

Ask another volunteer to stand in the middle of the hula hoop and to point the flashlight at the globe while you rotate another quarter of the way around, keeping the tilt pointed in the same direction and stopping at position 3 (Northern summer) shown above. Say: “After spring, as the tilted Earth continues to orbit the sun, the North Pole becomes tilted toward the sun and the northern hemisphere receives more direct sunlight. Our daylight hours increase, and our nights get shorter. If we have more daylight hours than night, the temperature starts to get hotter.” Ask: “What season is it after spring, when we are in the light longer than in the dark and as a result have warmer temperatures?” (summer)

Ask another volunteer to stand in the middle of the hula hoop and point the flashlight at the globe while you rotate another quarter of the way around, keeping the tilt pointed in the same direction and stopping at position 4 (Northern fall) shown above. Say: “After summer, as the tilted Earth continues to orbit the sun, once again both poles receive light. Our daylight hours start to decrease, and our nights get longer. If our daylight hours start to decrease, the temperature starts to get cooler than in summer.” Ask: “What season is it after summer when there are fewer daytime hours and the temperature gets cooler?” (fall or autumn) Show the cover of the trade book and ask: “So how does sunshine make the seasons?” (Answers should reflect an understanding that the tilt of the earth means that seasonal temperatures change depending on how much sunshine we receive.)

Parent Letter

Send home Instructional Masters 1B-1 and 1B-2.

2

The Reasons for Seasons



Lesson Objectives

Core Content Objectives

Students will:

- Recognize that Earth orbits the sun
- Explain that it takes one year for Earth's orbit of the sun
- Explain that a cycle is a sequence of events that repeats itself again and again
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Identify that the tilt of Earth's axis in relation to the sun causes the seasons
- Explain effects of seasonal changes on plants and animals
- Demonstrate familiarity with the poem "Bed in Summer"

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say "excuse me" or "please," etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner's comments, with either an adult or another child of the same age (L.2.3)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)

- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)
- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Describe illustrations (orally or in writing) (L.2.13)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or interfering cause/effect relationships (L.2.22)
- Make personal connections (orally or in writing) to events or experiences in a read-aloud and/or make connections among several read-alouds (L.2.24)

Core Vocabulary

The Reasons for Seasons, by Gail Gibbons is used as the read-aloud in this lesson. There are no page numbers in this particular trade book, so we are counting the first page of the story after the dedication page as page 1. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

absorbing, v. (p. 13) Soaking up or taking something in

Example: My tomato plant is absorbing so much summer sun that it has grown two inches in the last week!

Variation(s): absorb, absorbs, absorbed

hibernation, n. (p. 23) A period of time when some animals are inactive or in a deep sleep during winter

Example: You don't see certain animals in winter because they are in hibernation.

Variation(s): none

migrate, v. (p. 8) To move from one place or climate to another

Example: Many birds migrate south in the winter.

Variation(s): migrates, migrated, migrating

prepare, v. (p. 18) To get ready ahead of time for something or someone

Example: Amanda wants to study every night this week to prepare for her math test.

Variation(s): prepares, prepared, preparing

revolve, v. (p. 3) To move in a circular path or orbit around an object

Example: Angie helped the hula hoop revolve quickly around her body by spinning it very fast.

Variation(s): revolves, revolved, revolving

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?		10
	Sharing the Title and Trade Book Cover	chart paper, chalkboard, or whiteboard	
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	The Reasons for Seasons	<i>The Reasons for Seasons,</i> by Gail Gibbons globe	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Migrate		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	The Sun and the Seasons	Seasons Chart	20

2A

The Reasons for Seasons



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that they heard *Sunshine Makes the Seasons* in the previous lesson. Ask students if they recall the two ways the earth moves and which of the two movements causes day and night. Remind students that it takes twenty-four hours, or one whole day, for Earth to make one complete rotation on its axis; it takes one year for the earth to complete its orbit around the sun. Ask students if they can explain how the tilt of the earth affects the amount of sunshine we get as it orbits the sun. Ask: “What cycle in nature does the tilt of the earth cause?” (the seasonal cycle) “How is winter for us different than summer in terms of the position of Earth?” If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students’ responses using richer and more complex language. You may wish to repeat parts of the demonstration from the extension of the previous lesson as needed.

Tell students that you are now going to read a poem titled “Bed in Summer,” by Robert Louis Stevenson. Tell them to listen carefully to find out how this poem relates to the tilt of the earth and what they learned about the seasonal cycle.

Bed in Summer

By Robert Louis Stevenson

*In winter I get up at night
And dress by yellow candle-light.
In summer, quite the other way,
I have to go to bed by day.
I have to go to bed and see
The birds still hopping on the tree,
Or hear the grown-up people's feet
Still going past me in the street.
And does it not seem hard to you,
When all the sky is clear and blue,
And I should like so much to play,
To have to go to bed by day?*

Discuss with students what the poem means as a way of further assessing their understanding of how the tilt of the earth causes the seasonal cycle. You may wish to ask the following questions:

- Why does Mr. Stevenson say, “In winter I get up at night”?
- Why does he say, “In summer, quite the other way, I have to go to bed by day”?
- How does Mr. Stevenson feel about going to bed in summer?
- Have you ever gone to bed while it was still light outside? If yes, was it easy or hard to fall asleep?
- Do your parents or caregivers let you stay up later during the summer, or do you have to go to bed during daylight hours like Mr. Stevenson did?

Share with students that when the poem was written in the 1800s, people of long ago didn't have electricity like we do today; when it got dark at night (earlier in seasons other than summer), they

couldn't do as much with just the light of candles. If students don't understand the poem, you may need to repeat the last part of the extension from the previous lesson, demonstrating how the tilt of the earth causes the seasonal cycle.

Sharing the Title and Trade Book Cover

Share the title and author of the trade book. Ask students to identify the seasons depicted in the cover illustration. Ask students if they know what the reasons are for the four seasons each year on planet Earth. Create the following class chart on the chalkboard, whiteboard, or chart paper, making sure to save it for later use during the extension activity.

	Spring	Summer	Autumn (or Fall)	Winter
Date Season Begins in the Northern Hemisphere				
Amount of Sunshine				
Temperature in the Northern Hemisphere				
Plants				
Animals				
People Activities/Clothing				

Ask students if they can name different changes they observe or things that happen in each season for each category shown. Fill in the chart as they respond. Tell students that during today's read-aloud, they will review what they have already learned about the earth's movements and hear about additional changes that happen during the different seasons.

Purpose for Listening

Tell students to listen carefully to learn more about changes that occur during the four seasons on planet Earth.

The Reasons for Seasons

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

There are no page numbers in this particular trade book, so we are counting the first page of the story after the dedication page as page 1. The prompts below are listed by page number. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 1

- . . . **of the year.** What do we call something that repeats itself again and again in the same order, such as the four seasons?

Page 2

- . . . **makes the seasons.** Do you remember how the tilt of the earth causes the change in seasons?

Page 3

- . . . **around the sun.** The word *revolve* means to move in a path around an object. What word have you learned to name the earth's path around the sun? How long does it take for the earth to revolve around, or orbit, the sun?
- . . . **heat they receive.** What season do you think it is when (name your town) is tilted toward the sun? What season do you think it is when (name your town) is tilted away from the sun?

Page 5

- . . . **the other hemisphere.** (Have a student volunteer hold the base of a globe while you draw an imaginary line around the middle of the globe.) Can you remember what this line or halfway point around the globe is called? (Pause for responses.) Everything north of the equator is called the *Northern Hemisphere*, and everything south of the equator is called the *Southern Hemisphere*. What hemisphere do you live in? What

season is it currently where you live? What season is it in the Southern Hemisphere?

Page 6

- . . . **by warmer air.** Why is there more sunshine during spring than during winter? How does this affect the temperature?

Page 7

- . . . **the growing season.** The word *equinox* begins just like the word *equal*. On the first day of spring, the spring equinox, the amount of daylight and darkness are equal. What changes in planet Earth have you seen that show you that spring is here?

Page 8

- . . . **whales migrate, too.** The word *migrate* means to move from one place or climate to another. Do all animals migrate when the weather changes?
- . . . **look for food.** What are some animals you see in the spring that you do not see in the winter?

Page 9

- **Some crops are planted.** What changes do you see in plants in the spring?

Page 10

- . . . **toward the sun.** Will the amount of daylight be the same in the Southern Hemisphere? Why or why not?
- . . . **periods of time.** What happens to the earth's surface when there is more direct sunlight on the ground? Do you know the name of the season that follows spring?

Page 11

- **It is the warmest season.** Why is summer the warmest season?

Page 12

- . . . **of the year.** Why is there more daylight on the summer solstice than any other day of the year?
- . . . **in the sky.** Midday is right around noon, the middle part of the day.

Page 13

- . . . **absorbing more heat.** The word **absorbing** means soaking up or taking in. What effect do you think absorbing more heat has on the plants and animals living on the earth's surface?

Page 14

- . . . **large green leaves.** Do you enjoy any of these summertime activities?

Page 15

- . . . **nights are shorter.** Remember, Robert Louis Stevenson talked about going to bed when it is still daylight in his poem "Bed in Summer."

Page 16

- . . . **in the Northern Hemisphere.** What season would it be in the Southern Hemisphere?
- . . . **this season "fall."** Have you seen signs of autumn where you live other than the color changes in leaves?

Page 17

- . . . **the entire Earth.** So, just like at the spring equinox, daylight and darkness are equal at the autumn equinox. Are the hours of daylight longer or shorter during the autumn season compared to summer?

Page 18

- . . . **season to come.** The word **prepare** means to get ready ahead of time for something or someone. What are some things that animals do to prepare for winter?

Page 19

- . . . **gather their crops.** Can you name some plants that farmers harvest or gather during harvest season? Why is autumn the season when many plants are harvested?

Page 20

- . . . **in the autumn sky.** Do you know the name of the season that follows autumn/fall?

Page 21

- . . . **from the sun.** If the Northern Hemisphere is tilted away from the sun, will the days be longer or shorter? Right, shorter. So in the Northern Hemisphere, December 21st is the shortest day of the year. Will the temperatures be colder or warmer?
- . . . **summer is beginning.** So if December 21st is the first day of summer in the Southern Hemisphere, does this day have the longest or shortest amount of daylight hours during the year? Why?

Page 22

- . . . **of the year.** (Have students look at the illustration on page 22.) What differences do you see in this season compared to summer? Do you recall what happens to some plants during the wintertime? (Note: You may wish to remind students who used the Core Knowledge Language Arts program in Kindergarten and Grade 1 about how some plants become dormant during the winter, and ask if they recall the difference between deciduous and evergreen trees.)
- . . . **the sun's return.** Is the amount of daylight different during the winter than during other seasons of the year? Do you know of any winter holidays that include lights as a part of the celebration?

Page 23

- **... as many birds.** Do you remember why there aren't as many birds?
- **... is called hibernation.** The word **hibernation** describes a period of time when some animals are inactive or in a deep sleep during winter. Why do you think hibernation is helpful to some animals when it is winter?

Page 24

- **... to stay indoors.** Do you enjoy any of these activities in the winter?

Page 25

- **... even before dinner.** Remember, in "Bed in Summer," Robert Louis Stevenson talked about getting up at night and dressing by candlelight because the days are very short in winter.

Page 26

- **... almost always equal.** Would you like to live near the equator? Why or why not?

Page 27

- **... is always light.** Would you like to live near the North Pole or the South Pole? Why or why not?

Page 29

- **... seasons repeat themselves.** What is another name for when the seasons repeat themselves?

Page 30

- **... reasons for the seasons.** What are the reasons for the seasons? What is your favorite season? Why?

Comprehension Questions

(10 minutes)

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. It is highly recommended that you ask students to answer in complete sentences by asking them to restate the question in their responses.

1. Describe the seasonal cycle. (Spring, summer, autumn/fall, and winter repeat again and again.)
2. How long is one complete seasonal cycle? (one year) Why? (It takes one year for the earth to complete one orbit of the sun or to revolve around the sun.)
3. How are plants and animals affected by the seasonal cycle? (Many plants grow in the spring and summer, are harvested in the autumn, and are dormant in the winter. Many animals grow and are active in the spring, summer, and autumn, and hibernate or migrate to prepare for winter.)
4. How does the tilt of the earth's axis affect life on the earth? (Different areas experience longer and shorter periods of sunshine; the four seasons occur; Earth absorbs more heat in some places than in others; the Northern Hemisphere experiences seasons opposite that of the Southern Hemisphere; etc.)
5. When do some animals migrate? (in the autumn/fall to escape the cold, and in the spring to return when the weather is warmer)
6. What do the first day of spring and the first day of autumn have in common? (On both of these days, daylight and darkness are the same lengths of time over the entire Earth.)
7. The first day of summer is called the summer solstice. What is special about this particular day? (It is the day with the longest amount of daylight hours during the year.) The first day of winter is called the winter solstice. What is special about this

particular day? (It is the day with the least amount of daylight hours during the year.)

8. Why do some animals prepare for winter? (Animals that do not migrate need to prepare their food supply to sustain them during the cold winter months when food is scarce. Other animals need to eat a lot to prepare them for their long winter sleep of hibernation.)

I am going to ask a couple of questions. I will give you a minute to think about the questions, and then I will ask you to turn to your neighbor and discuss the questions. Finally, I will call on several of you to share what you discussed with your partner.

9. *Think Pair Share:* What activities have you participated in that are done during a particular season? Would it be possible to do these activities during a different season? Why or why not? (Answers may vary.)

Word Work: Migrate

(5 minutes)

1. The trade book states, "Some whales *migrate*, too."
2. Say the word *migrate* with me.
3. *Migrate* means to move from one place or climate to another.
4. Some birds migrate south to escape the cold of the winter season.
5. Why do you think some animals migrate, while other animals hibernate? Try to use the word *migrate* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students' responses: "I think some animals migrate because . . .")
6. What's the word we've been talking about? What part of speech is the word *migrate*?

For follow-up, ask students if they had a choice, would they rather migrate to another place or climate, or would they rather remain where they are. Be sure they use the word *migrate* when they tell about it.



Complete Remainder of the Lesson Later in the Day

2B

The Reasons for Seasons



Extensions

20 minutes

The Sun and the Seasons

Continue the class Seasons Chart you started in the lesson introduction. Ask students if they can add any new information they learned from the read-aloud about each season in each of the categories. You may wish to use the trade book starting on page 7 for reference. You may wish to use the following chart as a guide:

	Spring	Summer	Autumn (or Fall)	Winter
Date Season Begins in the Northern Hemisphere	March 21	June 21	September 21	December 21
Amount of Sunshine	Equal amount of daylight and dark hours	More daylight hours than dark hours; it stays light out later.	Equal amount of daylight and dark hours	Less daylight hours than dark hours; it gets dark earlier.
Temperature in the Northern Hemisphere	Gets warmer	Gets hot	Gets cooler	Gets cold
Plants	Trees grow new leaves; flowers start to bloom. Crops are planted.	All plants and crops grow as they absorb more sunlight.	Leaves change color; farmers harvest crops.	Leaves are gone from most trees; many plants die.
Animals	Birds return and animals wake up; many animals have babies.	Animals raise their babies.	Many birds migrate; many animals prepare for winter by collecting food.	Many animals hibernate; there are not as many birds.
People Activities/Clothing	Kite flying Starting a garden	More time outdoors (swimming, etc.)/ lighter clothing	Back to School Harvesting crops	More time indoors; outdoor fun (ice skating, skiing, etc.)/ heavier clothing

If time allows, you may wish to write a poem as a class about the class's favorite season or have students write poems individually about their favorite season. You might wish to model the poems after one of the poems the students heard thus far: "Bee! I'm Expecting You," by Emily Dickinson; or "Bed in Summer," by Robert Louis Stevenson.

3

How Do Birds Find Their Way?



Lesson Objectives

Core Content Objectives

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Explain effects of seasonal changes on animals
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Describe animal processes in spring, summer, autumn (fall), winter
- Demonstrate familiarity with the poem “Something Told the Wild Geese”

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)

- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions. (L.2.12)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Interpret information (orally or in writing) presented, and then ask questions to clarify information or the topic in a read-aloud (L.2.19)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or inferring cause/effect relationships (L.2.22)
- Make personal connections (orally or in writing) to events or experiences in a read-aloud and/or make connections among several read-alouds (L.2.24)
- Interpret information from diagrams, charts, graphs, or graphic organizers (L.2.27)
- Retell (orally or in writing) important facts and information from a read-aloud (L.2.41)

Core Vocabulary

How Do Birds Find Their Way?, by Roma Gans is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

code, n. (p. 11) A set of letters, numbers, or symbols used to represent specific meanings or language

Example: Morse code is a system of dots and dashes that is used to communicate without speaking.

Variation(s): codes

guide, v. (p. 15) To lead a certain way or assist in reaching a destination

Example: A compass can help guide you through an unfamiliar area.

Variation(s): guides, guided, guiding

migration, n. (p. 31) The act of migrating from one place to another

Example: The flock of wild geese prepared for their southern migration before the first snow of winter.

Variation(s): migrations

ornithologists, v. (p. 11) Scientists who study birds

Example: Ornithologists who track the life cycles of birds have discovered many fascinating things.

Variation(s): ornithologist

position, n. (p. 16) The place or area occupied by an object

Example: Andrea raced ahead and took her position at the front of the lunch line.

Variation(s): positions

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?	globe Seasons Chart (from previous lesson)	10
	Personal Connections		
	Sharing the Title and Trade Book Cover		
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	How Do Birds Find Their Way?	<i>How Do Birds Find Their Way?</i> , by Roma Gans	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Guide		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Poetry Reading	drawing paper, drawing tools	20

3A

How Do Birds Find Their Way?



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Begin with a quick review of the earth's movements, making sure to review domain vocabulary such as the words *rotate*, *axis*, *orbit*, *revolve*, *tilt*, etc. Using the class globe, ask for several student volunteers to demonstrate the following movements of the earth and explain what each causes: 1) the rotation of the earth on its axis (causes day and night) and 2) the tilt of the earth and its revolving around the sun (causes the seasonal cycle). Ask how long one full rotation (twenty-four hours or one day) and one full revolution (four seasons or one year) take. Have students share with you what they learned in the previous two read-alouds about the seasons. You may wish to use the class Seasons Chart from the previous lesson as a review.

Now ask students specifically if they remember what they learned about migration. Ask: "Why do some animals migrate to other locations during different seasons of the year, while others do not? How do you think birds find their way?"

Personal Connections

Ask students if there has ever been a time when someone gave them directions to a specific location or if they needed a map to find a certain place. Have students share what that experience was like and whether it was easy or hard for them to get to their final destination.

Sharing the Title and Trade Book Cover

Share the title and author/illustrator of the trade book. Ask students to predict how birds use their senses to fly in different directions.

Purpose for Listening

Tell students to listen carefully to find out how birds have the amazing ability to migrate year after year between their winter and summer homes without getting lost.

How Do Birds Find Their Way?

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The page references where the vocabulary words appear in the trade book are noted in parentheses below. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 5

- . . . **and anywhere.** Have you ever tried bird-watching? Do you know of certain kinds of birds living near your home?

Page 6

- . . . **where it is warmer.** Do you remember what it is called when some animals move from one climate to another? Will these same birds return when it is spring? Why or why not?

Page 8

- . . . **to come back.** Why do birds return in the spring? Why is it warmer in the spring than in the winter?
- . . . **birds are “migrating.”** *Migrating* is another form of the word *migrate* that you heard about in the last read-aloud.

Page 9

- . . . **cozy nests inside.** *Bore* means to dig a small narrow hole with a pointed object or tool. Woodpeckers use their long narrow beaks to bore holes through the bark in trees.
- . . . **the summer before.** Isn't it amazing that birds can find the same nests they left the season before? How can they do that?

Page 10

- . . . **bottoms of ponds.** How do you think we discovered these ideas to be false?

Page 11

- . . . **bird was banded.** The word **code** means a set of letters or numbers used to represent specific meanings or language. **Ornithologists** put a band with a special set of letters and numbers on each bird to help identify it for future study.

Page 12

- . . . **and South America.** (Point to the migration maps on pages 12 and 13. Explain to students that these maps show the different paths birds travel when they migrate. Tell students that the orange color is where the birds live in the summer and green is the color for where the birds migrate to in the winter.) Do the birds migrate north or south to reach their winter homes? How do you know?

Page 13

- . . . **the big mystery.** So, do you think ornithologists have solved the big mystery?

Page 15

- . . . **to guide them.** **Guide** means to lead a certain way. Do you think birds have a special ability that helps guide them so they can migrate north and south over the ocean without getting lost?

Page 16

- . . . **and at night.** How do you think migrating during the daytime is different than migrating at night?
- . . . **north and south.** The word **position** means the place or area occupied by an object. (Trace your finger from sunrise and then across the different positions of the sun all the way to sunset shown in the picture.) Have you noticed how the position of the sun makes it look like it's moving across the sky from sunrise to sunset? That's because the earth is moving or rotating on its axis; remember that the sun is not moving in relation to the earth. Why is the sun's position important for birds to find their way during daytime? Can you find north and south by looking at the sun's position?

Page 17

- **... on the right.** What do you think happens when the sky is cloudy and the sun is not visible? Do you think birds fly on these days? Why or why not? Listen and you will find out shortly.

Page 18

- **... could be moved.** A planetarium is a building or room with a model of the sun and stars displayed on the ceiling. Have any of you ever been to a planetarium?

Page 19

- **... stars had changed.** Can people also use the stars to find north and south?

Page 20

- **... way to go?** How else might birds know which way to go?

Page 21

- **... compass point north.** Columbus used a compass, which is an instrument that finds the direction north. Think about how magnets attract metals through their invisible force that pulls certain objects toward them. The earth's magnetic field pulls the needle on a compass so it points north.

Page 22

- **... to return home.** Do you think homing pigeons have a built-in "compass" too?

Page 23

- **... about 3,000 miles.** It doesn't take an airplane twelve days to get from England to the United States, but isn't it amazing that a bird can find its way across the Atlantic Ocean from one continent to another?

Page 24

- **... to start north?** (Pause for students to respond.)

Page 25

- . . . **to migrate north.** What causes the amount of daylight hours to become shorter in fall and longer in spring?

Page 27

- . . . **for their flight.** Are birds the only creatures that eat a lot of food and store energy in the fall? Do you recall what some other creatures are preparing to do in the winter?

Page 28

- . . . **and raise babies.** What season is it when birds migrate north in order to build their nests, lay their eggs, and raise their young?

Page 31

- . . . **of bird migration.** The word **migration** means the act of migrating from one place to another. *Migration* is the noun form of the word *migrate* that you have learned about earlier.
- . . . **they are flying.** (Explain that the diagram on the left shows how birds fly at different heights. Some fly as high as small planes, and it is known that bar-headed geese fly as high as some jet planes.)

Page 32

- . . . **one of them.** How many of you would like to be an ornithologist and discover new things about bird migration?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. It is highly recommended that you ask students to answer in complete sentences by asking them to restate the question in their responses.

1. Were your predictions correct? Why or why not? (Answers may vary.)
2. How is the migration of birds a type of cycle? (A cycle is a sequence of events that repeats itself again and again; some birds migrate every year in spring and autumn.) Bird migration is connected to what other cycle you have learned about? (the seasonal cycle)
3. Why do birds migrate south in the fall and return north in the spring? (to escape the cold of winter, and to mate and hatch their babies in the spring)
4. Before scientists understood bird migration, what did people think happened to those birds that disappeared during the winter months? (They thought the birds hid in holes in the ground and slept all winter, or spent the winter in the mud at the bottom of ponds.)
5. Why do ornithologists band the legs of birds with a code? (Each band tells the scientists where and when the bird was banded; the band is used for later identification when the bird is released and tracked for study.)
6. How do ornithologists think birds know how to migrate to the same places year after year? What guides the birds? (They may use the sun's position to guide them during the day and the stars' positions to guide them at night. They may have built-in "compasses" to guide them on cloudy days.)

7. How do birds prepare for their long migrations? (They eat lots of food to store energy for their upcoming flights.)
8. What is the most amazing thing you heard about the migration of birds? (Answers may vary.)
9. *Where? Pair Share:* Asking questions after a read-aloud is one way to see how much everyone has learned. Think of a question you can ask your neighbor about the read-aloud that starts with the word *where*. For example, you could ask, “Where are some places that birds migrate to?” Turn to your neighbor and ask your “where” question. Listen to your neighbor’s response. Then your neighbor will ask a new “where” question, and you will get a chance to respond. I will call on several of you to share your questions with the class.

Word Work: Guide

(5 minutes)

1. The trade book states, “There seems to be nothing there to *guide* them.”
2. Say the word *guide* with me.
3. The word *guide* means to lead someone or something, or to assist in reaching a destination.
4. Pilots use many tools to help guide them when they fly their airplanes.
5. Has there ever been a time when you wished you had something or someone to help guide you to a destination? Try to use the word *guide* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “I wish I had a _____ to help guide me when . . .”)
6. What’s the word we’ve been talking about? What part of speech is the word *guide*?

For follow-up, have students share in pairs, small groups, or with the class about different people or tools that have helped guide them to a specific destination.



Complete Remainder of the Lesson Later in the Day

3B

How Do Birds Find Their Way?



Extensions

20 minutes

Poetry Reading

Tell students that you are going to read a poem titled “Something Told the Wild Geese” by Rachel Field. Tell them to listen carefully to find out what information Ms. Field is sharing in her poem.

Something Told the Wild Geese

By Rachel Field

Something told the wild geese

It was time to go.

Though the fields lay golden

Something whispered, — “Snow.”

Leaves were green and stirring,

Berries, luster-glossed,

But beneath warm feathers

Something cautioned, — “Frost.”

All the sagging orchards

Steamed with amber spice,

But each wild breast stiffened

At remembered ice.

Something told the wild geese

It was time to fly, —

Summer sun was on their wings,

Winter in their cry.

Discuss with students what the above lines mean. Ask students what season of the year this poem is describing and why they think the wild geese are flying away. Give each student a piece of drawing paper, and reread the poem a second time. Have students draw a picture illustrating the poem and label their drawing with the poem's title.

4

Bean



Lesson Objectives

Core Content Objectives

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Define the term *life cycle*
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Explain effects of seasonal changes on plants
- Describe the life cycle of a flowering plant (seed to seed)

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)

- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Learn synonyms and antonyms (L.2.17)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Interpret information (orally or in writing) presented, and then ask questions to clarify information or the topic in a read-aloud (L.2.19)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or interfering cause/effect relationships (L.2.22)
- Draw pictures, dictate, or write simple sentences to represent details or information from a read-aloud (L.2.29)
- Sequence four to six pictures illustrating events from a nonfiction read-aloud (L.2.42)

Core Vocabulary

Bean, by Barrie Watts is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

anchors, v. (p. 17) Holds down or keeps in place

Example: The long string on a kite anchors it to the person holding it and keeps the kite from flying away.

Variation(s): anchor, anchored, anchoring

attract, v. (p. 22) To cause to draw near or increase interest

Example: The bake sale organizers painted large signs in bright colors to attract people to their booths.

Variation(s): attracts, attracted, attracting

protects, v. (p. 4) Covers or shields from exposure or damage

Example: Wearing sunscreen protects the skin from getting burned while outside.

Variation(s): protect, protected, protecting

sprouts, v. (p. 8) Begins to grow

Example: A bean plant sprouts new leaves when it has plenty of water and sunshine.

Variation(s): sprout, sprouted, sprouting

supply, n. (p. 13) A quantity of something available for use

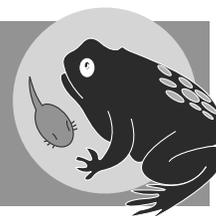
Example: Flower nectar is a supply of food for birds, bees and butterflies.

Variation(s): supplies

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?	Image Cards 1–4 Cycles in Nature Poster 2	10
	Sharing the Title and Trade Book Cover		
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	Bean	<i>Bean</i> , by Barrie Watts	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Attract		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Sequencing the Bean Life Cycle	Instructional Master 4B-1, drawing tools	20

4A

Bean



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that over the last few lessons they have learned about the seasonal cycle. Ask students to explain the importance of this cycle. Ask students to also identify what the four seasons are and the effects seasonal changes have on plants and animals. Show students Image Cards 1–4 to help guide the students' discussions and to help them formulate answers. You may also wish to have students sequence Image Cards 1–4 using the Cycles in Nature Poster 2. Tell students that in today's lesson they are going to learn about a different cycle in nature.

Sharing the Title and Trade Book Cover

Read the title and author information of the book. Ask students if they think a bean plant goes through a cycle and, if so, what kind of cycle they think it would be. Ask students what they see in the illustration and how it might relate to a cycle. Explain to students that all plants and animals journey through differing stages of development called a *life cycle*.

Purpose for Listening

Remind students that during the four seasons, seasonal changes affect the earth's temperature and the amount of light and darkness that all creatures and plants are exposed to. Ask students to listen carefully to today's read-aloud to find out about the short life cycle of a bean plant from a seed to a full-grown plant.

Bean

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The page references where the vocabulary words appear in the trade book are noted in parentheses below. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 4

- . . . **come from seeds.** The typical flowering plant begins its life cycle as a seed. (Note: You may wish to remind students who used the Core Knowledge Language Arts program in Kindergarten of how they learned about the different parts of plants, how they grow, and what they need to survive.)
- . . . **from drying out.** The word **protects** means to cover or shield from exposure or damage. What might cause a seed to dry out?

Page 5

- . . . **to be planted.** Why do you think the bean seed is kept in a cool, dry place? What do you think would happen to the bean seed if it was stored in a warm, wet place?

Page 6

- . . . **start to grow.** Why is the bean seed planted in the spring rather than in the winter?

Page 7

- . . . **soften the skin.** (Make sure that students understand that the picture is showing a bean beneath the soil and not on top of it.) Why is it important for the outer skin of the seed to soften?
- . . . **skin then splits.** What do you think happens next?

Page 8

- . . . **bean sprouts.** The word **sprouts** means begins to grow. After the life cycle begins with the seed, growth is the next important stage of the life cycle.

Page 9

- . . . **from the soil.** What part of the plant grows first? Moisture is liquid and, in this case, water. Nutrients are like vitamins. The bean root is absorbing both so that it can grow larger.

Page 10

- . . . **of the soil.** About how long does it take for the seed to grow a root and a pair of seed leaves?

Page 11

- . . . **the leaves grow.** What part of the plant grows next after the roots? Why do you think the seed leaves are growing to the surface or top of the ground? Do you think the bean plant needs more than just water and nutrients to grow?

Page 13

- . . . **in the seed.** The word **supply** means a quantity of something available for use. Isn't that amazing that the seed will serve as a supply of food for the new plant until it can make its own food?

Page 14

- . . . **is called photosynthesis.** So, now you know that a bean plant needs water, nutrients, and sunlight to make its own food and to grow larger.

Page 15

- . . . **through the veins.** Can you think of another example where veins serve an important purpose?

Page 17

- . . . **tall and strong.** The word **anchors** means to hold down or keep in place. The network of roots helps the growing bean plant to remain upright as it grows taller and stronger and continues its life cycle.

Page 18

- . . . **tough, flexible fibers.** *Hollow* means empty, so the stem is similar to a long straw.

Page 19

- . . . **and the roots.** Just like your veins carry important nutrients throughout your body so that you can live and grow, a bean plant uses its veins to allow water and food to travel up to its leaves and down to its roots so that it can live and grow.

Page 20

- . . . **grow flower buds.** Flower buds are young flowers that have not yet opened or bloomed.

Page 21

- . . . **grow flower buds.** Growing flowers is very important for the next stage in the life cycle of a flowering plant. About how long has this bean plant's life cycle been so far?

Page 22

- . . . **and other insects.** The word **attract** means to cause to draw near or increase interest. Flowers are important for bees and other insects, but do you think flowers also serve an important purpose for the bean plant? Why or why not?

Page 23

- . . . **and pollinate it.** So, bees and insects also have an important job to do. They help carry the pollen from one flower to another so the plant can go through the next important stage in its life cycle.

Page 24

- . . . **and fall off.** *Wither* means to lose moisture and dry out.
- . . . **to grow seedpods.** Can you guess what is inside each seedpod? The flower of the bean plant has made more seeds to start the life cycle over again. This stage of the flowering plant life cycle is also known as reproduction. The word *reproduction* means to make more of its own kind. The flower of the bean plant has made more bean seeds to start a new life cycle.

Page 25

- **... into a seedpod.** The flower dies, but it has made new seeds to start the life cycle again for new bean plants.

Page 26

- **... in the stem.** How do the stem's veins carry food to the bean plant?

Page 27

- **... from drying out.** Do you recognize the seeds that are inside this seedpod?

Page 28

- **... people to eat.** Do you remember what season it is when people harvest plants?

Page 29

- **... into new plants.** So, the cycle repeats itself, and new plants will form from seedpods left on the plant. So, the life cycle of birth, growth, and reproduction can repeat itself over and over again.

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. It is highly recommended that you ask students to answer in complete sentences by asking them to restate the question in their responses.

1. What are the important stages of a bean plant's life cycle? (birth, growth, and reproduction)
2. How does a bean plant's life cycle begin? (It begins with a seed.)

3. Why is the outer skin of a bean seed so important? (It helps protect the inside parts of the seed from drying out.)
4. Of the four seasons, which one is the best time for planting seeds? (spring) Why? (Because the ground is warmer; spring rains bring moisture and soften the seed's skin so a root will anchor to the underground soil.) What is this stage called when the seed sprouts or germinates? (birth)
5. What happens during the growth stage of the life cycle? (The plant sprouts, then grows more roots to anchor it to the ground; stems and leaves grow so that it can take in water, nutrients, and sunlight to make its own food to continue growing.)
6. After the supply of food that is stored in the seed is gone, how does a developing bean plant make its own food? (The seed leaves absorb sunlight and use the water from the plant's roots to make food.) What is this process called? (photosynthesis)
7. How is the bean plant able to make more of its own kind, in other words, achieve the reproduction stage of its life cycle? (It produces flowers that attract bees and other insects. The bees and insects transfer pollen for the bean plant and help to pollinate it so that new seeds can be made.)
8. What is one way to ensure that new bean plants continue the life cycle? (by harvesting the seedpods that are not eaten after the plant dies and planting those seeds the next spring)
9. Is the life cycle of a bean plant longer or shorter than the seasonal cycle? (It is shorter.)
10. *What? Pair Share:* Asking questions after a read-aloud is one way to see how much everyone has learned. Think of a question you can ask your neighbor about the read-aloud that starts with the word *what*. For example, you could ask, "What are the important stages in the life cycle of a flowering plant?" Turn to your neighbor and ask your "what" question. Listen to your neighbor's response. Then your neighbor will ask a new "what" question, and you will get a chance to respond. I will call on several of you to share your questions with the class.

Word Work: Attract

(5 minutes)

1. The trade book states, “The flowers give off a strong scent to *attract* bees and other insects.”
2. Say the word *attract* with me.
3. *Attract* means to cause to draw near or increase interest.
4. Mandy used her loud, booming voice to attract people to the entrance of the school festival.
5. What are some things you have noticed babies do when they want to attract attention? Try to use the word *attract* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “I have seen a baby _____ when he or she wanted to attract attention.”)
6. What’s the word we’ve been talking about? What part of speech is the word *attract*?

Use a *Synonyms and Antonyms* activity for follow-up. Directions: *Attract* means to draw near or increase interest. The opposite of the word *attract* is the word *repel*. If you want to repel something, you want to drive it away or decrease interest. I am going to read several sentences. If what I describe is something that increases interest, say, “attract.” If what I describe is something that decreases interest, say, “repel.”

1. spraying bug spray to keep mosquitoes away from your patio (repel)
2. the smell of baking apple muffins in the kitchen for breakfast (attract)
3. scattering bread crumbs at the park to feed the birds (attract)
4. using an umbrella to keep your hair and clothes from getting wet (repel)
5. a mother cat mewing to keep her kittens close by (attract)



Complete Remainder of the Lesson Later in the Day

4B

Bean



Extensions

20 minutes

Sequencing the Bean Life Cycle (Instructional Master 4B-1)

Have students describe the stages of a flowering plant's life cycle as seen with a newly planted bean seed. (seed, seed sprouting and growing roots, flowering bean plant with stems and leaves, plant with seedpods) Ask students what is necessary in order for these stages of the bean plant to occur. (warm temperatures, water, sunlight, insects, etc.) Have students draw images of each of the bean plant's stages, above and below the surface of the soil, using Instructional Master 4B-1. Then ask students to label each of their drawings with the name of one of the life cycle stages they have learned. (Note that the first drawing represents "birth," the middle two drawings represent growth, and the last drawing represents reproduction.) Ask students to cut out the cards and mix them up after they have labeled them. Last, have students switch cards with a partner and put the cards in a sequence that illustrates the bean's life cycle.

5

From Seed to Maple Tree



Lesson Objectives

Core Content Objectives

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Define the term *life cycle*
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Explain effects of seasonal changes on plants
- Describe the life cycle of a flowering plant (seed to seed)

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)

- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Learn synonyms and antonyms (L.2.17)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or interfering cause/effect relationships (L.2.22)
- Compare and contrast (orally or in writing) similarities and differences within a single read-aloud or between two or more read-alouds (L.2.23)
- Make personal connections (orally or in writing) to events or experiences in a read-aloud and/or make connections among several read-alouds (L.2.24)
- Retell (orally or in writing) important facts and information from a read-aloud (L.2.41)

Core Vocabulary

From Seed to Maple Tree, by Laura Purdie Salas is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

germinate, v. (p. 6) To start to grow or sprout

Example: The pea seeds planted in clear, plastic cups began to germinate near the warm, sunny window.

Variation(s): germinates, germinated, germinating

sapling, n. (p. 10) A young tree

Example: A young sapling needs lots of sunshine and water to grow into a tall and strong tree.

Variation(s): saplings

seedling, n. (p. 9) A small, young plant grown from a seed

Example: Alison moved her tomato seedling outside once spring brought warmer temperatures so it could grow.

Variation(s): seedlings

thaws, v. (p. 21) Changes from a frozen state; melts

Example: My grandfather thaws the frozen meat before cooking it to make his prize-winning chili.

Variation(s): thaw, thawed, thawing

<i>At a Glance</i>	Exercise	Materials	Minutes
Introducing the Read-Aloud	What Have We Already Learned?	Image Cards 5–8 Cycles in Nature Poster 2	10
	Sharing the Title and Trade Book Cover		
	Making Predictions About the Read-Aloud		
	Purpose for Listening		
Presenting the Read-Aloud	From Seed to Maple Tree	<i>From Seed to Maple Tree</i> , by Laura Purdie Salas	15
Discussing the Read-Aloud	Comprehension Questions		10
	Word Work: Germinate		5
 Complete Remainder of the Lesson Later in the Day			
Extensions	Venn Diagram	Instructional Master 5B-1 chart paper, chalkboard, or whiteboard	20

5A

From Seed to Maple Tree



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that in the previous lesson, they learned about the life cycle of a flowering plant. Ask students to identify the stages of the life cycle of a bean plant. Show students Image Cards 5–8 to help guide their discussion and to help them formulate answers. You may also wish to have students sequence the flowering plant cycle using Image Cards 5–8 and the Cycles in Nature Poster 2.

Review the life cycle of a flowering plant with the following questions:

- What is a life cycle? (stages of development for any living thing)
What are the main stages of a life cycle? (birth, growth, and reproduction)
- How does a bean plant begin its life cycle? (as a seed)
- What does it mean when a bean seed sprouts? (It begins to grow.)
- What does a bean seed need to grow taller and stronger? (water, nutrients, and sunshine)
- Why are flowers important to the life cycle of a bean plant? (The flowers attract bees and insects with their scent, which helps with pollination and reproduction of the plant.)
- When a plant dies, how is the life cycle able to continue? (The plant produces new seeds before it dies.)
- About how long is the entire life cycle of a bean plant, less than one year or more than one year? (less than one year; about twelve weeks or three months)

Sharing the Title and Trade Book Cover

Share the title and author/illustrator information of the trade book. Ask students if any of them have ever seen a fully grown maple tree. Point to the trees in the cover illustration and ask how big they think maple trees can grow and how long they think it takes for a maple tree to reach its adult height.

Making Predictions About the Read-Aloud

Have students think about what they have learned so far in this domain to help them predict whether or not a maple tree's life cycle is long or short, and how a maple tree's life cycle may be similar or different to that of a bean plant.

Purpose for Listening

Tell the students to listen carefully to find out whether or not their predictions are correct.

From Seed to Maple Tree

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The page references where the vocabulary words appear in the trade book are noted in parentheses below. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 4

- . . . **seasons and years.** Does this give you a clue as to whether a maple tree's life cycle is long or short?

Page 5

- . . . **leaves each year.** Who remembers the name for trees that do not lose their leaves each year? All deciduous and evergreen trees go through a life cycle.

Page 6

- . . . **a tiny seed.** Do you remember what this stage of the life cycle is called?
- . . . **germinate, or sprout.** What does the word **germinate** mean if it is a synonym for *sprout*? Why is spring a good time for a tiny seed to germinate or sprout?

Page 8

- . . . **into the air.** (Have students look at the illustration on page 8.) What purpose do the roots, stem, and seed leaves have in the life cycle of a plant?

Page 9

- . . . **seedling grow strong.** Do you remember what this stage of the life cycle is called? (Note: You may wish to remind students who used Core Knowledge Language Arts in Kindergarten of how they learned about the different parts of plants, how they grow, and what they need to survive.)
- . . . **for white-tailed deer.** Will the sugar maple's life cycle continue if the seedling is eaten by a deer?

Page 10

- . . . **spring and summer.** The growth stage of the life cycle continues in the spring and summer.
- . . . **6.6 feet (2 m).** The word **sapling** means a young tree. A height of 6.6 feet is a little taller than most adults.
- . . . **30 to 40 years.** What difference do you notice between the growth cycle of a bean plant compared to that of a maple tree?

Page 11

- . . . **to 400 years.** How does the length of the sugar maple's life compare to that of the bean plant?

Page 12

- . . . **grows flowers in spring.** Why are flowers important to the life cycle of a plant?

Page 14

- . . . **is called pollination.** Do you remember what this stage of the life cycle is called?

Page 16

- . . . **small wings attached.** What do you think will happen next?

Page 17

- . . . **from the tree.** What season is it when the fruit has ripened?
- . . . **sugar maple tree.** Wind and insects help the maple tree carry pollen from one tree to another. Do you think the wind helps the maple tree in other ways, too?

Page 18

- **... from the parent tree.** Can you think of other ways the seeds may be scattered away from the parent tree?

Page 20

- **... preparing for spring.** Do you remember what *preparing* means? What do you think the tiny seed is getting ready to do in spring?

Page 21

- **... time each day.** What causes the amount of sunlight to increase in the spring?
- **The ground thaws.** The word ***thaws*** means to melt or change from a frozen state.
- **... maple seed sprouts.** Do you remember what it means when something sprouts? Can a seed sprout if the ground is cold and frozen? Why or why not?
- **... tree begins again.** So, the life cycle repeats itself over and over again. What similarities do you see between the life cycle of a sugar maple tree and the cycle of seasons?
- **... are chopped down.** What might cause a sugar maple to die?

Page 22

- (Point to the illustration on this page and ask a student volunteer how long each stage of the maple tree's life cycle lasts according to the illustration.)

Comprehension Questions

(10 minutes)

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. It is highly recommended that you ask students to answer in complete sentences by asking them to restate the question in their responses.

1. Were your predictions correct? Why or why not? (Answers may vary.)
2. What are the stages of a maple tree's life cycle? (birth, growth, and reproduction)
3. How does a maple tree's life cycle begin? (The birth stage begins with a seed.)
4. When does a maple tree seed germinate? (during the spring when the temperatures are warmer and the amount of daylight is longer)
5. Why is it important for the ground to thaw when spring arrives? (Seeds can germinate or sprout with warmer temperatures; the ground is softer, and the sprouted seed's roots can anchor into the ground.)
6. What is the difference between a maple tree seedling and a maple tree sapling? (A seedling is a very young plant; a sapling is older, larger, and looks like a small tree.) What stage of the life cycle is this? (growth)
7. Why are flowers important to the life cycle of a sugar maple tree? (The flowers attract bees and insects which help transfer pollen from one plant to another.) What is this process called? (pollination) What stage of the life cycle is this? (reproduction)
8. What other natural things help ensure that the maple tree's life cycle repeats every year? (The maple tree's seeds are scattered away from the parent tree by wind; insects carry pollen on their bodies and help pollinate other maple trees.)

9. How long does a maple tree live? (Some trees can live between 200 and 400 years.)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

10. *Think Pair Share:* Would it be easier for you to observe the complete life cycle of a bean plant or a sugar maple tree and why? (It would be easier to observe the shorter life cycle of a bean plant; many trees have a longer life cycle than people.)

Word Work: Germinate

(5 minutes)

1. The trade book states, "Then it is time for a seed to *germinate*, or sprout."
2. Say the word *germinate* with me.
3. *Germinate* means to start to grow.
4. All our seeds began to germinate at the same time and covered our garden with tiny green leaves.
5. Have you ever watched a seed germinate? What happened to the seed? Did it change shape? Try to use the word *germinate* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students' responses: "I saw a _____ seed germinate and it . . .")
6. What's the word we've been talking about? What part of speech is the word *germinate*?

Use a *Making Choices* activity for follow-up. Directions: I will describe a situation. After each situation is described, select the response that best answers what happens to seeds when they germinate. Be sure to use the word *germinate* in your answer.

1. Do seeds germinate near the beginning or the end of the life cycle? (The beginning, because it is seen as the start of the life cycle.)
2. Do seeds usually germinate in the spring or the winter? (spring, when the ground has thawed and the air is warm)
3. What do seeds need to germinate? (water and sunlight so they can sprout and grow)
4. What happens to a seed when it begins to germinate? (The outside skin begins to soften and split; a tiny root pushes into the ground.)



Complete Remainder of the Lesson Later in the Day

5B

From Seed to Maple Tree



Extensions

20 minutes

Venn Diagram (Instructional Master 5B-1)

Remind students of the stages of the life cycle: birth, growth, and reproduction. Discuss with students what is needed for the life cycle of a flowering plant to begin, and why some plants have a short life cycle while others have a very long life cycle. Tell students that they are now going to compare and contrast the life cycle of a maple tree with the life cycle of a bean plant. Remind students that *compare* means to tell how things are alike, and *contrast* means to tell how things are different. Explain that comparing and contrasting helps us to learn more about the life cycles of these two different kinds of plants.

Copy Instructional Master 5B-1 onto chart paper, a chalkboard, or a whiteboard. Tell students that together you are going to compare and contrast the life cycle of the bean plant and the life cycle of the maple tree, writing the characteristics that only the bean plant life cycle has in the circle with that label and the characteristics that only the maple tree life cycle has in the circle with that label. In the overlapping middle section, write the characteristics that both of these plants' life cycles have in common.

Guide students in a discussion of some of the things they found that were similar and different about the two life cycles. (You may wish to have them reference Instructional Master 4B-1 which they completed in the previous lesson, as well as the diagram on page 22 in today's trade book.) Try to integrate the following domain vocabulary words into the discussion if students are not using these words: *birth, growth, reproduction, germinate, sprout, seed, seedling, sapling, flower, nectar, pollination*, etc. as you fill out the Venn diagram.

Note: You may wish to have students use Instructional Master 5B-1 to complete this diagram on their own.

PP1

Pausing Point 1



Note to Teacher

Your students have now heard several read-alouds about what a cycle is and the importance of seasonal and life cycles on planet Earth. You may choose to pause here and spend one to two days reviewing, reinforcing, or extending the material taught thus far.

If you do pause, you may have students do any combination of the activities listed below. The activities may be done in any order. You may wish to do one activity on successive days. You may also choose to do an activity with the whole class or with a small group of students who would benefit from the particular activity.

Core Content Objectives Up to This Pausing Point

Students will:

- Recognize that Earth orbits the sun
- Explain that it takes one year for Earth's orbit of the sun
- Explain that a cycle is a sequence of events that repeats itself again and again
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Identify that the tilt of Earth's axis in relation to the sun causes the seasons
- Explain effects of seasonal changes on plants and animals
- Describe animal processes in spring, summer, autumn (fall), winter
- Define the term *life cycle*
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the life cycle of a flowering plant (seed to seed)

Activities

Image Card Review

Materials: Image Cards 1–8

In your hand, hold Image Cards 1–8 fanned out like a deck of cards. Ask a student to choose a card but to not show it to anyone else in the class. The student must then perform an action or give a clue about the picture s/he is holding. For example, for a sprouting seed, a student may pretend to be very small and gradually grow taller. The rest of the class will guess the creature or object that is being described. Proceed to another card when the correct answer has been given.

Sequence Review

Materials: Image Cards 1–8, Cycles in Nature Poster 2

Use Cycles in Nature Poster 2 and Image Cards 1–8 to review with students the seasonal and flowering plant life cycles. Have students explain what each part of the cycle is and identify the correct sequence of events for each cycle.

Domain-Related Trade Book or Student Choice

Materials: Trade book

Read an additional trade book to review a particular event or life cycle; refer to the books listed in the domain introduction. You may also choose to have the students select a read-aloud to be heard again.

Class Book: Plant Life Cycle Encyclopedia

Materials: Drawing paper, drawing tools

Tell the class or a group of students that they are going to make a class book to help them remember what they have learned thus far in this domain. Have the students brainstorm important information about how seasonal cycles affect plants, as well as the life cycles of the plants they have heard about, such as bean plants or maple trees. Have each student choose one idea to draw a picture of and ask him or her to write a caption for the picture.

Bind the pages to make a class book to put in the class library for students to read again and again.

Riddles for Core Content

Ask the students riddles such as the following to review core content:

- I am a sequence of events that repeats over and over again in the same way. What am I called? (a cycle)
- I am an imaginary straight line between the North and South Poles on which planet Earth rotates. What am I? (an axis)
- I am the path Earth makes when it revolves around the sun over the course of one year. What am I? (an orbit)
- I am a word that describes how the earth's axis is slanted or at an angle and am the reason we have a change in seasons. Which word am I? (tilted)
- I am the trip that birds and some other animals take when they move from one climate to another. What am I called? (migration)
- We are scientists who study birds. Who are we? (ornithologists)
- I am a word that describes what a seed does when it starts to grow. Which word am I? (germinates or sprouts)
- I am the young plant that is grown from a seed. What am I? (seedling)
- I am a young tree that is a little taller than most of your parents or caregivers. What am I? (a sapling)
- I have an important job to do in that I help carry the pollen from one flower to another so the plant can go through the reproduction stage in its life cycle. What am I? (a bee or an insect)

Compare/Contrast

Materials: Chart paper

Tell students that there are many things to compare and contrast in the read-alouds they have heard so far. Remind students that to *compare* means to tell how things are similar and to *contrast* is to tell how things are different. Have students choose a topic from the following list to compare/contrast on a chart. You may do this individually or as a class.

- the four seasons
- a bean plant and a maple tree

You may wish to extend this activity by using the chart as a prewriting tool and having students write two paragraphs, one describing similarities and the other describing differences.

Key Vocabulary Brainstorming

Materials: Chart paper

Give the students a key domain concept or vocabulary word such as *cycle*. Have them brainstorm everything that comes to mind when they hear the word, such as, “repeats, four seasons,” etc. Record their responses on a piece of chart paper for reference.

Writing Prompts

Materials: Writing paper

Students may be given an additional writing prompt such as:

- Some animals migrate from one place to another because . . .
- Flowers are important to the life cycle of some plants because . . .
- The four seasons of the year are considered parts of a cycle because . . .
- My favorite season is _____ because . . .

Using a Map

Materials: World map or globe

Have students discuss the different places that some birds migrate to and why. On a world map or globe, review the location of Panama, South America, England, and Massachusetts. Discuss with students the long distances some birds will travel, year after year, to move from one climate to another. Have students talk about the importance of these travels, and how they help maintain the existence of some bird species.

Seed Observation

Materials: Dried lima beans, small containers, drawing paper, drawing tools

Have students place several dried lima bean seeds in small, water-filled containers to soak the beans overnight. The next day, split the seed halves of the bean apart using your fingers or a small plastic knife. Give each student or group of students the seed halves and have them observe the plant embryos inside. Ask students why the plant embryos are important to the life cycle of a plant. Have students draw a picture of the plant embryo and write a caption about how baby plants germinate from a bean seed embryo.

Seed Samples

Materials: Variety of fresh and/or dried foods and spices: sunflower seeds, pomegranates, fennel seeds, cloves, cinnamon

Note: You will need to consult with your school's nurse about children's allergies and school policy before bringing any plants or foods into the classroom.

Display the variety of foods on a table for students to investigate some seeds and plants that humans use for food. Have students examine each item and give examples of how they think humans may use each of these foods. For example, cinnamon is used as a spice to flavor cooking dishes and desserts, but it also used as a fragrance in candles and potpourri.

Flowering Plant Observations

Materials: Fresh lilies, roses or other large flowers, cotton swabs, drawing paper, drawing tools

Note: You will need to consult with your school's nurse about children's allergies and school policy before bringing any plants or foods into the classroom.

Distribute the fresh flowers to each student or group of students. Have students examine the reproductive parts of the flowering plant. Give each student a cotton swab to collect pollen from an anther and hand-pollinate the stigma. Ask students discuss the process of pollination and how it occurs in nature. Have students draw a picture of the flowering plant's reproductive parts, and write a caption about how bees and the wind help pollinate plants.

6

Monarch Butterfly



Lesson Objectives

Core Content Objectives

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Explain effects of seasonal changes on animals
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the life cycle of a butterfly (egg to egg)
- Explain *metamorphosis*

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)

- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Describe illustrations (orally or in writing) (L.2.13)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or interfering cause/effect relationships (L.2.22)
- Interpret information from diagrams, charts, graphs, or graphic organizers (L.2.27)
- Retell (orally or in writing) important facts and information from a read-aloud (L.2.41)
- Sequence four to six pictures illustrating events from a nonfiction read-aloud (L.2.42)

Core Vocabulary

Monarch Butterfly, by Gail Gibbons is used as the read-aloud in this lesson. There are no page numbers in this particular trade book, so we are counting the first page of the story after the dedication page as page 1. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

larva, n. (p. 3) The early form of an insect that is not completely developed

Example: A larva must go through many stages of growth before becoming an adult insect.

Variation(s): larvae

metamorphosis, n. (p. 11) The process by which the young form of some animals develops and changes into the adult form during its life cycle

Example: After the young insect goes through its metamorphosis to become an adult insect, it looks nothing like it used to.

Variation(s): metamorphoses

molting, v. (p. 4) Shedding an outer layer

Example: When my pet snake is molting, he sheds all of his scales at once.

Variation(s): molt, molts, molted

transparent, adj. (p. 9) Clear; able to see through

Example: Judy planted her seeds in a large, transparent, plastic cup so she could watch the roots develop underneath the soil.

Variation(s): none

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?	Image Cards 1–8 Cycles in Nature Poster 2	10
	Sharing the Title and Trade Book Cover		
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	Monarch Butterfly	<i>Monarch Butterfly</i> , by Gail Gibbons U.S. map	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Transparent		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Sequencing the Life Cycle of a Butterfly	Instructional Master 6B-1 drawing paper, drawing tools, glue, scissors	20
<i>Take-Home Material</i>	Parent Letter	Instructional Master 6B-2	

6A

Monarch Butterfly



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that so far in the previous lessons they have learned about two cycles in nature, the seasonal cycle and the life cycle of flowering plants in particular. Ask students to describe the seasonal cycle and what causes it. Show students Image Cards 1–4 to help guide their discussion and to help them formulate answers. You may also wish to have students sequence the seasonal cycle using Image Cards 1–4 and the Cycles in Nature Poster 2.

Now ask students to identify the main stages of the life cycle. Make sure to emphasize that when a living thing reproduces, the offspring or their young begin the life cycle again. In the case of a flowering plant, explain that we can describe its life cycle as going from “seed to seed.” Ask students to also explain the importance of this cycle for both the short life of a bean plant and the longer life of a maple tree. Show students Image Cards 5–8 to help guide their discussion and to help them formulate answers. You may also wish to have students sequence the flowering plant cycle using Image Cards 5–8 and the Cycles in Nature Poster 2.

Remind students that not only plants, but also animals, journey through differing stages of development called a *life cycle*. Explain that they are going to continue learning about the life cycle, but this time they will look at the life cycle of a very small animal.

Sharing the Title and Trade Book Cover

Note: The first two pages after the cover and before the title page should be used in this activity.

Read the title and author/illustrator information of the book. Show students the cover and the first page of the trade book. Ask them what they see in the illustrations. Have students tell you what

they see, and have them explain what they already know about butterflies. Read the text on the first page and the second page. On the second page, pause after the sentence, “The egg is the beginning of another...” and have students finish the sentence to see if they will complete the sentence with “life cycle.” Explain to students that the egg the adult monarch butterfly is laying is the beginning of the life cycle, the birth stage, of a monarch butterfly.

Purpose for Listening

Tell students to listen for the different changes that occur in the butterfly’s life cycle, from egg to adult butterfly. Tell them to pay special attention for the word *metamorphosis* and its role in the life cycle of this animal.

Monarch Butterfly

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

There are no page numbers in this particular trade book, so we are counting the first page of the story after the dedication page as page 1. The prompts below are listed by page number. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 1

- . . . **sticks to the leaf.** (Point to the egg in the illustration.) Why do you think the adult female lays her eggs in the summertime?

Page 3

- . . . **the egg hatches.** When an egg hatches, the eggshell breaks in order to allow a young animal to come out.
- . . . **called a larva.** (Point to the larva.) What is this called? After the egg, the **larva** is the next important stage in the life cycle of the monarch butterfly.
- . . . **the milkweed leaf.** The milkweed leaf has very important nutrients for the larva, or caterpillar, to help it grow. So what is the monarch's favorite plant?

Page 4

- . . . **is called molting.** The caterpillar sheds its skin because it grows quickly and soon becomes too large for its skin. The skin cracks, and the caterpillar crawls out. What stage of the life cycle is the monarch butterfly in when it is **molting**?

Page 5

- . . . **eats and eats.** So the more nutrients the larva/caterpillar gets, the healthier and larger it will grow.
- . . . **two inches long.** (Demonstrate two inches using your fingers or a ruler.)

Page 6

- **It attaches itself . . .** or sticks itself
- . . . **down head first.** What do you think will happen next?

Page 7

- . . . **chrysalis or pupa.** (Point to the chrysalis in the illustration.) What is this called?

Page 9

- . . . **before becoming transparent.** or see-through
- . . . **orange and black lines.** What can you see inside the chrysalis now that it is **transparent?**

Page 10

- . . . **it splits open.** What do you think happens next?

Page 11

- . . . **abdomen is big.** (Point to the abdomen in the illustration.)
- . . . **is called metamorphosis.** (Have the students repeat the word *metamorphosis*.) The change that the larva, or caterpillar, goes through in order to turn into an adult butterfly is called **metamorphosis.** (Turn to page 5 and point to the illustration.) At the end of the growth stage in the butterfly's life cycle when it becomes an adult, does it look similar to how it looked earlier in the growth stage? After an animal's metamorphosis, the adult animal looks completely different from its younger form.

Page 13

- **The butterfly flutters . . .** or flies
- **. . . are left alone.** Is it good for the butterfly to be left alone by other animals? Why? (Pause for responses.)

Page 14

- **. . . parts to a butterfly.** (Point to each part of the butterfly indicated in the illustration, and read the corresponding descriptions.)

Page 16

- **. . . will be cold.** In the cycle of the seasons, what season comes after fall/autumn? Why is winter the coldest season of the year?
- **. . . it will die.** Do you remember the scientific word for traveling south to a warmer climate? The butterfly's life will end if it doesn't migrate.

Page 17

- **. . . is called migration.** Are butterflies the only animals that migrate? Can you remember what other animals you have learned about that also migrate? (Pause for students' responses.)

Page 18

- **. . . very same tree!** The monarch butterfly's ancestors are the butterflies that have come long before it. Isn't it amazing that butterflies have migrated to the same places for years and years?

Page 20

- **. . . in one day.** (If possible, indicate how long one hundred miles is on a map. You may also wish to mention a nearby town that is roughly one hundred miles away from your town and how long it would take a person to get there.)

Page 21

- . . . **migrate 4,000 miles!** (Point to Florida, southern California, and Mexico on a map, or point to their rough location on the illustration of the map.)
- . . . **throughout the winter.** (Point to the arrows in the illustration.) What direction are the arrows pointing, north or south? Why do butterflies and other animals migrate south?

Page 23

- . . . **from all around.** Why do you think visitors might come from all around to see the monarch butterflies?

Page 24

- . . . **to one tree.** To *cluster* means to gather very closely together.

Page 25

- . . . **of milkweed plants.** What do you think will happen when the butterflies migrate north in the spring to the fields of milkweed plants? (To prompt responses, you may wish to turn to the very first two pages after the trade book cover used on page 76, *Introducing the Read-Aloud*.) What stage of the life cycle is the monarch butterfly in when it lays an egg?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

1. Where does an adult monarch butterfly lay its egg? (on milkweed plants)
2. What hatches out of the egg a monarch butterfly lays? (a caterpillar/larva)
3. During the growth stage, the more a caterpillar eats, the bigger it gets. The bigger it gets, the tighter its outer layer of skin becomes. What is it called when a caterpillar sheds its skin? (molting)
4. During the growth stage, what does the caterpillar become? (a pupa/chrysalis) What comes out of the pupa/chrysalis about two weeks later? (an adult butterfly)

5. What does *metamorphosis* mean? (Metamorphosis is a series of changes that some animals go through from egg to adult form.) After metamorphosis, does the adult animal form look like the young form? (no)
6. Explain the life cycle of a butterfly. What happens during the birth stage? (During the birth stage, the adult butterfly lays an egg.) What happens during the growth stage? (During the growth stage, the larva/caterpillar hatches from the egg, the caterpillar molts several times, and the chrysalis/pupa forms. Last, the chrysalis/pupa splits open so the adult butterfly can emerge.) What happens during the reproduction stage? (During the reproduction stage, an adult butterfly lays an egg on a milkweed leaf.)
7. What does it mean that a butterfly migrates for the winter? (A butterfly will take a long trip to a warmer place.)
8. Why do butterflies migrate south to warmer temperatures? (If butterflies stay in the cold, they will die.) What season do butterflies begin to migrate south? (autumn/fall)
9. What season do butterflies begin to migrate north to the fields of milkweed plants? (spring) During what seasons do butterflies lay their eggs? (spring and summer)
10. What cycle in nature affects the life of a butterfly? (the seasonal cycle)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

11. *Think Pair Share*: Explain the life cycle of a butterfly. In the case of a flowering plant, we described its life cycle as going from “seed to seed.” How would you describe the life cycle of a butterfly in the same way? (During the birth stage, the adult butterfly lays an egg. During the growth stage, the larva/caterpillar hatches from the egg, the caterpillar molts several times, the chrysalis/pupa forms, and finally the chrysalis/pupa splits open so the adult butterfly can emerge. During the reproduction stage, an adult butterfly lays an egg on a milkweed leaf. In the case of the butterfly, we could describe its life cycle as going from “egg to egg.”)

Word Work: Transparent

(5 minutes)

1. In today's read-aloud, we heard that the chrysalis of a monarch butterfly turns gray green before becoming *transparent*.
2. Say the word *transparent* with me.
3. *Transparent* means see-through.
4. Mike's water bottle is transparent, so he is able to see how much water he has left to finish.
5. What are things you have seen that are transparent? Try to use the word *transparent* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students' responses: "_____ is transparent.")
6. What's the word we've been talking about? What part of speech is the word *transparent*?

Use a *Making Choices* activity for follow-up. Directions: I am going to name several things. If what I name is transparent, say, "transparent." If what I name is not transparent, say, "not transparent." If students respond with an alternative answer, then have them explain their reasoning because answers may vary.

1. a window (transparent)
2. a brown paper bag (not transparent)
3. a plastic water bottle (transparent)
4. a classroom pet tank (transparent)
5. a book cover (not transparent)
6. the lens in a pair of glasses (transparent)
7. plastic wrap (transparent)



Complete Remainder of the Lesson Later in the Day

6B

Monarch Butterfly



Extensions

20 minutes

Sequencing the Life Cycle of a Butterfly (Instructional Master 6B-1)

Review the term *metamorphosis* with students. Help them understand that metamorphosis is the process by which the young form of some animals develops into the adult form. Explain that some animals go through distinct stages of transformation to become an adult, and its adult form changes completely from its younger form during its life cycle.

Give each student a copy of Instructional Master 6B-1 and a large piece of drawing paper. Explain to the students that this worksheet has pictures of the different stages of metamorphosis for a monarch butterfly. Have the students cut out the pictures. Next, have them think about what is happening in each picture. Students should then arrange the pictures in their correct order to show the proper sequence of metamorphosis. Check to see if students are able to correctly sequence the pictures. Have the students glue the pictures on drawing paper once they have been sequenced. As students complete this activity, have them work with a partner to retell the stages of metamorphosis while referring to their sequenced pictures. You may also want to have students write or dictate words or sentences that describe the pictures and retell the metamorphosis of a butterfly.

Parent Letter

Send home Instructional Master 6B-2.

7

From Tadpole to Frog



Lesson Objectives

Core Content Objectives

Students will:

- Explain effects of seasonal changes on plants and animals
- Explain that a cycle is a sequence of events that repeats itself again and again
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Define the term *life cycle*
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the life cycle of a frog (egg to egg)
- Demonstrate familiarity with the poem “Discovery”

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Request or provide simple explanations (L.2.7)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)

- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)
- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Describe illustrations (orally or in writing) (L.2.13)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Interpret information (orally or in writing) presented, and then ask questions to clarify information or the topic in a read-aloud (L.2.19)
- Summarize (orally or in writing) text content and/or oral information presented by others (L.2.20)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or interfering cause/effect relationships (L.2.22)
- Draw pictures, dictate, or write simple sentences to represent details or information from a read-aloud (L.2.29)
- Share writing with others (L.2.34)
- Sequence four to six pictures illustrating events from a nonfiction read-aloud (L.2.42)

Core Vocabulary

From Tadpole to Frog, by Wendy Pfeffer is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

burrow, v. (p. 18) To make a hole or passage into or under something
Example: My dog Pancho loves to burrow under the blankets on my bed.

Variation(s): burrows, burrowed, burrowing

gills, n. (p. 11) The parts of an aquatic animal used to breathe underwater
Example: The fish's gills open to take in water.

Variation(s): gill

hideaway, n. (p. 6) A place where someone or something can retreat for safety or privacy

Example: Andrew used the blankets from his bed to create a hideaway in his room.

Variation(s): hideaways

tadpole, n. (cover) The larva that hatches from the egg of a female adult frog

Example: The pond was full of tiny tadpoles after the spring thaw.

Variation(s): tadpoles

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?	Image Cards 9–12 Cycles in Nature Poster 2	10
	Sharing the Title and Trade Book Cover		
	Making Predictions About the Read-Aloud		
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	From Tadpole to Frog	<i>From Tadpole to Frog</i> , by Wendy Pfeffer	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Burrow		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Poetry Reading		20
	Informational Writing	Instructional Master 7B-1 drawing tools	

7A

From Tadpole to Frog



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that in the previous read-aloud they heard about the life cycle of a monarch butterfly. Have students retell the life cycle of a butterfly. You may wish to prompt responses by using Image Cards 9–12. You may also wish to have students sequence Image Cards 9–12 using the Cycles in Nature Poster 2. Ask students why this life cycle is an example of metamorphosis.

Tell students that today they are going to hear about the life cycle of a frog. Explain that a frog also undergoes the process of metamorphosis.

Sharing the Title and Trade Book Cover

Read the title and author/illustrator information of the book. Have students describe what they see in the illustration. Then ask students if anyone knows something about frogs. You may want to ask whether they know where frogs live, what they eat, or what frogs do when the seasons change. Ask students what differences they see between the frog and the tadpoles, and if they think this is a clue about the metamorphosis of the frog.

Making Predictions About the Read-Aloud

Ask students to predict what happens in the life cycle of a frog.

Purpose for Listening

Tell students to listen carefully to find out whether or not their predictions are correct.

From Tadpole to Frog

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The page references where the vocabulary words appear in the trade book are noted in parentheses below. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 5

- . . . **are the frogs?** (Have students look at the illustration on pages 4 and 5.) Do you see any frogs in the picture? Where do you think the frogs might be?

Page 6

- . . . **all winter long.** The word **hideaway** means a place where someone or something can retreat for safety or privacy. Why do you think the frogs need a hideaway? Do you remember what the word *hibernate* means?

Page 8

- **Birds return.** What season follows the cold of winter? Why are the flowers appearing and the birds returning?

Page 10

- . . . **the cool water.** When a female and male mate, a new life cycle can begin. How does the life cycle of the frog begin? Why do you think the female frog lays thousands of eggs?

Page 11

- . . . **the eggs hatch.** What does it mean when the eggs **hatch**? What stage of the life cycle is the frog in now?
- . . . **just like fish.** The word **gills** means the parts of an aquatic animal used to breathe underwater. Do you remember what part of the body humans use to breathe air?

Page 12

- **They're eating tasty tadpoles.** Remember, the frog lays thousands of eggs because many will not survive.

Page 14

- **... any tadpoles left?** (Have students look at the illustration on pages 14 and 15.) Do you see any tadpoles? What do you think has happened to them? Why does this happen in fall?

Page 16

- **... brownish-speckled leaves.** How might it be helpful that the tadpoles look like brownish-speckled leaves?
- **... tadpoles grow fat.** Do the tadpoles look like adult frogs yet? How long do you think a tadpole's growth stage lasts?

Page 18

- **... of the pond.** The word **burrow** means to make a hole or passage into or under something. Why do you think the tadpoles burrow under the mud during the winter? How much time has passed since the beginning of the story?
- **They just sleep.** What is the scientific word you have learned for sleeping through the winter?

Page 21

- **... begin to sprout.** *Hind* means back, so the tadpoles are growing their back jumping legs.
- **... tail grows shorter.** What do you think will happen next?

Page 22

- **... like long-tailed frogs.** What body part does the frog grow after the hind legs?

Page 23

- **... they become frogs.** The tadpoles now have lungs so that they can also breathe on land.

Page 25

- **... of their tails.** Why do they no longer need tails? How many seasons did it take for these tadpoles to grow and become adult frogs?

Page 26

- **... leap onto land.** What did the frogs grow so that they can leap on land? Do you remember how the adult frogs breathe, now that they are no longer using their gills underwater?

Page 27

- **... are the frogs?** (Pause for students to respond.)

Page 29

- **Birds fly south.** Why are the birds flying south? Do you remember the scientific word for flying south?
- **... are the frogs now?** (Pause for students to respond.)

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

1. Were your predictions correct? Why or why not? (Answers may vary.)
2. Where do adult frogs hibernate in the winter? (They sleep at the bottom of the pond in the soft mud until spring.)
3. In which season do males fertilize the eggs of females so that the life cycle can begin? (spring) What stage of the life cycle is this called when a plant or animal is able to make more of its own kind? (reproduction)
4. What is the first stage of a frog's life cycle? (The female lays her eggs.)
5. What is the baby frog called during the growth stage? (tadpole)
6. How do baby tadpoles breathe underwater? (They have gills just like fish.)

7. How do tadpoles prepare for the cold of winter? (They burrow under the mud at the bottom of the pond so they can hibernate.)
8. How do you know that a tadpole is changing into an adult? (Their front and back legs begin to sprout; their tails grow shorter; their mouths and eyes grow larger and lungs develop.) What is this process called? (metamorphosis)
9. When is a baby tadpole finally an adult frog? (when their tails disappear and they breathe above ground with their lungs) What stage of the life cycle is it called when two adult frogs mate and the female frog is able to lay eggs and make more of its own kind? (reproduction)
10. *What? Pair Share:* Asking questions after a read-aloud is one way to see how much everyone has learned. Think of a question you can ask your neighbor about the read-aloud that starts with the word *what*. For example, you could ask, “What did you learn about in today’s read-aloud?” Turn to your neighbor and ask your “what” question. Listen to your neighbor’s response. Then your neighbor will ask a new “what” question, and you will get a chance to respond. I will call on several of you to share your questions with the class.

Word Work: Burrow

(5 minutes)

1. The trade book states, “When winter winds blow again, they *burrow* under the mud at the bottom of the pond.”
2. Say the word *burrow* with me.
3. *Burrow* means to make a hole or passage into or under something.
4. Some animals use their front legs to push dirt aside so they can burrow deeper into the ground.
5. Has there ever been a time when you tried to burrow into something? Try to use the word *burrow* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “Once, I tried to burrow into . . .”)
6. What’s the word we’ve been talking about? What part of speech is the word *burrow*?

For follow-up have students share in pairs, small groups, or with the class, why they think it is important for creatures to burrow when they hibernate.



Complete Remainder of the Lesson Later in the Day

7B

From Tadpole to Frog



Extensions

20 minutes

Poetry Reading

Tell students that you are going to read a poem titled “Discovery” by Harry Behn. Tell them to listen carefully to find out which season Mr. Behn is describing in his poem.

Discovery

By Harry Behn

*In a puddle left from last week's rain,
A friend of mine whose name is Joe
Caught a tadpole, and showed me where
Its froggy legs were beginning to grow.
Then we turned over a musty log,
With lichens on it in a row,
And found some fiddleheads of ferns
Uncoiling out of the moss below.
We hunted around, and saw the first
Jack-in-a-pulpits beginning to show,
And even discovered under a rock
Where spotted salamanders go.
I learned all this one morning from Joe,
But how much more there is to know!*

After reading the poem, have students identify the season, and explain what clues about the frog’s life cycle in the poem helped them to know.

Informational Writing (Instructional Master 7B-1)

Tell students that they will be writing an informational piece to explain the life cycle of a frog to Joe or a real friend. Have students use the information heard in the read-aloud and the words shared in the poem “Discovery” to explain the life cycle and metamorphosis of a tadpole to a frog. Talk about the importance of writing the events of the life cycle in the correct sequence from the beginning of the life cycle to the end. After writing the frog’s life cycle information, have students draw a picture to illustrate the sequence of events.

After writing and drawing, have the students share their explanation with a partner or the class to determine if the explanation is clear.

8

Where Do Chicks Come From?



Lesson Objectives

Core Content Objectives

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Define the term *life cycle*
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the life cycle of a chicken (egg to egg)

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Follow multi-step, oral directions (L.2.5)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)

- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Describe illustrations (orally or in writing) (L.2.13)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or interfering cause/effect relationships (L.2.22)
- Compare and contrast (orally or in writing) similarities and differences within a single read-aloud or between two or more read-alouds (L.2.23)
- Draw pictures, dictate, or write simple sentences to represent details or information from a read-aloud (L.2.29)
- Share writing with others (L.2.34)
- Sequence four to six pictures illustrating events from a nonfiction read-aloud (L.2.42)

Core Vocabulary

Where Do Chicks Come From?, by Amy E. Sklansky is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

albumen, n. (p. 7) The white internal part of a hen's egg

Example: The albumen, or egg white, is the part of the egg used in some recipes, such as angel food cake.

Variation(s): albumens

wobbly, adj. (p. 26) Shaky or unstable

Example: Gale and Sarah wanted to play on the seesaw, but it was too old and wobbly for them to sit on.

Variation(s): wobblier, wobblest

yolk, n. (p. 6) The yellow internal part of a hen's egg

Example: Tina dropped an egg on the floor, and the yellow yolk spilled out.

Variation(s): yolks

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?	Image Cards 13–16 Cycles in Nature Poster 2	10
	Sharing the Title and Trade Book Cover		
	Making Predictions About the Read-Aloud		
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	Where Do Chicks Come From?	<i>Where Do Chicks Come From?</i> , by Amy E. Sklansky	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Wobbly		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Interactive Illustrations	Image Cards 17–19 fresh egg, clear glass jar, drawing paper, drawing tools	20

8A

Where Do Chicks Come From?



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that in the previous lesson, they learned about the life cycle of a frog. Show students Image Cards 13–16 and have them identify and sequence the parts of the frog’s life cycle. You may wish to ask the following questions:

- Which image card shows the birth stage of the life cycle? (Image Card 13)
- Which stage of the life cycle do Image Cards 14 and 15 show? (growth)
- Image Card 16 shows an adult frog. If a male frog and female frog mate, then the female is capable of laying eggs to start the life cycle over again. When that happens, what is that stage of the life cycle called? (reproduction)

You may also wish to have students sequence the image cards using the Cycles in Nature Poster 2.

Ask students if they recall how the seasonal cycle affected the frog life cycle in the previous read-aloud. Tell students that they have now learned about the life cycle of bean plant, a maple tree, a monarch butterfly, and a frog. Ask students what all of these things have in common. Remind them that all living things—plants, animals, and even people—journey through differing stages of development called a *life cycle*. Explain that they are going to continue learning about the life cycle as experienced by a very familiar bird.

Sharing the Title and Trade Book Cover

Read the title and author/illustrator information of the trade book. Ask: “Who can point to the chick in the illustration?” Ask students if they can tell from the illustration where baby chicks might come

from. Ask students if they think a chicken also goes through a life cycle, and if they think this life cycle is similar to, or different from, the life cycle of a butterfly or frog.

Making Predictions About the Read-Aloud

Ask students to think about the title and the illustration to predict where chicks come from or how they begin their life cycle.

Purpose for Listening

Tell students to listen carefully to find out whether or not their predictions are correct.

Where Do Chicks Come From?

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The page references where the vocabulary words appear in the trade book are noted in parentheses below. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 5

- . . . **one is different.** (Have students look at the illustration on page 4.) Does this egg look different from other eggs you have seen? Why do you think this particular egg is different?
- . . . **of this egg.** The word *hatch* means to come out of an egg. So, in three weeks a baby chick will be born. A chick's life cycle begins inside an egg.

Page 6

- . . . **around each egg.** The **yolk** is the yellow part of a hen's egg, inside the white shell.

Page 7

- . . . **is called fertilization.** What is this stage of the life cycle called when a plant or animal is able to make more of its own kind?
- . . . **around the yolk.** The **albumen** is the white internal part of a hen's egg.
- . . . **hard shell forms.** Why do you think the shell around the yolk and albumen becomes hard? Do you think this hard shell is protecting something?

Page 8

- **... chicks start growing.** So, just like the sprouting of a seed, chicks need warmth to grow bigger and stronger, too. What stage of the life cycle is the chick going through now?

Page 10

- **... the growing chick.** *Cushion* means support. The growing chick needs food and water to grow just like plants need food and water to grow.

Page 11

- **... are the same.** Without the mother hen and father rooster, new baby chicks would never hatch.

Page 12

- **... chicks are growing.** How many days do you think it will take for the chick to hatch from its egg?

Page 14

- **... the growing chick.** (Have students look at the illustration on page 14.) Do you remember how food is carried through the leaves of a bean plant? Do you think blood carries food and water in a similar way to the growing chick? Why or why not? The growing chick is growing various body parts just like a plant grows its different parts.

Page 16

- **... from the yolk.** So, is the yolk that was inside the egg before fertilization the same size now, or is it smaller? What do you think will happen when all the yolk is gone?
- **... are fully grown.** So, in only ten days the chick is fully grown.

Page 18

- **... the egg tooth.** Can you guess what the egg tooth is used for?

Page 19

- . . . **their mother's voice.** *Recognize* means to understand or identify with. So, do you think all mother hens sound the same? Why or why not?

Page 20

- . . . **head and body.** Down is a cover of soft feathers. Do you think the down will change as the baby chick grows? Why or why not?
- . . . **days without eating.** Do you remember what the word *prepare* means? What do you think the chick is preparing to do?

Page 21

- . . . **answers the hen.** So, why do you think it is important for the chick to recognize the mother hen's voice?

Page 22

- . . . **its egg tooth.** Were you able to guess correctly what the egg tooth was used for?

Page 25

- . . . **chick has hatched!** The baby chick has pecked its way out of its shell.

Page 26

- . . . **chicks finish hatching.** The word **wobbly** means shaky or unstable. The chick will need to regain its strength after the many hours it took for it to hatch.

Page 29

- . . . **mother and sleep.** *Nestle* means to lie close to or press against.
- . . . **necks grow stronger.** Similar to when the mother hen warmed her eggs and the baby chicks grew inside their shells, the mother hen's warmth now helps them grow since they have hatched.

- . . . **in the barnyard.** At the beginning of the life cycle, the chick got its food from the yolk and albumen inside the egg. Now, the chick will get its food from the outside world. What will the baby chicks grow up to be?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

1. Were your predictions correct? Why or why not? (Answers may vary.)
2. How does the life cycle of a chick begin? (with an egg)
3. What three parts make up an egg? (the shell, the albumen, and the yolk)
4. Do all eggs develop into baby chicks or go through a complete life cycle? (No, an egg must be fertilized by the male chicken to produce baby chicks.)
5. What does a growing chick use for food before it hatches? (The yolk and the albumen are both a source of food.)
6. How does the mother hen help her chick grow inside the egg? (She covers the egg with her body to keep it warm; she turns the egg over so that it is warm on all sides.)
7. What does a baby chick do to break out of its shell when it hatches? (It uses its egg tooth to chip a circle around the inside of the shell; it pushes against the sides of the egg with its body to break the shell open.)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. I will call on several of you to share what you discussed with your partner.

8. *Think Pair Share:* How is the life cycle of a chick similar to the life cycle of a butterfly or frog? How is it different? (Answers may vary.)

1. The trade book states, “It rests its *wobbly* legs as the other chicks finish hatching.”
2. Say the word *wobbly* with me.
3. *Wobbly* means shaky or unstable.
4. Aaron bought a new ladder because the old one was too wobbly to use.
5. Has there ever been a time when your legs felt wobbly or unstable? Try to use the word *wobbly* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “My legs felt wobbly when . . .”)
6. What’s the word we’ve been talking about? What part of speech is the word *wobbly*?

Use a *Synonyms and Antonyms* activity for follow-up. Tell students that the opposite of the word *wobbly* is the word *steady*. Ask them what they think this word means. Tell them that when something is steady it is stable or firm. Directions: I am going to read a list of several things to you. If what I read describes something that is shaky, say, “wobbly.” If what I read describes something that is stable, say, “steady.”

1. standing still for a photo (*steady*)
2. someone who is just learning to ride a bicycle (*wobbly*)
3. a bridge made of rope (*wobbly*)
4. a tricycle with three tires (*steady*)



Complete Remainder of the Lesson Later in the Day

8B

Where Do Chicks Come From?



Extensions

20 minutes

Interactive Illustrations

Bring a fresh egg to class, and crack open its contents into a clear glass jar. Ask students to describe what parts of the egg they see in the jar. Show students Image Cards 17–19 and have students explain and sequence a chicken’s life cycle. Explain to students that they will all get to be authors and illustrators in the next activity. Give each student a sheet of paper folded in half. On one half of the paper, have each student write a sentence about the life cycle of a chicken from hatching egg to adult. Pair them with a partner. Ask them to read their sentence aloud to their partner and then trade papers. Using the second section on their partner’s paper, have each student draw a picture that goes with his or her partner’s sentence. Then have students hand the papers back to the original author. Encourage the author to add descriptive words to his or her original sentence using carets, and hand the papers back to the illustrators to draw more details into the illustration.

Allow several students to share their drawing and sentences. Have them discuss how their partners’ illustrations differed from the pictures they had imagined in their heads when they wrote their sentences. As the students discuss the illustrations, remember to repeat and expand upon each response using richer and more complex language, including, if possible, any read-aloud vocabulary.

9

The Water Cycle



Lesson Objectives

Core Content Objectives

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Recognize that most of Earth's surface is covered by water
- Identify the three states of matter in which water exists: solid, liquid, and gas
- Define the term *water cycle*
- Understand that there is a limited amount of water on Earth
- Describe evaporation and condensation
- Identify forms of precipitation
- Define *humidity* as the amount of moisture in the air
- Describe the formation of clouds
- Understand that not all water cycles back into the air

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say "excuse me" or "please," etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner's comments, with either an adult or another child of the same age (L.2.3)

- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)
- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)
- Describe illustrations (orally or in writing) (L.2.13)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn and use (orally or in writing) new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or inferring cause/effect relationships (L.2.22)
- Retell (orally or in writing) important facts and information from a read-aloud (L.2.41)

Core Vocabulary

The Water Cycle, by Rebecca Olien is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

evaporation, n. (p. 8) The process by which a liquid changes into a gas
Example: We had to add water to our swimming pool because of the evaporation of some of the water.
Variation(s): none

condensation, n. (p. 13) The process by which a gas changes into a liquid
Example: My dad gets upset when we write in the condensation on the car windows.
Variation(s): none

humidity, n. (p. 10) The amount of moisture or water vapor in the air
Example: There is high humidity in the world's tropical rainforests.
Variation(s): none

precipitation, n. (p. 6) Water that falls from the sky as rain, snow, sleet, or hail
Example: We are planning to have a picnic since there is no chance of precipitation today.
Variation(s): none

water vapor, n. (p. 6) Water in its gaseous form
Example: When water evaporates, it becomes water vapor.
Variation(s): none

<i>At a Glance</i>	Exercise	Materials	Minutes
Introducing the Read-Aloud	What Do We Know?		10
	What Have We Already Learned?		
	Making Predictions About the Read-Aloud		
	Purpose for Listening		
Presenting the Read-Aloud	The Water Cycle	<i>The Water Cycle</i> , by Rebecca Olien	15
Discussing the Read-Aloud	Comprehension Questions		10
	Word Work: Precipitation		5
 Complete Remainder of the Lesson Later in the Day			
Extensions	A Water Cycle Song		20
	Water Cycle Observations	clear plastic cup, clear plastic bag, marker, tape, water	

9A

The Water Cycle



Introducing the Read-Aloud

10 minutes

What Do We Know?

Ask students what comes to mind when they hear the word *water*. Have students share what they know about water. You may prompt discussion with the following questions:

- Where can you find water?
- Is there more water or land on the earth?
- How do you use water?
- What else needs water besides people?
- Why did ancient civilizations develop around rivers or water?
- Why is it important to conserve water?
- When is water a liquid, a solid, or a gas?

What Have We Already Learned?

Ask students to explain what a cycle is. Next, ask them to explain what a seasonal cycle is. Then, have them explain what a life cycle is. Finally, explain that the water on the earth goes through a cycle as well and that this is called the water cycle. Explain that this is the third and last kind of cycle in nature they will learn about in this domain.

Making Predictions About the Read-Aloud

Show students the cover of the trade book, and share the title and author's name. Ask students to describe the cover illustration. Ask students to predict how water might go through a cycle.

Purpose for Listening

Tell the students to listen carefully to find out whether or not their predictions are correct and to learn about the water cycle.

The Water Cycle

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The prompts below are listed by page number. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Be sure to discuss what students see in each picture as you read each page.

Page 4

- **. . . of the earth.** Does that mean there is more water or land on the earth? Look at the illustration for a clue.
- **. . . into the air as vapor.** or a gas
- **. . . of the water cycle.** The water cycle is the continual process of the movement of the earth's water.

Page 6

- **. . . to form clouds. Water vapor** is water that has changed from liquid to gas. Water vapor is in the air around us, but we don't see it. When water vapor condenses, it forms clouds.
- **. . . begins again.** Let's look at the illustration and name the three parts of the water cycle together: **evaporation, condensation, precipitation.**

Page 8

- **. . . makes water evaporate.** How does water change when it evaporates? Where would water evaporate from in this illustration? Where does the evaporated water, or water vapor, go? What causes evaporation, heating or cooling?

Page 9

- **. . . when water boils.** Even though we cannot always see water vapor, where is it around us?

Page 10

- **... does not evaporate quickly.** Do you usually feel more **humidity** or water vapor in the air on a winter day or a summer day?

Page 13

- **... a glass of ice water.** How has water changed when you see condensation? What causes condensation, heating or cooling?

Page 15

- **... on the way.** What causes clouds to form?

Page 16

- **... snow, sleet, or hail.** What is precipitation? What kinds of precipitation have you seen or felt?

Page 17

- **Precipitation recharges ...** or helps refill the supply of
- **... lakes, and oceans.** Where does precipitation go once it falls on the earth?

Page 19

- **... to make clouds.** What is the name for the process of water vapor changing to liquid and forming clouds?
- **... as rain and snow.** What is the name for water that falls from the sky as rain or snow?

Page 20

- **... this same water.** Do you think the water cycle is amazing? Why is it important to take good care of the water on the earth?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

1. Were your predictions correct? Why or why not? (Answers may vary.)
2. Is the earth covered mostly by land or by water? (water)
3. What do we call the process when water from oceans, rivers, and puddles changes to a gas and moves into the air? (evaporation) What causes evaporation? (the heat from the sun) Can we *usually* see evaporation or water vapor? (no)
4. What do we call the process when water vapor turns back into a liquid because of cooling? (condensation)
5. What do we sometimes see in the sky that forms because of condensation of water vapor onto specks of dust that stick together? (clouds)
6. When clouds get heavy with water as condensation, what do we call water that then falls from the sky as rain, snow, sleet, or hail? (precipitation) Which type of precipitation is a liquid? (rain) Which types are solids? (snow, sleet, hail)
7. Where does precipitation go after it falls from the clouds? (into the ground or back into oceans, rivers, etc.)
8. What does the word *humidity* mean? (the amount of water vapor in the air) Would you rather play outside when there is high humidity or low humidity? (Answers may vary.)
9. Does the earth make new water or does the same water go through the water cycle again and again? (The same water cycles again and again.)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

10. *Think Pair Share:* What are the three important parts of the water cycle? (evaporation, condensation, and precipitation)

Word Work: Precipitation

(5 minutes)

1. The trade book states, “*Precipitation* falls from clouds as rain and snow.”
2. Say the word *precipitation* with me.
3. Precipitation is water that falls from the sky in the form of rain, snow, sleet, or hail.
4. The farmer had to water his garden because there had been no precipitation for a month.
5. What is your favorite kind of precipitation? Be sure to explain why. Try to use the word *precipitation* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “My favorite kind of precipitation is . . .”)
6. What’s the word we’ve been talking about? What part of speech is the word *precipitation*?

Use a *Making Choices* activity for follow-up. Directions: I will name two things. You will choose the one that is a type of precipitation. Be sure to use the word *precipitation* in your answer.

1. clouds or rain (Rain is a type of precipitation.)
2. sleet or water vapor (Sleet is a type of precipitation.)
3. snow or humidity (Snow is a type of precipitation.)
4. an ocean or hail (Hail is a type of precipitation.)



Complete Remainder of the Lesson Later in the Day

9B

The Water Cycle



Extensions

20 minutes

A Water Cycle Song

Teach students the following song and accompanying movements about the water cycle. The song is sung to the tune of “She’ll Be Comin’ ’Round the Mountain.”

Water travels in a cycle; yes, it does. [Move arm in a circular motion in front of the body.]

Water travels in a cycle; yes, it does. [Move arm in a circular motion in front of the body.]

It goes up as evaporation, [Move arms and hands, palms up, upward.]

Forms clouds as condensation, [With raised arms, form a cloud with the hands.]

Then falls down as precipitation; yes, it does. [Show rain falling with the hands and arms moving downward.]

Water Cycle Observations

Set up a miniature, indoor water cycle for students to observe. Pour a small amount of water into a small, clear, plastic cup. Tell students that this represents water that is found on the earth in a lake or puddle. Mark the level of the water by using a marker to draw a line on the cup. Carefully place the cup of water in a clear, plastic bag. Seal the bag. If your classroom has a window, tape the bag to the window. If not, tape the bag to a warm wall. Ask the students to predict what will happen.

Observe the bag each day until students are able to see that some of the water has evaporated, condensed on the sides of the bag, and fallen to the bottom of the bag as precipitation. Have students

describe what they see using the words *evaporated/evaporation*, *condensation*, and *precipitation*. You may also ask students to draw and write about their observations.

You may also make and discuss water cycle observations on days that clouds are visible in the sky or when precipitation is falling.

10

The Water Cycle



Lesson Objectives

Core Content Objectives

Students will:

- Recognize that most of Earth's surface is covered by water
- Identify the three states of matter in which water exists: solid, liquid, and gas
- Explain that a cycle is a sequence of events that repeats itself again and again
- Understand that there is a limited amount of water on Earth
- Describe evaporation and condensation
- Identify forms of precipitation
- Define *humidity* as the amount of moisture in the air
- Describe the formation of clouds
- Understand that not all water cycles back into the air
- Identify groundwater as a water resource for humans

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say "excuse me" or "please," etc. (L.2.1)
- Ask questions to clarify directions, exercises, and/or classroom routines (L.2.2)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner's comments, with either an adult or another child of the same age (L.2.3)

- Follow multi-step, oral directions (L.2.5)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn and use (orally or in writing) new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or inferring cause/effect relationships (L.2.22)
- Make personal connections (orally or in writing) to events or experiences in a read-aloud and/or make connections among several read-alouds (L.2.24)
- Draw pictures, dictate, or write simple sentences to represent details or information from a read-aloud (L.2.29)

Core Vocabulary

The Water Cycle, by Bobbie Kalman and Rebecca Sjonger is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

dew, n. (p. 13) Drops of water that form on cool surfaces during the night
Example: The spider web was easily seen in the morning because it was covered with dew.

Variation(s): none

downpour, n. (p. 16) A very hard or heavy rain
Example: My clothes were soaked after I got caught outside in a downpour.

Variation(s): downpours

groundwater, n. (p. 20) Water that collects beneath the earth's surface
Example: After the snow melted and seeped into the ground, it eventually became groundwater.

Variation(s): none

humid, adj. (p. 11) Damp

Example: Pablo didn't play outside very long because it was such a hot, humid day.

Variation(s): none

steam, n. (p. 7) Water vapor produced by boiling water

Example: Stacey was startled when the steam caused the tea kettle to whistle.

Variation(s): none

<i>At a Glance</i>	Exercise	Materials	Minutes
Introducing the Read-Aloud	What Have We Already Learned?		10
	Purpose for Listening		
Presenting the Read-Aloud	The Water Cycle	<i>The Water Cycle</i> , by Bobbie Kalman and Rebecca Sjonger	15
Discussing the Read-Aloud	Comprehension Questions		10
	Word Work: Downpour		5
 Complete Remainder of the Lesson Later in the Day			
Extensions	Water Cycle Observations		20
	Water Cycle Posters	drawing paper, drawing tools	

10A

The Water Cycle



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Sing the water cycle song learned in the previous lesson with students for review.

Ask students the following riddles to review important concepts and vocabulary associated with the water cycle:

- I am the part of the water cycle when rain falls from the sky. What am I? (precipitation)
- I am the part of the water cycle when water from the earth's surface changes into water vapor and rises into the sky. What am I? (evaporation)
- I am the part of the water cycle when water vapor in the sky or air cools and becomes liquid again. What am I? (condensation)
- I am the amount of water vapor in the air. What am I? (humidity)

You may also invite students to create their own riddles about the water cycle to ask their classmates.

Purpose for Listening

Tell the students that you are going to share another book about the water cycle. Tell them to listen carefully to learn more about the water cycle.

The Water Cycle

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The prompts below are listed by page number. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Be sure to discuss what students see in each picture as you read each page.

Page 4

- . . . **under the ground!** Is there more water or land on the earth?

Page 5

- . . . **without water, either.** Where do living things get the water they need? (Point to the photograph.)

Page 6

- . . . **is snow or ice.** Which is most important to you: water as a solid, liquid, or gas? Why?

Page 7

- . . . **around it cools.** What do we call the process of water vapor changing to liquid? What causes condensation?
- . . . **near the steam . . .** or water vapor

Page 8

- . . . **as water vapor.** What do we call the process of water on the ground changing into water vapor and rising into the sky? What causes evaporation?
- . . . **as rain or snow.** After it condenses to form clouds, what do we call water that falls back down to the earth as rain or snow?

Page 9

- (Talk through the illustration on this page starting with “The sun’s rays heat the Earth’s surface” all the way back to this starting point when the water cycle repeats.)

Page 10

- . . . **takes place slowly.** Does evaporation happen faster on a cold winter day or a hot summer day? Why?

Page 11

- . . . **was liquid water.** When it is very **humid** is there a lot of water vapor in the air or just a little?

Page 12

- . . . **as warm air can.** What do we sometimes see in the sky that forms because of condensation? Let's listen closely to find out.

Page 13

- . . . **the dew point.** Have you ever gone outside early in the morning and seen **dew** on the grass or other things? What does it look like? How does it feel?

Page 14

- . . . **in the sky.** What causes a cloud to form?

Page 15

- . . . **before thunderstorms.** (Point to the cirrus clouds and then the cumulus clouds in the photographs, and have students repeat the name of each type of cloud.)

Page 16

- . . . **a heavy downpour.** Do you think a **downpour** is a little rain or a lot of rain? What are some other types of precipitation?

Page 17

- . . . **from the clouds.** Does our area get a little or a lot of precipitation? What kind of precipitation do we get most often?

Page 18

- . . . **from the puddles.** What uses the water that soaks into the soil? What uses the water that stays on the surface of the ground?

Page 20

- . . . **rivers and streams.** What do we call water that seeps deep into the ground?

Page 23

- . . . **a human-made lake.** Why is fresh water important?

Page 25

- . . . **waste, as well.** Do you think there would be more runoff during a light drizzle or a heavy downpour?

Page 26

- . . . **contain salt water.** How is salt water different from fresh water?

Page 29

- . . . **water onto land.** Why is it very important to take care of the water on the earth?

Page 30

- . . . **to the oceans.** What do we call the continual movement of water on Earth?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

1. Why is Earth sometimes called “the water planet”? (It is mostly covered by water.)
2. Water can be a solid, a liquid, or a gas. What do we call water when it is a gas? (water vapor or steam)
3. Why are the processes of evaporation, condensation, and precipitation considered a cycle? (They happen again and again in the same order.) What is the name of this cycle? (the water cycle)
4. On hot summer days it often feels very humid. What causes the air to feel humid? (the water vapor in the air)
5. Sometimes when you go outside early in the morning, you will see dew. What is dew? (drops of water that form on cool surfaces) Does dew form because of condensation or precipitation? (condensation)
6. How do clouds fit into the water cycle? (They form because of condensation; they sometimes release precipitation.)
7. Is a downpour an example of evaporation, condensation, or precipitation? (precipitation) What are some other types of precipitation? (snow, sleet, hail)
8. What do we call the water that has collected deep in the ground? (groundwater) Why is groundwater important? (It eventually flows into rivers and streams and will eventually evaporate and fall back down as precipitation and drinking water we can use.)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

9. *Think Pair Share:* Why is it very important to take care of the earth’s water? (All living things need it to survive; there is a limited amount of water; the same water is used over and over; etc.)

Word Work: Downpour

(5 minutes)

1. The trade book states, “Rain may fall to the ground in a light sprinkle or a heavy *downpour*.”
2. Say the word *downpour* with me.
3. A downpour is a very hard or heavy rain.
4. It was hard for my dad to see the road ahead as we drove through a downpour.
5. Have you ever seen a downpour? Have you ever been outside during a downpour? Try to use the word *downpour* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “Once I was outside during a downpour and . . .”)
6. What’s the word we’ve been talking about? What part of speech is the word *downpour*?

Use a *Making Choices* activity for follow-up. Directions: I will ask a question. You will decide how to answer the question. Be sure to use the word *downpour* in your answer.

1. Would you rather be outside or inside during a downpour?
2. Which would be more helpful during a downpour, gloves or an umbrella?
3. Is a downpour more likely to happen when you see dark clouds or when you see the sun shining?
4. How do you feel when you see or hear a downpour?
5. Is the type of water you see and feel in a downpour a solid, a liquid, or a gas?



Complete Remainder of the Lesson Later in the Day

10B

The Water Cycle



Extensions

20 minutes

Water Cycle Observations

Have students observe the water cycle experiment started in Lesson 9. Have students talk about their observations. You may need to prompt discussion with the following questions:

- I can tell from the line drawn on the cup that there is not as much water in the cup. Where did it go? (It evaporated.)
- What are those little drops of water inside the bag? (condensation)
- What do we call the water that has fallen to the bottom of the bag? (precipitation)

You may also make and discuss water cycle observations on days that clouds are visible in the sky or when precipitation is falling.

Water Cycle Posters

Tell students that they are going to create their own water cycle posters. Explain that posters usually have pictures and few words. Have students brainstorm what pictures will be needed to show the water cycle. (water on the ground, the sun that heats the water, clouds that form because of condensation, precipitation) Ask students to name the different types of precipitation. Tell students that they may choose the type of precipitation they will draw.

Tell students that their posters should have a title. Ask students to brainstorm appropriate titles, such as “The Water Cycle,” “How Water Moves,” etc. Tell students that they should label the illustrations on their posters with the words *evaporation*, *condensation*, and *precipitation* to show where these processes are taking place. Tell students that you will write the words on the board so that they can check their spelling.

Say: Asking questions is one way to make sure everyone knows what to do. Think of a question you can ask your neighbor about the directions I have just given you. For example, you could ask, “How many pictures do I need to draw?” Turn to your neighbor and ask your own question now. I will call on several of you to share your questions with the class.

As students are creating their posters, circulate and ask them to talk about how the water cycle is being shown.

11

Clouds



Lesson Objectives

Core Content Objectives

Students will:

- Describe evaporation and condensation
- Describe the formation of clouds
- Identify three types of clouds: cirrus, cumulus, and stratus

Language Arts Objectives

Students will:

- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (L.2.1)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age (L.2.3)
- Identify and express physical sensations, mental states, and emotions of self and others (L.2.4)
- Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud (L.2.10)
- Listen to and understand a variety of texts, including fictional stories, fairy tales, fables, historical narratives, informational text, myths, and poems (L.2.11)
- Make predictions (orally or in writing) prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far, and then compare the actual outcomes to predictions (L.2.12)

- Describe illustrations (orally or in writing) (L.2.13)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud (L.2.14)
- Learn and use (orally or in writing) new words from read-alouds and discussions (L.2.15)
- Answer questions (orally or in writing) requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (L.2.18)
- Answer questions (orally or in writing) that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing or inferring cause/effect relationships (L.2.22)
- Make personal connections (orally or in writing) to events or experiences in a read-aloud and/or make connections among several read-alouds (L.2.24)
- Interpret information from diagrams, charts, graphs, or graphic organizers (L.2.27)
- Sequence four to six pictures illustrating events from a nonfiction read-aloud (L.2.42)

Core Vocabulary

Clouds, by Anne Rockwell is used as the read-aloud in this lesson. The page references where the vocabulary words appear in the trade book are noted in parentheses below.

atmosphere, n. (p. 8) The layer of air that surrounds the earth

Example: The earth’s atmosphere keeps the planet from getting too hot or cold.

Variation(s): atmospheres

clouds, n. (p. 3) Visible white or gray bodies of water droplets and dust high in the air

Example: The clouds became dark and large before it began to storm.

Variation(s): cloud

particles, n. (p. 7) Small pieces or parts of something

Example: Fine particles of pollen often covered Julie’s bicycle in the spring.

Variation(s): particle

ragged, adj. (p. 23) Rough, uneven, or not smooth

Example: Ginny wore her favorite sweater so often that the edges of the sleeves and neck had become ragged.

Variation(s): none

swell, v. (p. 24) To become larger

Example: Karam’s toe began to swell after he accidentally hit it against the wall.

Variation(s): swells, swelled, swelling, swollen

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?	Image Cards 20–22 Cycles in Nature Poster 2	10
	Sharing the Title and Trade Book Cover		
	Personal Connections	chart paper, chalkboard, or whiteboard	
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	Clouds	<i>Clouds</i> , by Anne Rockwell	15
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Swell		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Name That Cloud	Image Cards 23–25 chart paper, chalkboard, or whiteboard	20
	Cloud Models	Image Cards 23–25 cotton balls, blue construction paper, glue, markers	

11A *Clouds*



Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

Remind students that they have been learning all about cycles in nature. Ask students to share what a cycle is and what cycles in nature they have learned about over the past several days. (seasons, life cycles of various plants and animals, and the water cycle) Then review with students what they have just learned about the water cycle. Show students Image Cards 20–22 and have students name the three parts of the water cycle. (evaporation, condensation, precipitation) You may also wish to have students sequence the image cards using the Cycles in Nature Poster 2. Ask students to share why water is important on the earth. (All living things need water to survive.) Tell students that you are going to read the first half of a sentence about the water cycle and they will finish it.

- Water can be a liquid, a . . . (solid, or a gas).
- Water that is under the ground is called . . . (groundwater).
- Evaporation is when liquid water changes to . . . (a gas and moves into the air).
- Condensation is the process of . . . (water vapor turning back into a liquid because of cooling).
- When water vapor condenses in the sky it forms . . . (clouds).
- Precipitation is water that . . . (falls from clouds as a solid or liquid).

Tell students that in today’s lesson they are going to learn a lot more about clouds, which are an important part of the water cycle on Earth.

Sharing the Title and Trade Book Cover

Share the title and author/illustrator information of the trade book. Have students share what they already know about clouds.

Personal Connections

If possible, have students look out a classroom window, or if there is no window, briefly walk outside with them. Ask them if there are any clouds in the sky. If there are, have students describe the clouds to you, specifying shape, color, and size. Also have them describe what the weather is like. Note students' descriptions on a piece of chart paper, chalkboard, or whiteboard. If it is a cloudless day, have students describe clouds they have seen in the past and what the weather was like on those days.

Purpose for Listening

Tell students that there are names for the different kinds of clouds one might see and to listen closely to today's read-aloud to find out the names of clouds they saw today or have seen in the past.

Clouds

Below are Guided Listening Supports to be used when pausing within the read-aloud. These prompts will help ensure that students understand critical details and remain engaged.

The prompts below are listed by page number. The end of the applicable sentence from the read-aloud is listed in bold as the cue for when to use the prompt. Make sure to discuss what students see in each picture as you read each page.

Page 3

- **Those are clouds. Clouds** are made up of water droplets and small bits of dust that form white or gray shapes in the sky. Do you remember how they form? They form when water vapor or gas *condenses* to a liquid.

Page 4

- **. . . look at them.** What would you feel if you were able to touch a cloud?

Page 5

- **. . . kind of cloud.** Have you ever stood in fog or seen fog? What does it look like? What does it feel like?

Page 7

- **. . . small to see.** Very small pieces or parts of things are called **particles**. What kind of weather do you think bright clouds bring? What kind of weather do you think dark clouds bring?

Page 8

- **. . . up in the sky.** A kilometer is a unit of measurement that measures distance. Three or four miles, or six to nine kilometers, is about the distance from here to _____.
- **. . . up in the atmosphere . . .** or the layer of air that surrounds the earth (Point to the illustration as you read.)

- . . . **what shape it is.** So the prefix *cirro-* tells us that these clouds are the highest clouds in the atmosphere. Let's listen closely to find out what kind of shapes the words *stratus* and *cumulus* describe.

Page 10

- . . . **are hardly there.** (Have students repeat the word *cirrus*.)
- . . . **on the earth.** Cirrus clouds indicate what kind of weather?

Page 11

- . . . **like a blanket.** (Have students repeat the word *stratus*.) What shape does the word *stratus* describe? (Point to the illustrations.) What kind of weather can we expect from cirrostratus clouds?

Page 13

- . . . **to get colder.** (Have students repeat the word *cumulus*.) What shape does the word *cumulus* describe?

Page 14

- . . . **and altocumulus clouds.** Let's look at the illustration. The first part of a cloud's name tells us how high in the sky it is. What height does the prefix *alto-* describe?

Page 16

- . . . **or the next day.** Just like cirrostratus clouds, altostratus clouds bring precipitation. Which clouds would be closer to us, cirrostratus or altostratus? What shape are stratus clouds?

Page 17

- . . . **will probably come.** What shape are cumulus clouds?

Page 18

- . . . **(2 miles) above Earth.** Let's look at the illustration together. (Point to each cloud as you name it.)

Page 20

- **... but not much.** What shape are stratus clouds? Which other clouds mean rain? That's right, cirrostratus, altostratus, and sometimes altocumulus.

Page 21

- **... from these clouds.** What shape are cumulus clouds?

Page 23

- **... steadily from them.** If nimbostratus clouds are **ragged** looking at the bottom, that means they are rough and unsmooth. What kind of precipitation do you think falls from cumulonimbus clouds? Let's listen to find out.

Page 24

- **... seem to swell ...** or become larger

Page 26

- **... very different place.** How do you think Earth would be different without clouds?

Page 27

- **... be no rain.** Would there be a water cycle if there were no clouds?
- **... to live and grow.** So clouds don't just tell us what kind of weather will come. They help keep the temperature on Earth steady and are also part of the water cycle.

Page 29

- **... called meteorologists do.** So a meteorologist is a scientist who studies weather. Now, you too can predict the weather because of what you have learned about clouds.

Page 30

- **... in the sky above.** What do you think these people are seeing? What do you think they are thinking as they look at the clouds?

Discussing the Read-Aloud

15 minutes

Comprehension Questions

(10 minutes)

1. Describe the type of cloud(s) we saw outside today. Be sure to talk about the shape of the cloud(s). What is the name of this type of cloud(s)? (Answers may vary.)
2. What are clouds? (groups of water droplets and dust particles high in the air) What part of the cloud's name tells us where it is in the atmosphere? (the beginning; the first part) What part of the cloud's name describes its shape? (the end; the second part)
3. What is the name of a cloud that is flat and spread out like a blanket: cirrus, stratus, or cumulus? (stratus) What kind of weather do stratus clouds usually indicate? (rain)
4. What word describes the shape of a round cloud: cirrus, stratus, or cumulus? (cumulus) What kind of weather do cumulus clouds signal? (bright, sunny weather)
5. Which is the highest cloud in the atmosphere: cirrus, stratus, or cumulus? (cirrus) Which clouds are the lowest? (stratus; cumulus)
6. What adjectives can you use to describe different types of clouds? (ragged, dark, white, round, flat, wispy, puffy, etc.)
7. How are clouds a part of the water cycle? (They form because of water that has evaporated due to heat; water vapor condenses in the colder atmosphere attaching to dust particles; clouds with many water droplets then create precipitation.)

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

8. *Think Pair Share:* Why are clouds important? (Answers may vary, but should include an understanding of the following: they are part of the water cycle; there would be no precipitation without clouds; they help regulate the temperature on Earth; they can be used to predict the weather.)

Word Work: Swell

(5 minutes)

1. The trade book states, “[Cumulonimbus clouds] seem to *swell* as they climb higher and higher into the sky.”
2. Say the word *swell* with me.
3. *Swell* means to get bigger or increase in size.
4. The river began to swell as the heavy rains poured down.
5. Have you ever seen something swell? Try to use the word *swell* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “The balloon began to swell as I blew into it.”)
6. What’s the word we’ve been talking about? What part of speech is the word *swell*?

Use a *Brainstorming* activity for follow-up. Directions: Ask students what types of things can swell or what kinds of things they have seen swell. (balloons, clouds, rivers, etc.) Make sure students use the word *swell* as they brainstorm.



Complete Remainder of the Lesson Later in the Day

11B

Clouds



Extensions

20 minutes

Name That Cloud

Tell students that they are going to be contestants on the “Name That Cloud” game show. On chart paper, chalkboard, or whiteboard, write the names of the three main clouds you want students to remember from the read-aloud: cirrus, stratus, and cumulus. Remind students that there are many kinds of clouds, and tell them that you want them to remember at least these three. Share with students that you will give them two to three clues about one of these three clouds and will then show them an image of the cloud. Explain that there will be teams of three, and two teams will try to name the cloud in the image before the other can.

Tell students that they get two guesses and can guess what kind of cloud you are describing after you give them any of the clues or show any of the image cards. Share with students that, in order to guess, they must raise their hands. Only one person on their team can guess the answer, but they will have time after they raise their hands to discuss the answer among themselves. Shuffle Image Cards 23–25 in your hand, and then begin the game, using the clues offered below.

- Stratus: I generally mean rain. I am gray and cover the whole sky. I am a low cloud. (Image Card 23)
- Cirrus: I am one of the highest clouds. I am hardly there and look like white feathers. I mean sunny weather with no rain. (Image Card 24)
- Cumulus: I am a low cloud. I look like a white cotton ball. I am seen on days when thunderstorms may occur. (Image Card 25)

Cloud Models

On a half sheet of blue construction paper, have students use cotton balls to represent one of the three main types of clouds you want them to remember from today's read-aloud: cirrus, stratus, or cumulus . For some cloud types, students may need to stretch the cotton balls out or clump them together. Students should then paste the cotton balls on their piece of construction paper and label the type of cloud they have represented. When they are finished with their model, have students write down two facts they remember about this type of cloud at the bottom of the page. Use Image Cards 23–25 as a reference for students.

If time allows, you may wish to give students the option of creating an additional model of the cumulonimbus cloud for fun. Turn to page 25 in today's read-aloud trade book and ask: "What is the name of the scariest cloud that usually looks dark gray or almost black and seems to swell in the sky? I will give you a hint: It means that a very serious thunderstorm is coming and you should get yourself indoors!" (cumulonimbus) For this model, students may need to color the cotton balls gray, dark gray, or black.

PP2

Pausing Point 2



Note to Teacher

Your students have now finished learning about the life cycle and have heard the remaining read-alouds about another type of cycle, the water cycle. They have also learned about the importance of clouds. You may choose to pause here and spend one to two days reviewing, reinforcing, or extending the material taught thus far.

If you do pause, you may have students do any combination of the activities listed below. The activities may be done in any order. You may wish to do one activity on successive days. You may also choose to do an activity with the whole class or with a small group of students who would benefit from the particular activity.

Core Content Objectives Up to This Pausing Point

Students will:

- Explain that a cycle is a sequence of events that repeats itself again and again
- Explain effects of seasonal changes on animals
- Describe the seasonal cycle: spring, summer, autumn (fall), winter
- Identify the stages of the life cycle: birth, growth, and reproduction
- Describe the life cycle of a butterfly (egg to egg)
- Explain *metamorphosis*
- Describe the life cycle of a frog (egg to egg)
- Describe the life cycle of a chicken (egg to egg)
- Recognize that most of Earth's surface is covered by water
- Identify the three states of matter in which water exists: solid, liquid, and gas

- Define the term *water cycle*
- Understand that there is a limited amount of water on Earth
- Describe evaporation and condensation
- Identify forms of precipitation
- Define humidity as the amount of moisture in the air
- Describe the formation of clouds
- Understand that not all water cycles back into the air
- Recognize that most of Earth’s surface is covered by water
- Identify groundwater as a water resource for humans
- Identify three types of clouds: cirrus, cumulus, and stratus

Activities

Image Card Review

Materials: Image Cards 1–25

In your hand, hold Image Cards 1–25 fanned out like a deck of cards. Ask each student to pick one card. (If you have more than twenty-five students, you may need to pair up a few students.) Ask the students to work together to sort themselves into groups according to the card they have and the cycle to which it belongs. Once the students are in groups by cycles, ask them to stand in order and to sequence each cycle. Once they have completed the sequencing, have each group explain the particular cycle orally to the class by asking each student in order to explain their particular image card. Note that the students who get Image Cards 23–25 should stand next to the student who has Image Card 21 representing the condensation stage of the water cycle.

Life Story

Materials: Drawing paper, drawing tools

Have students pretend they are one of the creatures they heard about from the previous read-alouds. Have each student write their creature’s life story, being sure to mention specific facts about their creature’s life cycle.

Sequence Review

Materials: Image Cards 9–25, Cycles in Nature Posters

Use the Cycles in Nature Posters 1 and 2 and Image Cards 9–25 to review with students the life cycle of a butterfly, frog, and chicken, as well as Earth’s water cycle. Have students explain what each part of the cycle is and identify the correct sequence of events for each cycle.

Domain-Related Trade Book or Student Choice

Materials: Trade book

Read an additional trade book to review a particular event about clouds or the water cycle; refer to the books listed in the domain introduction. You may also choose to have the students select a read-aloud to be heard again.

Class Book: Animal Life Cycle Encyclopedia

Materials: Drawing paper, drawing tools

Tell the class or a group of students that they are going to make a class book to help them remember what they have learned thus far in this domain. Have the students brainstorm important information about how seasonal cycles affect the life cycles of animals they have heard about, and describe their life cycles. Have each student choose one idea to draw a picture of, and ask him or her to write a caption for the picture. Bind the pages to make a class book to put in the class library for students to read again and again.

Forms of Water

Materials: Rubber glove, pot, burner

Note: You will need to fill the rubber glove with water and freeze it the night before. Be sure to check your school’s policy for safety, and carefully monitor your classroom.

Show students the hand-shaped ice sculpture. Place the pot on the burner, and place the ice sculpture inside the pot. Tell the class or a group of students to observe the hand every few minutes and record their observations by drawing pictures and labeling each

caption. Make sure students note the water vapor and explain how it is a gas.

Riddles for Core Content

Ask the students riddles such as the following to review core content:

- I am the process by which some young animals develop and *drastically* change from their infant forms into their adult forms. What am I called? (metamorphosis)
- I am the larva that hatches from the egg of an adult female frog. What am I? (tadpole)
- I am the process by which a liquid changes into a gas. What am I? (evaporation)
- I am the process by which a gas changes into a liquid. What am I? (condensation)
- I am the process by which water falls from the sky as rain, snow, sleet, or hail. What am I? (precipitation)
- I am water that collects beneath the earth's surface. What am I? (groundwater)
- I am the layer of air that surrounds the earth. What am I? (atmosphere)
- We are the three forms of water. What are we? (liquid, solid, and gas)
- We are visible white and/or gray bodies of water droplets and dust that are seen high up in the air. What are we? (clouds)
- We are three main types of clouds. What are we? (cirrus, cumulus, and stratus)

Compare/Contrast

Materials: Chart paper

Tell students that there are many things to compare and contrast in the read-alouds they have heard so far. Remind students that to *compare* means to tell how things are similar and to *contrast* is to tell how things are different. Have students choose a topic from

the following list to compare/contrast on a chart. You may do this individually or as a class.

- the three forms of water
- evaporation, condensation, and precipitation
- three types of clouds

You may wish to extend this activity by using the chart as a prewriting tool and have students write two paragraphs, one describing similarities and the other describing differences.

Key Vocabulary Brainstorming

Materials: Chart paper

Give the students a key domain concept or vocabulary word such as *water cycle*. Have them brainstorm everything that comes to mind when they hear the word, such as “repeats, evaporation, condensation, and precipitation,” etc. Record their responses on a piece of chart paper for reference.

Guest Speakers

Invite a local meteorologist from the community to come in and talk about his/her work and how he/she studies the weather. You may want to share with your guest, ahead of time, the specific aspects of clouds and the water cycle that you are covering in this domain.

You are a Meteorologist

Materials: Drawing paper, drawing tools

Have students pretend that they are meteorologists. If your classroom has a window, give each student an opportunity to observe what clouds are in the sky, or if possible, select a day when the students can go outside. You may wish to divide the students into pairs or groups. Have students draw the clouds they see in the sky and write a caption describing what type of clouds they are. You may also wish to have students view the sky on different days so that students are able to observe different clouds on different days. As students share their weather reports with

the class, remember to repeat and expand upon their vocabulary using richer and more complex language, including, if possible, any read-aloud vocabulary.

Writing Prompts

Materials: Writing paper

Students may be given an additional writing prompt such as:

- Tadpoles and adult frogs breathe in different ways because . . .
- The shape of a cloud is important because . . .
- I observe the water cycle when . . .
- The most interesting thing I learned about cycles is . . .

Observing the Life Cycle: Frog

Materials: Tadpoles, aquarium with a tight-fitting cover, rocks, branches, drawing paper, drawing tools

Note: Collect tadpoles from a local body of water or order a native species of frog that can be released back into your area. If uncertain, check a field guide on amphibians for frogs native to your region.

Prepare the aquarium tank with untreated water, placing in it the rocks and branches you have collected. Make sure the branches protrude above the surface of the water for the tadpoles to climb on as they develop. Have students observe and examine the tadpoles' metamorphosis into adult frogs. Ask students to describe what differing parts they see as the tadpoles develop, and have students catalog this activity on drawing paper. For the differing stages of the tadpoles' development, have students write a caption to coincide with each stage of metamorphosis.

Observing the Life Cycle: Butterfly

Materials: caterpillar, fresh leaves, glass jar with a metal lid, hammer, nail, drawing paper, drawing tools

Note: Collect caterpillars from your local area or order a native species of butterfly that can be released back into your area. If uncertain, check a field guide on insects for butterflies native to your region.

Option 1: Refer to pages 30 and 31 of the *Monarch Butterfly* trade book for instructions on how to raise a monarch butterfly.

Option 2: Order a caterpillar kit that is native to your region. Company sources can be found by searching the Internet or by checking with your local school district for information.

Refer to the pages of the *Monarch Butterfly* trade book for instructions or the set of instructions that came with your purchased butterfly kit. Have students observe and examine the caterpillar's metamorphosis into a butterfly. Ask students to describe what differing parts they see as the caterpillar develops, and have students catalog this activity on drawing paper. For the differing stages of the caterpillar's development, have students write a caption to coincide with each stage of metamorphosis.



This domain assessment evaluates each student's retention of the core content targeted in *Cycles in Nature*.



Domain Assessment

Note: You may wish to have students do the three parts of the assessment in two or three sittings. For Part III you may have students answer two questions in one sitting and two in another sitting. Some students may need help reading the questions for Part III.

Part I (Instructional Master DA-1)

Directions: Let's read the names in each row together. I will read a sentence about one of the animal life cycles you have learned about. You will circle the name of the life cycle I am describing.

1. This life changes from a fish-like creature with gills to a four-legged creature with lungs. (frog)
2. This life hatches from an egg as a larva in the form of a caterpillar. (butterfly)
3. This life hatches from an egg that has a shell, a yolk, and white albumen. (chicken)
4. This life goes through a metamorphosis from tadpole to adult. (frog)
5. This life changes from a larva into an insect with a head, body, and wings. (butterfly)

Part II (Instructional Master DA-2)

Directions: I am going to read several sentences about the cycles in nature you have recently learned about. If what I describe in the sentence is true, circle the letter 'T.' If what I describe in the sentence is false, circle the letter 'F.'

1. The tilt of the Earth's axis in relation to the moon causes the four seasons. (F)
2. The stages of a life cycle are birth, growth, and reproduction. (T)
3. A maple tree's life cycle begins as a sapling. (F)
4. In spring, some animals migrate to colder weather to find food. (F)
5. Flowers are important to the life cycle of a plant to help with reproduction, or making more seeds. (T)
6. Most of the Earth's surface is covered by water. (T)
7. Three states of matter in which water exists are a solid, a liquid, and a gas. (T)
8. Snow, sleet, and hail are all types of evaporation. (F)
9. Three parts of the water cycle are evaporation, condensation, and precipitation. (T)
10. The seasonal cycle is winter, spring, winter, fall. (F)

Part III (Instructional Master DA-3)

Directions: Write a complete sentence to answer each question or statement.

Note: You may need to have some students respond orally if they are not able to respond in writing.

1. What is a cycle?
2. Explain the life cycle of a butterfly.
3. Why are flowers important to the life cycle of a plant?
4. Why do some animals migrate?
5. What are some types of precipitation?

For Teacher Reference Only:
Copies of *Tell It Again! Workbook*





Dear Parent or Guardian,

During the next several days, your child will learn about cycles and explore some of the different types of cycles that occur in nature. Your child will be introduced to the reasons why we have four seasons on planet Earth, as well as the different seasonal changes that affect the life cycles of plants such as a bean plant and a maple tree. S/he will also learn how changes in weather during each season depend on how close a region is to the equator, and why some areas experience more change than others. Below are some suggestions for activities that you may do at home to reinforce what your child is learning about cycles, including seasonal cycles and the life cycles of plants.

1. Personal Connections

Share with your child your favorite season and the different experiences from your own childhood connected with seasonal changes. Emphasize the changes observed in plants and animals. Ask your child what favorite memories s/he has of a particular season shared with you and your family.

2. Draw and Write

Have your child draw and/or write what s/he has learned about cycles in nature: seasonal cycles, and the life cycles of plants. Ask questions to help your child use the vocabulary learned at school.

3. Words to Use

Below is a list of some of the words that your child will be using and learning about. Try to use these words as they come up in everyday speech with your child.

- *revolve*—Angie helped the hula hoop revolve quickly around her body by spinning it very fast.
- *migrate*—Many birds migrate south in the winter.
- *prepare*—Amanda has to study hard this week to prepare for her math test.
- *hibernation*—Some animals have longer periods of winter hibernation than others.
- *cycles*—Planet Earth has many cycles such as day and night, the seasons, and life cycles of plants.

4. Read Aloud Each Day

It is very important that you read with your child every day. There should be time to read to your child and also time to listen to your child read to you. I have attached a list of recommended trade books related to cycles in nature that may be found at the library.

Be sure to praise your child whenever s/he shares what has been learned at school.



Recommended Trade Books for Cycles in Nature

Used as a Domain Read-Aloud

1. *Bean*, by Barrie Watts (Smart Apple Media, an imprint of Black Rabbit Books, 2005) ISBN 1583405038
2. *Clouds*, by Anne Rockwell (Harper Collins, 2008) ISBN 0064452205
3. *From Seed to Maple Tree*, by Laura Purdie Salas (Picture Window Books, 2009) ISBN 1404849310
4. *From Tadpole to Frog*, by Wendy Pfeffer (HarperCollins, 1994) ISBN 0064451232
5. *How Do Birds Find Their Way?*, by Roma Gans (Harper Collins, 1996) ISBN 0064451505
6. *Monarch Butterfly*, by Gail Gibbons (Holiday House, 1989) ISBN 0823409099
7. *The Reasons for Seasons*, by Gail Gibbons (Holiday House, 1995) ISBN 0823412385
8. *Sunshine Makes the Seasons*, by Franklyn Branley (Harper Collins, 1985) ISBN 0060592052
9. *The Water Cycle*, by Bobbie Kalman and Rebecca Sjonger (Crabtree Publishing Company, 2006) ISBN 077872310
10. *The Water Cycle*, by Rebecca Olien (Capstone Press, 2005) ISBN 0736851828
11. *Where Do Chicks Come From?*, by Amy E. Sklansky (HarperCollins, 2005) ISBN 0060288930

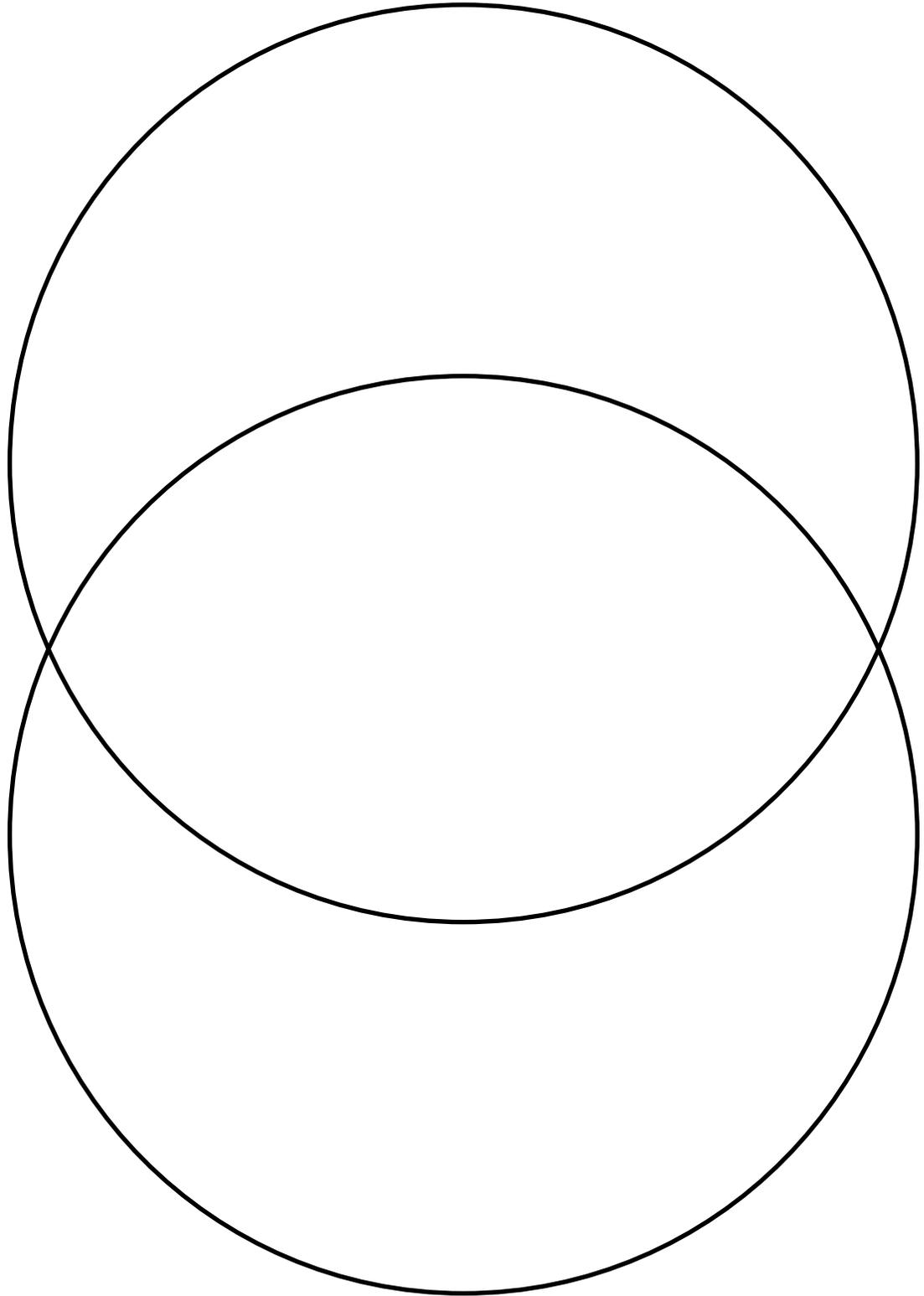
Trade Book List

12. *Autumn: An Alphabet Acrostic*, by Steven Schnur (Clarion Books, 1997) ISBN 0395770432
13. *Bean*, by David M. Schwartz and photographs by Dwight Kuhn (Creative Teaching Press, 1999) ISBN 1574715804
14. *Clouds*, by Gail Saunders Smith (Capstone Press, 1998) ISBN 0736849181
15. *A Dandelion's Life*, written and illustrated by John Himmelman (Children's Press, 1998) ISBN 0516264028
16. *Down Comes the Rain (Let's-Read-and-Find-Out-Science)*, by Franklyn M. Branley and illustrated by James Graham Hale (HarperCollins Publishers, 1997) ISBN 0064451666
17. *Fluffy, Flat, and Wet: A Book About Clouds*, by Dana Meachan Rau and illustrated by Denise Shea (Picture Window Books, 2006) ISBN 1404817298
18. *Four Seasons Make a Year*, by Anne Rockwell and pictures by Megan Halsey (Walker & Company, 2004) ISBN 080278831
19. *From Beginning to End (A Song About Life Cycles)*, by Laura Purdie Salas and illustrated by Viviana Garofoli (Picture Window Books, 2009) ISBN 1404852938
20. *From Caterpillar to Butterfly (Let's-Read-and-Find-Out-Science)*, by Deborah Heiligman and illustrated by Bari Weissman (HarperCollins Publishers, 1996) ISBN 0064451291
21. *From Seed to Daisy*, by Laura Purdie Salas (Picture Window Books, 2009) ISBN 1404849198
22. *From Seed to Plant*, by Gail Gibbons (Holiday House, 1991) ISBN 0823410250
23. *From Seed to Pumpkin*, by Wendy Pfeffer and illustrated by James Graham Hale (HarperCollins Publishers, 2004) ISBN 0064451909

24. *From Seed to Sunflower*, by Dr. Gerald Legg (Franklin Watts, 1998) ISBN 0531153347
25. *The Gift of the Tree*, by Alvin Tresselt (Lothrop, Lee & Shepherd, 1992) ISBN 0688106843
26. *Hibernation (Nature's Cycles)*, by Mel Higginson (Rourke Publishing LLC, 2007) ISBN 1600441777
27. *How Do Apples Grow (Let's-Read-and-Find-Out-Science)*, by Betsy Maestro and illustrated by Guilio Maestro (HarperCollins Publishers, 1992) ISBN 0064451178
28. *How Do You Know It's Spring?*, by Allan Fowler (Children's Press, Inc., 1991) ISBN 0516449141
29. *How Do You Know It's Winter?*, by Allan Fowler (Children's Press, Inc., 1991) ISBN 051644915X
30. *I Get Wet*, by Vicki Cobb (HarperCollins, 2002) ISBN 0688178383
31. *The Life Cycle of a Bean*, by Linda Tagliaferro (Capstone Press, 2007) ISBN 0736867104
32. *The Life Cycle of a Sunflower*, by Linda Tagliaferro (Capstone Press, 2007) ISBN 0736867147
33. *The Life Cycle of an Oak Tree*, by Linda Tagliaferro (Capstone Press, 2007) ISBN 0763867112
34. *A Log's Life*, by Wendy Pfeffer (Aladdin Paperbacks, 1997) ISBN 1416934839
35. *The Moon Seems to Change*, by Franklyn Branley (HarperCollins, 1987) ISBN 0064450651
36. *North Country Spring*, by Reeve Lindbergh (Houghton Mifflin Company, 1997) ISBN 0618809066
37. *One Bean*, by Anne Rockwell (Walker Publishing Company, 1998) ISBN 0802775721
38. *A Pill Bug's Life*, by John Himmelman (Children's Press, 1999) ISBN 0516267981
39. *Plant Cycle (Nature's Cycles)*, by Ray James (Rourke Publishing LLC, 2007) ISBN 1600441806
40. *The Reason for a Flower*, by Ruth Heller (Penguin Putnam Books for Young Readers, 1999) ISBN 0698115597
41. *Red Leaf, Yellow Leaf*, by Lois Ehlert (Harcourt, Inc., 1991) ISBN 0152661972
42. *The Seasons of Arnold's Apple Tree*, by Gail Gibbons (Voyager Books, 1984) ISBN 015271245
43. *The Snowflake: A Water Cycle Story*, by Neil Waldman (Milbrook Press, 2003) ISBN 0761323473
44. *Spring: An Alphabet Acrostic*, by Steven Schnur (Clarion Books, 1999) ISBN 0395822696
45. *Spring Thaw*, by Steven Schnur (Viking, 2000) ISBN 0670879614
46. *This Is the Ocean*, by Kersten Hamilton (Boyd's Mills Press, 2001) ISBN 1563978903
47. *The Water Cycle*, by Helen Frost (Pebble Books, 2000) ISBN 0736804099
48. *Water (Nature's Cycles) [Spanish & English]*, by Dana Meachen Rau (Marshall Cavendish Corporation, 2010) ISBN 0761447924
49. *Water, Water Everywhere*, by Melvin and Gilda Berger and illustrated by Bobbi Tull (Ideal's Children's Books, 2003) ISBN 0824953126
50. *Water, Water Everywhere*, Mark J. Rauzon and Cynthia Overbeck Bix (Sierra Club Books for Children, 1994) ISBN 0871563835
51. *Wet All Over (The Magic School Bus)*, based on the books by Joanna Cole (Scholastic Inc., 1996) ISBN 0590508334
52. *What Makes Day and Night*, by Franklyn Branley (HarperCollins, 1986) ISBN 0064450508
53. *When Autumn Comes*, by Robert Maass (Henry Holt and Company, LLC, 1990) ISBN 0805023496
54. *Why Do Leaves Change Color?*, by Betsy Maestro (HarperCollins, 1994) ISBN 0064451267

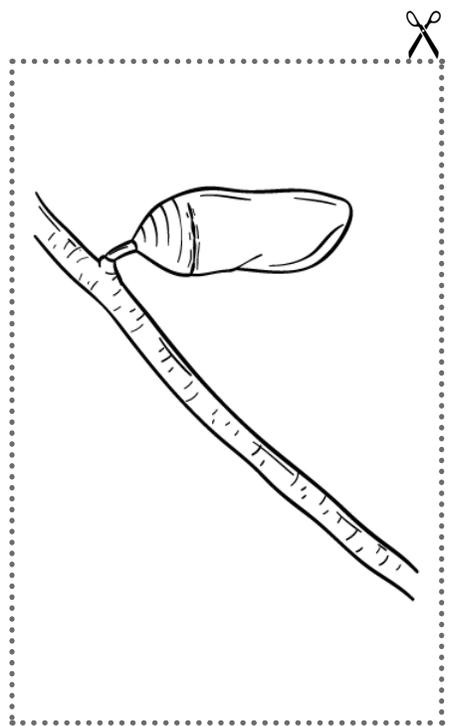
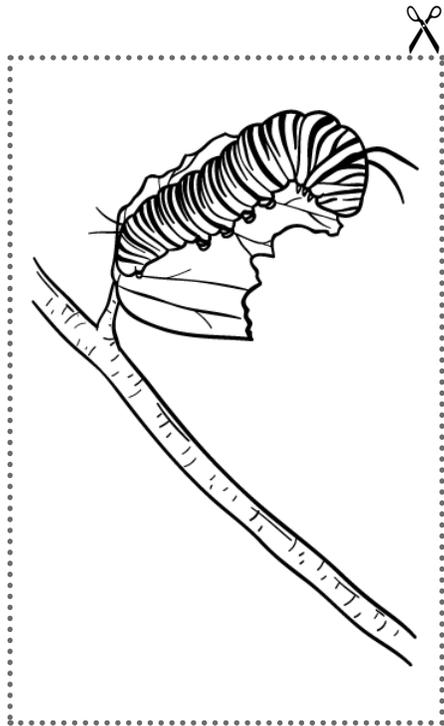
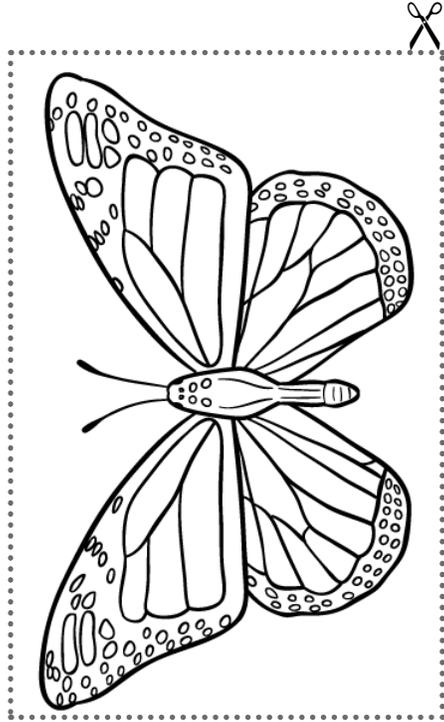
Directions: Write some characteristics that only the bean plant life cycle has in the circle with its name. Write some characteristics that only the maple tree life cycle has in the circle with its name. In the overlapping middle section, write the characteristics that both of these plant life cycles have in common.

Bean Plant Life Cycle **Maple Tree Life Cycle**



Directions: Cut out the pictures showing the different stages of metamorphosis for a monarch butterfly, and then sequence them in the correct order. Glue the pictures on drawing paper, and work with a partner to retell the stages of metamorphosis, and labeling each picture using the word bank below.

LARVA EGG ADULT CHRYSALIS





Dear Parent or Guardian,

I hope your child has enjoyed learning what a cycle is and about the seasonal cycle and the life cycle of a flowering plant. Over the next several days, s/he will continue learning about life cycles, specifically those of a butterfly, frog, and chicken. In addition, s/he will be introduced to another cycle in nature: the water cycle. Below are some suggestions for activities that you may do at home to reinforce what your child is learning about life cycles of animals and the importance of the water cycle for planet Earth.

1. Animal Life Cycle Picture Hunt

If you have old magazines around your house, have your child page through them looking for pictures of animals to cut out. Your child has learned that the main stages of the life cycle are birth, growth (from young to adult), and reproduction. Have your child identify which different phase of the life cycle s/he observes in each picture.

2. Personal Connections

Share with your child your favorite type of precipitation and/or a special memory you have from your childhood because of it. Ask your child about a favorite memory s/he has because of a particular type of precipitation that was shared with you and your family.

3. Draw and Write

Have your child draw and/or write about what s/he has learned about the water cycle. Ask questions to help your child use the vocabulary learned at school.

4. Cloud Gazing

Set aside a period of time during the day to view different cloud formations with your child. Ask your child to name the different cloud formations and to explain how s/he is able to determine this by their shapes. Also, talk about the kind of weather that occurs with the different types of clouds.

5. Words to Use

Below is a list of some of the words that your child will be using and learning about. Try to use these words as they come up in everyday speech with your child.

- *metamorphosis*— The different stages of a tadpole turning into a frog are an example of metamorphosis.

- *water cycle*—The Earth’s water cycle involves evaporation, condensation, and precipitation.
- *hatch*—Everyone waited patiently for the baby chicks to hatch from their eggs.
- *evaporation*—We had to refill our swimming pool because of the evaporation of some of the water.
- *humidity*—There is high humidity in the tropical rainforests.

6. Read Aloud Each Day

It is very important that you read with your child every day. There should be time to read to your child and also time to listen to your child read to you. Remember to use the recommended trade book list sent with the first parent letter.

Be sure to praise your child whenever s/he shares what has been learned at school.

Directions: Listen to the sentence read by the teacher. Circle the name of the animal whose life cycle is being described.

1. butterfly frog chicken

2. butterfly frog chicken

3. butterfly frog chicken

4. butterfly frog chicken

5. butterfly frog chicken

Directions: Listen to the sentence read by the teacher. Circle the name of the animal whose life cycle is being described.

1. butterfly frog chicken

2. butterfly frog chicken

3. butterfly frog chicken

4. butterfly frog chicken

5. butterfly frog chicken

Directions: Listen to the sentence read by the teacher. Circle the 'T' if the sentence is true. Circle the 'F' if the sentence is false.

1. T F

2. T F

3. T F

4. T F

5. T F

6.

T

F

7.

T

F

8.

T

F

9.

T

F

10.

T

F

Directions: Listen to the sentence read by the teacher. Circle the 'T' if the sentence is true. Circle the 'F' if the sentence is false.

1.

T

F

2.

T

F

3.

T

F

4.

T

F

5.

T

F

6. T F

7. T F

8. T F

9. T F

10. T F

Directions: Read each question. Think about the answer to the question. Write at least one complete sentence to answer each question.

1. What is a cycle?

2. Explain the life cycle of a butterfly.

3. Why are flowers important to the life cycle of a plant?

4. Why do some animals migrate?

5. What are some types of precipitation?

ACKNOWLEDGMENTS

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