

Unit 4: The Power of Pollinators

WEEK 7 At a Glance

<p>Weekly Question: Why is pollination important to people and other animals? (continues from Week 6)</p>		
<p>Texts</p>   	<p>Vocabulary and Language</p> <p>Days 1 & 2: Introduce Weekly Words: <i>commitment, local, organization, plot, public, restore, trace, wildflower</i></p> <p>Day 3: Sentence Types</p> <p>Day 4: Sentence Types</p> <p>Day 5: Making and Using New Words</p>	
	<p>Text Talk</p> <p>Day 1: “Boston Local Pollinators” (brochure)</p> <p>Days 2-3: <i>Bee</i></p> <p>Days 4-5: <i>Are We Still Friends?</i></p>	
	<p>Stations</p> <p>Guided Independent Reading</p> <hr/> <p>Listening & Speaking: Listen & Respond (<i>What if There Were No Bees?</i>)</p> <p>Science Literacy: How have our classroom plants changed?</p> <p>Vocabulary: Choose 3!, Talk About It</p> <p>Word Work: select from activities</p> <p>Writing: continuing work on brochures</p>	
	<table border="1"> <tr> <td> <p>Science and Engineering</p> <p>Lessons 1 and 2: Designing Hand Pollinators</p> </td> <td> <p>Studios</p> <p>Children continue contributing to the Pollinator Project, according to the class Project Plan.</p> <p>In Research, children may look more closely at a class resource to find examples of how pollinators impact food production and supply.</p> </td> </tr> </table>	<p>Science and Engineering</p> <p>Lessons 1 and 2: Designing Hand Pollinators</p>
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<p>Mentor text</p> 	<p>Writing: Argument</p> <p>Day 1: Joint Construction and Deconstruction: Adjectives</p> <p>Day 2: Individual Construction</p> <p>Days 3-4: Individual Construction; Individual/Small Group/Whole Group instruction</p> <p>Day 5: Peer-to-Peer Feedback</p>	

Unit 4: The Power of Pollinators

WEEK 7 Days 1 & 2

Vocabulary & Language
Weekly Words

Weekly Question	Why is pollination important to people and other animals?
Language Objectives	I can talk with my classmates about words. (SL.1.2) I can define and use new words. (L.5) I can connect words to my own real-life experiences. (L.5.2.a)
Vocabulary	commitment: dedication to something or to an idea local: having to do with a particular place close by organization: a group of people working together for a shared purpose plot: a small piece of land public: open to all restore: to return to an earlier condition trace: a very small amount of something; a mark or sign of something wildflower: flower that grows without planting or care by people
Materials and Preparation	Choose four words to teach each day, following the steps of the Weekly Words routine. <ul style="list-style-type: none"> ● Week 7 Weekly Words cards ● Week 7 Weekly Words slides ● chart paper Create the week’s Weekly Words chart by writing out the Weekly Words and their definitions. Add icons, sketches, or images as needed.
Opening Day 1	<p><i>This week we are continuing to learn about why pollination is important to humans and other animals. Our Weekly Words are more that we can use to talk about this. Today’s words are: _____, _____, _____, and _____.</i></p> <p>As children rate their knowledge of each word, ask a few children to share their ideas about the word. Use this opportunity to highlight connections, similarities, and differences to other words used in the classroom,</p>

	<p>remarking on parts of speech and morphology and affirming children’s word knowledge.</p> <p>As children respond to the Think, Pair, Share prompts, encourage them to use the word as they speak. Offer sentence stems where it might be helpful.</p>
Day 2	<p><i>Let’s continue learning our words for this week. Today’s words are: _____, _____, _____, and _____.</i></p>
Teaching the words	<p>commitment (noun) Elaboration: <i>Let’s revisit this word from when we talked about learning and schools. A commitment is a kind of promise. This fall in our classroom community, we made a commitment to _____. Have we kept that commitment? We can make a verb by taking off the suffix -ment: “commit.” I commit to _____.</i></p> <p>Think, Pair, Share prompt: <i>How can you show that you have a commitment to making our environment healthy for all kinds of plants and animals, including people?</i></p> <hr/> <p>local (adjective) Elaboration: <i>Apples are a local resource—they grow well here in New England. This poster shows reasons to buy and eat food that come from local farms. We add -ly to make “locally,” an adjective that describes food grown nearby.</i></p> <p>Think, Pair, Share prompt: <i>The _____ Library is our local library—it’s near our school. What are some local places you go?</i></p> <hr/> <p>organization (noun) Elaboration: <i>This is an organization working to make traveling by bicycle safe and accessible for everyone in and around their town. One thing the organization does is teach people about repairing their bikes, for free, at farmers markets.</i></p> <p>Think, Pair, Share prompt: <i>If you were going to start an organization, what kind of work would</i></p>

it do for the community?

plot (noun)

Elaboration:

“Plot” is a word with multiple meanings. The plot of a story or movie is the chain of events from beginning to end.

Here we are talking about a plot of land, a small area used for something in particular, such as a building plot or a garden plot.

(Notice the sign: This gardener has decided to use their garden plot to grow vegetables and offer them free to the public—anyone can pick and eat them!)

Think, Pair, Share prompt:

Pretend you had a little plot of land. What would you do with it? What would you plant or build there? Why?

public (adjective)

Elaboration:

This is an example of a public library branch. Anyone can go there, use the resources, get a library card, and check out books and videos.

Parks are public places.

An antonym—or word with the opposite meaning—is “private.”

Think, Pair, Share prompt:

What public areas have you been to?

Why is it important to have open spaces that are public, like parks and gardens?

restore (verb)

Elaboration:

We have seen this word before. We can restore buildings; we can also restore natural areas. This person is helping to restore a prairie so that the grasses, flowers, and other plants can thrive there again. They are collecting seeds so they can be saved and planted more widely.

The noun for restore is “restoration.” This person is participating in prairie restoration.

Think, Pair, Share prompt:

What is something you and others might do to help restore a natural area?

trace (noun)

Elaboration:

	<p><i>There's a trace of dirt under this gardener's fingernails. We can tell that they have been planting!</i></p> <p><i>We sometimes say that someone leaves a trace, a kind of clue about what they have been up to.</i></p> <p>Think, Pair, Share prompt: <i>I walk into the kitchen and I see crumbs on the counter. What might have left this trace?</i></p> <hr/> <p>wildflower (noun) Elaboration: <i>These flowers are called lupine. They grow in fields and along highways in some areas. Pollinators love them. They grow and spread without people doing anything to help them.</i></p> <p>Think, Pair, Share prompt: <i>What wildflowers have you noticed in our school yard or around the city?</i></p>
Closing	<p><i>This week we are continuing to learn about how pollination is important to animals, including humans. The words we're studying this week will help us to talk about this, our texts, and other experiences we're having together.</i></p>
Standards	<p>SL.1.2 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.</p> <p>L.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings sufficient for reading, writing, speaking, and listening.</p> <p>L.5.2.a Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).</p>
Ongoing assessment	<p>Use information gathered from each lesson to plan for embedded opportunities for teaching and reinforcing words.</p> <p>How do children interact with new and familiar words? Are they playful, curious, perplexed, disengaged?</p> <p>Do children connect words to personal experiences?</p> <p>What connections do children make between words they are learning and familiar words?</p> <p>How do children integrate learning from phonics lessons and other developing morphological knowledge?</p>



commitment

noun

<https://aurora.edu/academics/undergraduate/coaching/index.html>

10 Good Reasons to Buy Locally Grown

- 1 Locally grown food tastes and looks better.**
Crops marketed close to home are picked at their peak and usually sold within 24 hours of harvesting. Food imported from far away must travel on trucks or planes and then it is stored in warehouses.
- 2 Local food supports local families.**
The wholesale prices that farmers get for their products are usually very low, sometimes not more than the cost of producing them. Local farmers who sell directly to consumers cut out the middleman and can get full retail price for their food—which helps farm families be able to afford to continue farming their land.
- 3 Local food builds trust.**
With all the issues related to food safety and homeland security, there's an assurance that comes from looking a farmer in the eye at the farmers' market, or driving by the fields where your food comes from.
- 4 Local food builds community.**
When you buy direct from a farmer, you're engaging in a time-honored connection between eater and grower and you're supporting a local business. Getting to know folks who grow your food helps you know more about the place you live. In many cases, it gives you access to a place where you can go to enjoy nature and the seasons, and to learn more about how food grows.
- 5 Local food preserves open space.**
When farmers get paid more for their products from nearby shoppers, they're less likely to sell farmland for development.

local

adjective

<https://www.mass.gov/orgs/massachusetts-grownand-fresher>

Weekly Words U4 W7

Focus on Second | Boston Public Schools Department of Early Childhood P-2



organization

noun

<https://bostoncyclistsunion.org/bike-repair-programs/biketomarket>



plot

noun

<https://www.npr.org/sections/thesalt/2017/08/17/543421360/how-my-little-community-garden-plot-went-from-flop-to-flourish>

Weekly Words U4 W7

Focus on Second | Boston Public Schools Department of Early Childhood P-2



public

adjective

<https://www.bostonglobe.com/arts/2014/03/01/east-boston-library-inspired-blended-community-serves/9dmvGE7knE85Np3q5Xi6RK/story.html>



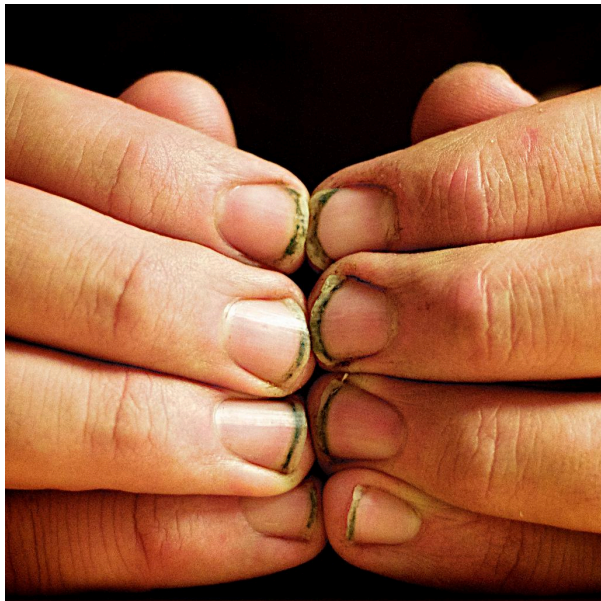
restore

verb

<http://rowiewalker.com/restore-old-buildings/>, <https://www.segrasslands.org/seedbanking>

Weekly Words U4 W7

Focus on Second | Boston Public Schools Department of Early Childhood P-2



trace

noun

<https://laidbackgardener.blog/2016/06/22/for-clean-fingernails-when-you-garden/>



wildflower

noun

<https://altnature.com/gallery/dandelion.htm>,
<https://www.sierraclub.org/sierra/roadsides-are-refuges-for-declining-pollinators>

Weekly Words U4 W7

Weekly Words

Unit 4, Week 7

commitment

noun

dedication to something or to an
idea



local

adjective

having to do with a particular
place close by

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organization

noun

a group of people working
together for a shared purpose

plot

noun

a small piece of land



public

adjective

open to all



restore

verb

to return to an earlier condition



trace

noun

a very small amount of something;
a mark or sign of something



wildflower

noun

flower that grows without planting
or care by people



Unit 4: The Power of Pollinators

WEEK 7 Day 3

Vocabulary & Language
Sentence Types

Weekly Question	How does pollination create connections?
Language Objective	I can identify the purpose of a sentence and name the sentence type. (L.1.2.a, L.1.2.b)
Vocabulary	purpose: the reason for doing or creating something declarative: making a statement exclamatory: expressing strong emotion imperative: giving directions interrogative: asking a question
Materials and Preparation	<ul style="list-style-type: none">• Sentence Type slides Note: This lesson uses slides 1-6.
Opening slide 2	<i>This year we have read and written in many different genres. We learned that people write for different purposes and to different audiences.</i> <i>Authors choose to use different types of sentences, based on the purpose and audience for their writing. Today we will explore sentence types.</i>
Discussion slide 3	<i>Let's read this sentence together.</i> <i>What is the purpose of this sentence—why did the author write it?</i> <i>This sentence is part of the explanation Erosion: Changing Earth's Surface. This sentence is declarative. It ends with a period and provides information.</i>
slide 4	<i>Let's read this sentence together.</i>

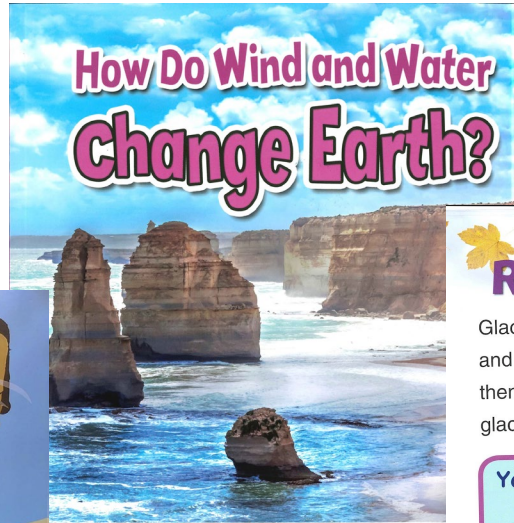
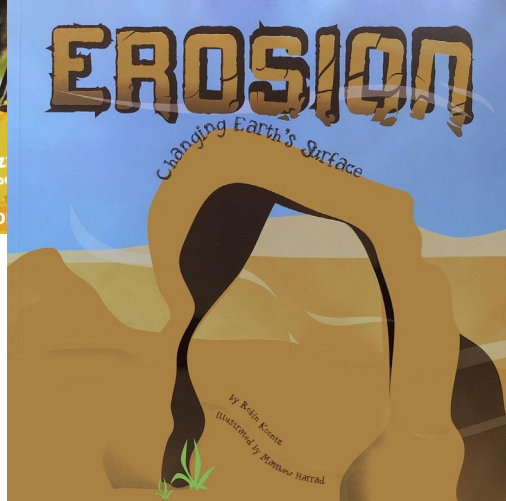
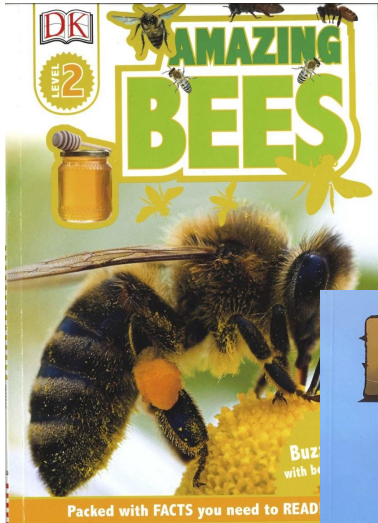
	<p><i>What is the purpose of this sentence?</i></p> <p><i>This sentence is the title of an explanation about erosion. The title is written as a question, which the rest of the book answers. Another name for a sentence that is a question is an interrogative sentence.</i></p>
slide 5	<p><i>Let's read this sentence together.</i></p> <p><i>What is the purpose of this sentence?</i></p> <p><i>This sentence is part of a procedure. It begins with an imperative, or bossy, verb. This is called an imperative sentence. This type of sentence is used to give directions or tell the audience what to do.</i></p>
slide 6	<p><i>Let's read this sentence together.</i></p> <p><i>What is the purpose of this sentence?</i></p> <p><i>This sentence is part of the report Amazing Bees. This report is written for children. To get the audience excited about bees, the author used an exclamation point and wrote an exclamatory sentence.</i></p>
Closing	<p><i>Today we explored different sentence types. Tomorrow you will choose among these to write sentences.</i></p>
Standards	<p>L.1.2.a Use collective nouns (e.g., group). L.1.2.b Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, fish).</p>
Ongoing assessment	<p>Reflect on the lesson.</p> <p>What do children understand about sentence types? What does this understanding reflect about their understanding of genres explored throughout the year?</p>

Notes

Sentence Types

Vocabulary & Language Week 7, Days 3-4

Sentence Types



River of ice activity

Glaciers have a big effect on landforms. Their weight and movement cause changes to the ground under them. This activity will show you some of the ways glaciers change the surface of Earth.

You will need:

- ice cube
- paper towels
- modeling clay
- shallow box or tray
- sand

The waves throw the loose material
back against the shore.

How do wind and water change Earth?

Flatten a small ball of clay onto the tray.

Bees are amazing!

Your turn!

1. Choose a **purpose** and **audience** for what you want to communicate.
2. Choose from the sentence types below to write at least two sentences that match your **purpose** and **audience**.

declarative	The waves throw the loose material back against the shore.
interrogative	How do wind and water change Earth?
imperative	Flatten a small ball of clay onto the tray.
exclamatory	Bees are amazing!

I wrote to communicate _____ to _____.

I wrote a _____

declarative / interrogative / imperative / exclamatory
sentence, because _____.

Unit 4: The Power of Pollinators

WEEK 7 Day 4

Vocabulary & Language
Sentence Types

Weekly Question	How does pollination create connections?
Language Objective	I can choose the best sentence type for the purpose and audience of my sentence. (L.1.2.a, L.1.2.b)
Vocabulary	purpose: the reason for doing or creating something declarative: making a statement exclamatory: expressing strong emotion imperative: giving directions interrogative: asking a question
Materials and Preparation	<ul style="list-style-type: none">● Sentence Type slides Note: This lesson uses slides 7-8.● paper and pencil, one for each child
Opening	<i>Yesterday we discussed the purposes of sentences and named the sentence types. Today you will choose from among these sentence types to write at least two sentences for a particular audience.</i>
Discussion slide 7	Read the instructions on the slide. Review slides 1-6 as needed. <i>Before you begin, think about the topic and purpose of your sentences—what would you like to write about? For example, you might want to write information about pollination, or a personal recount sentence about what you did yesterday; or you may want to ask a question.</i> <i>Then decide who your audience will be. Will you write to children, or adults, to someone in your family, or to someone you don't know?</i> <i>Turn and talk to discuss your plan with a partner.</i>

	After they discuss, send children to write their sentences.
slide 8	Bring the class back together. Invite a child to share their sentences. Refer to the sentence stems on slide 8 to guide the discussion. Ask the child to identify their audience and the sentence type for each sentence, as well as their rationale for choosing those sentence types. Repeat the process with another child, as time allows.
Closing	<i>Today you chose particular sentence types to match the purpose and audience of your writing.</i>
Standards	L.1.2.a Use collective nouns (e.g., group). L.1.2.b Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, fish).
Ongoing assessment	Reflect on the lesson. How do they apply their knowledge of sentence types to writing their own sentences?

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Unit 4: The Power of Pollinators

WEEK 7 Day 5

Vocabulary & Language

Making and Using New Words

Weekly Question	What makes a plant and a pollinator a good match?
Language Objective	I can work with my classmates to make new words by identifying root words and changing or adding parts. I can use the words we make in a sentence. (SL.1.2, L.4.2.c)
Vocabulary	commitment: dedication to something or to an idea local: having to do with a particular place close by organization: a group of people working together for a shared purpose public: open to all restore: to return to an earlier condition trace: a very small amount of something; a mark or sign of something
Materials and Preparation	<ul style="list-style-type: none">• Week 7 Making and Using New Words sheets, one for each small group• pencils, one or two for each small group• Week 7 Weekly Words cards• chart paper and markers (2 different colors)
Opening	<p><i>This week we are using the Making and Using New Words routine, using both suffixes and prefixes.</i></p> <p>Recall that suffixes change the end of a word, and prefixes change the beginning of a word.</p>
Key Activity	Facilitate the Making and Using New Words routine, as established in odd weeks since Unit 1.
Closing	<p><i>We can see that changing a word's ending changes its meaning and how it's used.</i></p>
Standards	SL.1.2 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

	<p>L.4.2.c Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., addition, additional).</p>
<p>Ongoing assessment</p>	<p>Listen to children’s conversations as they work. What knowledge do children demonstrate about parts of words? What contributions do they make to the construction of a response to a specific question?</p> <p>Observe children’s interactions. How effectively do children work in their groups? What roles do they take on?</p> <p>Reflect on the whole group sharing of one group’s response. What more was revealed about children’s understanding of how words’ meanings change according to their parts?</p> <p>Review each sheet. Use children’s answers to inform planning for successive lessons, revisiting words, prefixes, and suffixes, and informal conversations with individual children.</p>

Notes

Names: _____

Choose one Weekly Word. Underline the base word. Make new words by adding or changing prefixes or suffixes. Write the words. Check to make sure they make sense. What do the new words mean?

Weekly Words	Prefixes	Suffixes		New Words
commitment	un -	- s	- ful	
local	re -	- ed	- ment	_____
organization	mis -	- ing	- ness	_____
public	dis -	- es	- less	_____
restore	trans -	- er	- able	_____
trace	non -	- est	- ly	_____
			- y	_____

Write a sentence with one of the new words.

Unit 4: The Power of Pollinators



WEEK 7 Day 1

Text Talk
“Boston Local Pollinators” (brochure)

Big Ideas	Organisms in an ecosystem are interdependent. The parts of an organism have specific functions. Pollination is a result of animal behavior.
Weekly Question	Why is pollination important to people and other animals? (continues from Week 6)
Content Objectives	I can identify important text features of a brochure. (R.8.2.b) I can explain how the images in the brochure clarify the text. (R.11.2.c, R.11.2.d) I can explain the author’s purpose in writing a brochure about Boston Local Pollinators instead of a different kind of text. (R.9.2.b)
Language / SEL Objective	I can talk about an informational brochure by linking my comments to those of my classmates. (SL.1.2.b, Relationship Skills)
Vocabulary	bill: beak burrow: to make a hole or tunnel in the ground by digging curve: bending line corridor: long passageway leg basket: the part of a bee’s leg that carries pollen milkweed: a plant specially matched for providing food for and pollination by the Monarch butterfly Monarch butterfly: a familiar North American butterfly * wildflower: flower that grows without planting or care by people
Materials and Preparation	<ul style="list-style-type: none"> ● “Boston Local Pollinators” brochure, Theresa Vilcapoma ● “Boston Local Pollinators” brochure, one black and white copy for

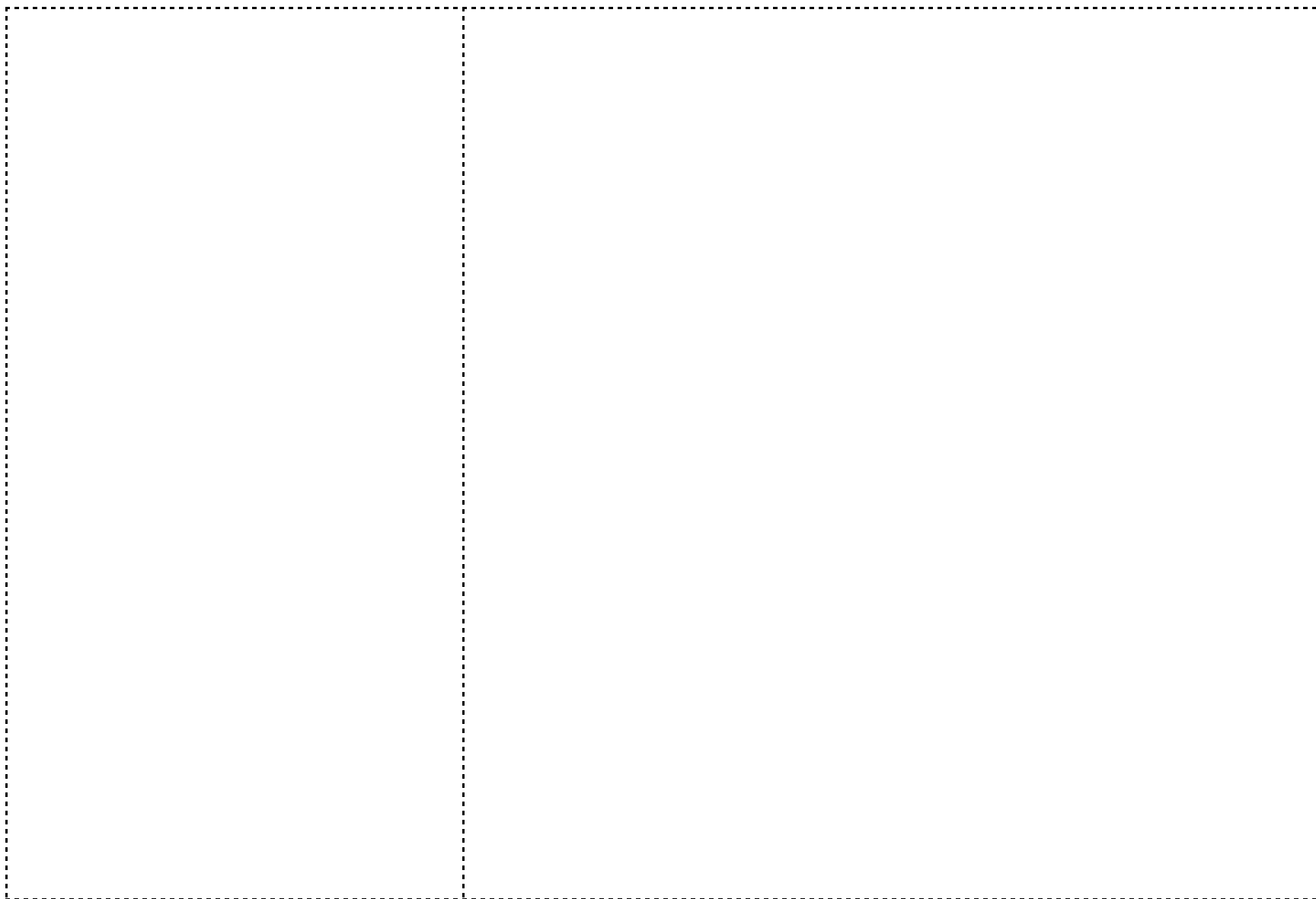
	<p>each child</p> <ul style="list-style-type: none"> ● other unit texts, for reference ● brochure pages, a variety of panel options for each child ● writing and drawing tools ● Weekly Question chart, begun in Week 6 <p>On the whiteboard, write:</p> <p style="text-align: center;">What text features make a brochure unique? Why did the author write this text as a brochure?</p>
<p>Opening 1 minute</p>	<p>Introduce the text, and set the purpose for reading.</p> <p><i>Today we are going to closely read the “Boston Local Pollinators” brochure. We have looked at this text previously during Writing. We can consider these pollinators in our area, too.</i></p> <p><i>We are going to look at it as readers and ask ourselves: What text features make a brochure unique? and: Why did Theresa Vilcapoma write the text this way—as a brochure instead of as a book?</i></p>
<p>Text and Discussion 18 minutes</p> <p>butterflies</p>	<p><i>In Writing, we talked about where the brochure starts and how the information flows on the page. That will help us read the brochure now. We know that the brochure starts on the cover; I will read first about butterflies, then hummingbirds and bees. You can follow along with me in your brochure.</i></p> <p>Distribute brochures to each child.</p> <p>Read aloud the section on Butterflies. Think, Pair, Share.</p> <p><i>What do we learn about butterflies from this section? According to this text, how do butterflies pollinate flowers?</i></p> <p><i>Talk with your partner: What are some specific details you notice about the features of the brochure? Is there anything surprising or new about how the text and images are situated on the page?</i> [there are multiple images on the page with captions; the text is written in one long column, or panel]</p>
<p>hummingbirds</p>	<p><i>Now let’s read about hummingbirds.</i></p> <p>Read aloud the section on hummingbirds. Think, Pair, Share.</p> <p><i>What do we learn about hummingbirds from this section? According to the text, how do hummingbirds pollinate flowers?</i></p>
<p>bees</p>	<p><i>The section on bees is laid out differently. Let’s read it.</i></p> <p>Read the section.</p>

	<p><i>What text features are unique here? What features help us read this section? [The text and images spread over two columns, or panels, of the brochure. You need to open the brochure to read across. The captions of the flowers are all immediately beneath the images.]</i></p> <p>Think, Pair, Share. <i>Why do you think the author chose to write this information as a brochure instead of as a book or other informational format?</i></p> <p>Facilitate a brief whole group discussion. <i>If you were to add something more to this brochure, what would you write? What information would you include? How would you arrange the information on the page?</i></p>
<p>Key Activity 18 minutes</p>	<p>Distribute brochure pages. <i>Now you can write your ideas. Think about another single panel of a brochure about pollinators. It could be about butterflies, bees, or hummingbirds, or it could be about another pollinator we have been studying, like bats. It doesn't have to be a local pollinator. Think about how you would arrange the information and what features of brochures you would include—maybe bold headings, particular layout choices, images with captions, or bolded words. As you are writing, talk to your classmates about questions or ideas that are coming up, if that is helpful.</i></p> <p>Send children to write, and circulate to support them. Ask them to name the brochure text features they are including as well as which pollinator they are choosing and what they will convey in the brochure panel. Encourage them to use images to support their text. Children may refer to unit texts, or they may complete the panels from memory.</p> <p>Come back together as a group to share the panels.</p>
<p>Closing 1 minute</p>	<p>Introduce the Writing Station. <i>Today in the Writing Station you can continue to work on your brochure panels.</i></p> <p><i>Today we looked closely at the “Boston Local Pollinators” brochure. Theresa Vilcapoma wrote this text as a brochure to teach people about local pollinators and to try to convince them to support pollination.</i></p>

<p>Weekly Question Chart 2 minutes</p>	<p>Reintroduce the Weekly Question Chart.</p> <p><i>This week we are continuing to think about this question: Why is pollination important to people and other animals?</i></p> <p><i>Today we considered different pollinators. We also tried to convey this information in a brochure page that will create connections with community gardeners. What can we add to our chart?</i></p>
<p>Standards</p>	<p>R.8.2.b Explain how various text features (e.g., headings, bold print, indexes, graphics, tables of contents, glossaries, links, icons) are used to locate key facts or information in a text efficiently.</p> <p>R.9.2.b Identify the main purpose of a text, including what the author wants to answer, explain, or describe.</p> <p>R.11.2.c Explain how specific visuals contribute to and clarify the meaning of a text.</p> <p>R.11.2.d Compare and contrast the information presented by two texts on the same topic.</p> <p>SL.1.2.b Build on others' talk in conversations by linking their comments to the remarks of others.</p> <p>SEL. Relationship skills.</p>
<p>Ongoing assessment</p>	<p>Collect and review the brochure pages. Listen in to partner and group conversations about text features, the pollinators they are choosing, and the particular ways that a brochure can provide information.</p>

Notes

brochure pages: options for panels



Text Talk U4 W7 D1

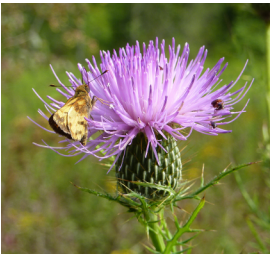
Butterflies

Butterflies pollinate different kinds of wildflowers during the day. They find brightly colored flowers that give them a place to land. These flowers can be large, or groups of small flowers. While butterflies drink nectar from the flowers, pollen collects on their bodies.

Some local flowers pollinated by butterflies include
cardinal flower



field thistle

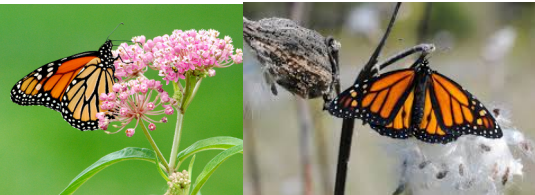


ninebark



golden alexander

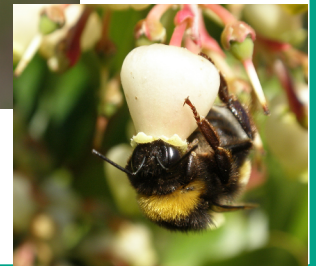
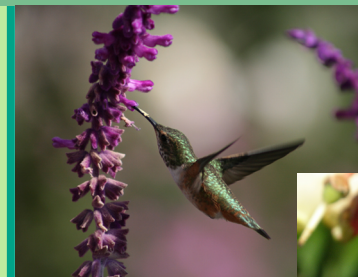
Monarch butterflies have a special relationship with milkweed plants. They lay their eggs on milkweed leaves, and milkweed plant is the only food monarch caterpillars eat.



Boston Local Pollinators



Butterflies, Hummingbirds, and Bees



Hummingbirds

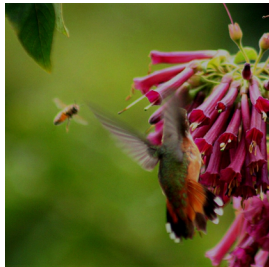
Hummingbirds pollinate different kinds of wildflowers. They find tube-shaped flowers with petals that curve out. Hummingbirds especially like red flowers.

Hummingbirds send their long, thin bills into the flowers to drink nectars. When they pull out their beaks, their heads and backs become covered in pollen.

Some local flowers pollinated by hummingbirds include



bee balm



honeysuckle



petunia



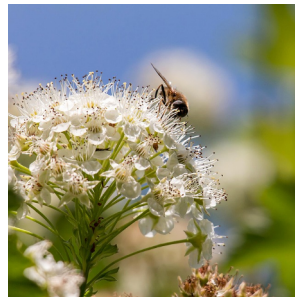
cardinal flower

Bees

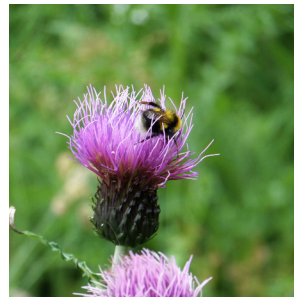
Bees are important pollinators. They pollinate many flowers, looking for ones that smell sweet, are brightly colored, and are full of nectar.

While visiting a flower, bees drink nectar and collect pollen in their leg baskets to bring back to the babies in the hive. Pollen also gets stuck to their hairy bodies, which then drops off and pollinates other flowers.

Some local flowers pollinated by bees include



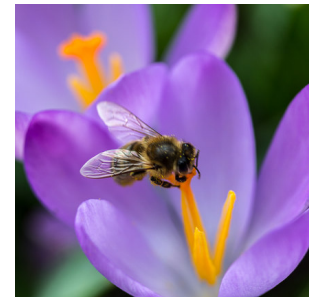
ninebark



field thistle



highbush blueberry



crocus

Yellow Lady's-slipper

The Yellow Lady's slipper is not full of nectar or anything else that a pollinator wants to eat. The flower is usually pollinated by small burrowing bees which slip or fall inside. The bees crawl into a tight corridor. Leaving the flower through the corridor, a sticky mass of pollen attaches itself to the bee's back.



Summer Squash

Summer squash flowers are unisexual, which means one squash flower is male and one is female. These flowers require a bee to move pollen from the male to the female flowers. Honey bees pollinate squash plants, but more often special "squash bees" do it.



Unit 4: The Power of Pollinators



WEEK 7 Days 2-3

Text Talk
Bee

Big Ideas	Pollination is a result of animal behavior. Animals, including humans, benefit from and depend on pollination.
Weekly Question	Why is pollination important to people and other animals?
Content Objectives	I can describe how words and phrases supply meaning in a poem. (R.7.2.a) I can connect my learning and compare a read aloud with other unit texts. (R.11.2.c, R.11.2.d)
Language Objective	I can use unit context and other strategies to help me understand key words in the text. (L.4)
Vocabulary	<p>bud: small, rounded part of a plant containing the beginning of leaves and flowers</p> <p>bur: rough, prickly case around a seed</p> <p>dense: close together</p> <p>foxglove: a plant with purple or white flowers</p> <p>gleam: a flash of light</p> <p>hedgerow: row of bushes</p> <p>hue: a particular variation of a color; shade</p> <p>intent: purpose</p> <p>meadow: an area of grassland</p> <p>thyme: a low herb plant</p> <p>trace: a small amount or mark left behind</p> <p>trail: to drag behind</p> <p>weeping willow: a tree with drooping branches</p>

	<p>woodland: area covered with trees</p>
<p>Materials and Preparation</p>	<ul style="list-style-type: none"> ● <i>Bee</i>, Britta Teckentrup Pre-mark the pages in the book. Page 1 begins, “Dawn is breaking on a brand-new day...” ● <i>Bee</i> excerpts, one copy (set of 3) for each group of three children Cut the strips apart. ● <i>Flight of the Honey Bee</i>, Raymond Huber, 2 copies ● <i>Amazing Bees</i>, Sue Unstead, 2 copies ● “Apples and Bees” informational text, 2 copies <p>On the whiteboard, write:</p> <p>What does this part of the text mean?</p> <p>What vocabulary is familiar? What is new?</p> <p>What other texts would support this information? How?</p> <p>Do you agree or disagree with how this part of the poem presents the information? Cite evidence.</p>
<p>Day 1 Opening</p>	<p>Set a purpose for reading.</p> <p><i>Many sources can provide us with information. Sometimes we read informational texts. Sometimes we watch video clips. Yesterday we looked at images. We can also learn about scientific topics through poetry. Today we’ll read Bee by Britta Teckentrup. It is an illustrated poem.</i></p> <p><i>While we read, think about what information you can gather about bees and pollination, or what details in the poem support what you already know. Also, think about what information might not be accurate because this is a poem, not an informational text.</i></p> <p><i>At the same time, we’ll listen to the language of the text. Using our knowledge of the topic, we might be able to figure out some unknown words.</i></p>
<p>DAY 2 Text and Discussion</p>	<p>Read through page 6.</p> <p><i>“Visiting flowers of every hue...” What could hue mean? The poem talks about the bee knowing where to go. We know that bees are attracted by colors; we can guess that “hue” means “color.”</i></p> <p><i>Thumbs up if you agree.</i></p> <p><i>Let’s predict. Based on what we already know about bees, what is this bee’s special job? How is this bee the same or different from</i></p>

	<p><i>Scout in Flight of the Honey Bee?</i> [Show the cover of <i>Flight of the Honey Bee.</i>]</p> <p>Read the next page, and affirm and/or correct predictions. Continue reading.</p>
page 12	<p>Turn and talk.</p> <p><i>From texts we've read so far and from this context, what do you think trace means here? How do the illustrations support your thinking?</i></p> <p>Finish reading the text and discuss.</p>
<p>DAY 2 Key Discussion and Activity 20 minutes</p>	<p>Organize children in groups of three to discuss information that may be new or reinforced by <i>Bee</i>. Distribute sets of text strips to each group. <i>Read all three of your text excerpts. Then talk about what you understand from each one, based on information in this book and other books we've read.</i></p> <p>Refer to the questions on the board as guidance for children's discussions. Show the available texts.</p> <p>As children discuss, help to circulate the texts among the groups so children can reference them specifically. Push children's thinking, and take notes about how they make connections between texts and how they defend their ideas. Encourage children to note any new or interesting vocabulary.</p> <p>Regroup and have 2 or 3 groups share responses to the prompts.</p>
<p>Closing 1 minute</p>	<p><i>Today we thought critically about information presented in a poem, comparing the information from the poem to the information from other texts. We also described the meaning that certain words and phrases gave to the poem.</i></p>
<p>Standards</p>	<p>R.7.2.a Describe how words and phrases supply rhythm and meaning in a text.</p> <p>R.11.2.c Explain how specific visuals contribute to and clarify the meaning of a text.</p> <p>R.11.2.d Compare and contrast the information presented by two texts on the same topic.</p> <p>L.4 Use context clues, analyze meaningful word parts, and consult general and specialized reference materials as appropriate to determine or clarify the meaning of unknown and multiple-meaning words and phrases from grade level content.</p>

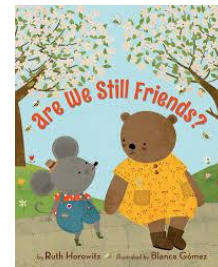
So many plants and flowers you see
Were given life by one small bee.

Through the orchard's sweet-smelling scent,
The bees travel on with calm intent.

Back at the hive, Bee spreads the news:
There's work to be done—no time to lose!

Unit 4: The Power of Pollinators

WEEK 7 Days 4-5



Text Talk
Are We Still Friends?

Big Ideas	Organisms in an ecosystem are interdependent. Animals, including humans, benefit from and depend on pollination.
Weekly Question	Why is pollination important to people and other animals?
Content Objective	I can explain how the author uses dialogue to add meaning and humor to the story. (R.9.2.a)
Language / SEL Objective	I can discuss key events and particular language by building on my classmates' comments. (SL.2.2.b, Relationship Skills)
Vocabulary	<p>apple butter: apples cooked down to make a spread</p> <p>bellow: to shout in a loud voice</p> <p>croak: to speak with voice that is low and hoarse</p> <p>dialogue: talk between characters</p> <p>insult: to say something to hurt feelings</p> <p>irate: very angry</p> <p>mass: group of things collected together</p> <p>mishmash: random collection</p> <p>mutter: to complain in a low tone; grumble</p> <p>ripen: to grow to become ripe or ready</p> <p>snarl: to speak with anger</p> <p>splutter: to speak with spit and emotion</p> <p>squeal: high-pitched sound or cry</p> <p>startled: scared</p> <p>teetering: about to fall</p>

	yammer: to speak in a foolish way
Materials and Preparation	<ul style="list-style-type: none"> • <i>Are We Still Friends?</i>, Ruth Horowitz Pre-mark the pages in the book. Page 1 begins, “Beatrice and Abel lived side by side...” • chart paper and markers Title the paper, Interesting Vocabulary. • Weekly Question Chart, from Weeks 6-7
DAY 1 Opening	<p><i>Today we will read a fictional story called Are We Still Friends? by Ruth Horowitz. In this book, a bear named Beatrice, or Bea, keeps bees, and a mouse named Abel grows apple trees. Bea and Abel are best friends.</i></p> <p><i>What do you remember about pollination of apple trees by bees? Harvest a few responses.</i></p> <p>Share the purpose for reading. <i>This book is full of fun and sometimes silly dialogue. Dialogue is when characters speak to each other. Today we will read to see how the dialogue propels the story forward.</i></p>
Text and Discussion	<p><i>What is happening so far in the story?</i></p> <p>Think, Pair, Share. <i>How does this story add to or reinforce information we already know about pollination of apple trees by bees? Is there any new information? How does the story show the interdependence of bees and trees?</i></p>
page 8	
page 9	<p><i>Ruth Horowitz uses some interesting words in this story, especially to describe how the characters speak. Let’s list these words as we find them. We might like to use these sometime in our own writing to describe how people talk!</i></p> <p>Add “yammered” to the chart and talk about its meaning. As reading continues, add words to the list that children identify as “interesting vocabulary,” especially those describing speech (bellowed, spluttered, muttered, etc.)</p>
page 14	<p><i>Dialogue is when characters speak to each other. Dialogue often helps characters communicate their feelings and thoughts.</i></p> <p>Think, Pair, Share. <i>What is the function of the dialogue here? Why did the author</i></p>

	<i>include it? [Abel is talking to himself, revealing his feelings.]</i>
page 15	<p>Read page 15, and then turn back to page 14.</p> <p><i>The author also includes some figures of speech that describe how Abel and Beatrice are feeling [on page 14]: “There sat Abel, his hurt ripening like a big, round apple.” And [on page 15], “And there sat Beatrice, her anger buzzing like an irate insect.”</i></p> <p><i>What do these figures of speech make you think of? Why would the author describe the characters’ feelings in this way in this text?</i></p>
page 24	<p>Think, Pair, Share.</p> <p><i>How did misunderstandings in the dialogue propel the plot of the story forward?</i></p> <p>Read to the end, adding interesting vocabulary to the chart as the story progresses.</p>
DAY 2 Key Discussion	<p>Think, Pair, Share.</p> <p>Prompt 1: <i>Why is dialogue important in this book?</i></p> <p>Prompt 2: <i>How does pollination create connections in this book?</i></p> <p>Facilitate a whole group discussion. Encourage children to use established classroom discussion prompts as they respond to each other.</p>
Closing	<i>Today we read a fictional book that helped us think about how authors use dialogue to reveal how characters feel and to move the story forward. Look for dialogue when you read!</i>
Weekly Question Chart 5 minutes	<p>Refer to the Weekly Question Chart.</p> <p><i>This week we have continued thinking about this question: Why is pollination important to people and other animals?</i></p> <p>Read the chart together. Add any essential ideas that may be missing. Identify and color-code 2-3 themes that emerge. Some themes might be: Pollination can help farmers and gardeners grow food and farmers and gardeners can plant in order to support the survival of pollinators.</p> <p>Save this chart for use in Week 8.</p>
Standards	<p>R.9.2.a Acknowledge differences in the points of view of characters.</p> <p>SL.2.2.b Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.</p> <p>SEL. Relationship Skills</p>

Unit 4: The Power of Pollinators

WEEK 7

Stations

Station	Activities	Materials Writing tools at each station
Guided Independent Reading		<ul style="list-style-type: none"> ● individual book bags
Teacher groups: strategic small group instruction		
Listening & Speaking	Listen and Respond	<ul style="list-style-type: none"> ● audio recording and technology ● <i>What If There Were No Bees?</i> ● <i>What If There Were No Bees?</i> slides ● conversation prompts
Science Literacy	How have our classroom plants changed?	<ul style="list-style-type: none"> ● Unit 4 Science and Engineering packets ● colored pencils
Vocabulary	Choose 3!	<ul style="list-style-type: none"> ● Week 6 Weekly Words cards ● Recording sheets ● Choose 3! menu
	Talk About It: What connections does the mural make? What connections do you make to this mural?	<ul style="list-style-type: none"> ● Weeks 6 and 7 Weekly Words cards ● Week 7 image, 2 copies cut apart ● Week 7 sheets
Word Work (align skills with literacy program)	Marking syllables and suffixes	<ul style="list-style-type: none"> ● Week 7 Name It, Write It, Mark It sheets
	Matching words to images	<ul style="list-style-type: none"> ● Week 7 Memory cards ● scissors
	Writing words, using them in sentences	<ul style="list-style-type: none"> ● Week 7 Look Cover Write Check sheets
Writing	Continuing work on brochures	<ul style="list-style-type: none"> ● brochure panels in process

What if There Were No Bees? Conversation Prompts: Cut apart and provide with text and audio recording.

Page 5:

Look at the food chains on pages 4 and 5.
How do food chains tie animals to one another?

What If There Were No Bees?

Page 8:

What do farmers do to put bees in danger?

What If There Were No Bees?

Page 15:

If there were no more bees, how would that affect animals like foxes and owls?

What If There Were No Bees?

I agree with you, and I would like to add ____.

I respectfully disagree with you because ____.









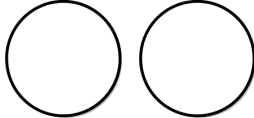
What evidence do you have to support that?

Name: _____

Name It	Write It	Mark It
---------	----------	---------

Write the word. Scoop and mark the syllables. Circle the suffix.

Word Bank		pickles	freckles	tackles
sparkle	buckles	circles	tickle	uncle

 <p>puzzles</p> <p>c -le</p>		
		
<p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p>
		
<p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p>

Skills: Know and apply grade-level phonics and word analysis skills in decoding words.
 Decode words with common prefixes and suffixes.

Memory cards: Copy single-sided and cut apart.

wiggle



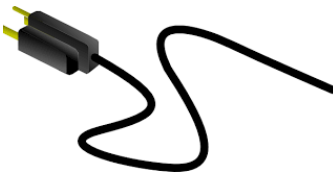
pickle



puddle



paddle

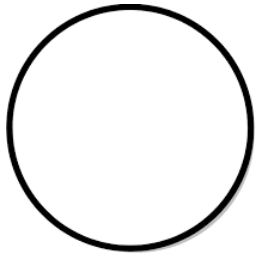


apple



cable

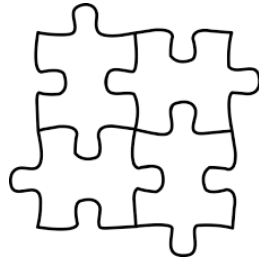




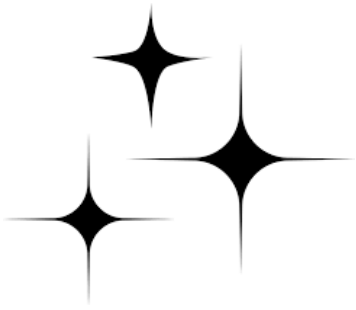
puzzle



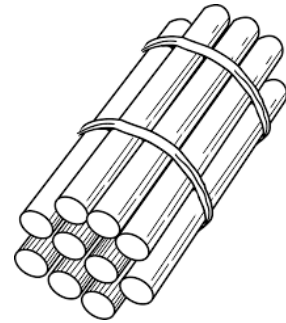
circle



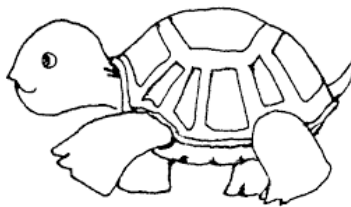
candle



turtle



sparkle



bundle

Name: _____

Look	Cover	Write	Check ✓
Use it in a Sentence			

favorite	<hr/> <hr/> <hr/>	
sugar	<hr/> <hr/> <hr/>	

favorite

sugar

Skills: Recognize and read grade-appropriate irregularly spelled words.

Talk About It



David Manzanares, **Abuelos/Raíces**, Lincoln, Nebraska, 2020

<https://lincolnsouthdowntown.org/news-events/news.html/article/2020/12/11/the-community-turns-out-to-support-a-mural-about-our-ancestors>



David Manzanares, **Abuelos/Raíces**, Lincoln, Nebraska, 2020

<https://lincolnsouthdowntown.org/news-events/news.html/article/2020/12/11/the-community-turns-out-to-support-a-mural-about-our-ancestors>

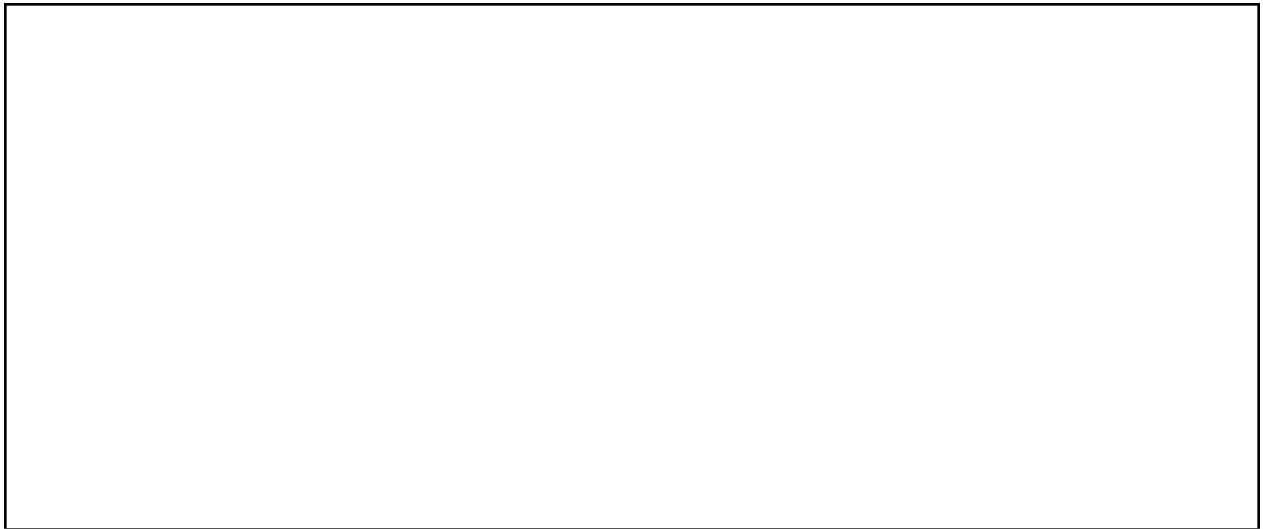
Vocabulary Station U4 W7

Talk About It

Name: _____ Date: _____

This mural was painted by David Manzanares, a Mexican immigrant artist. What connections does the mural make? What connections do you make to this mural?

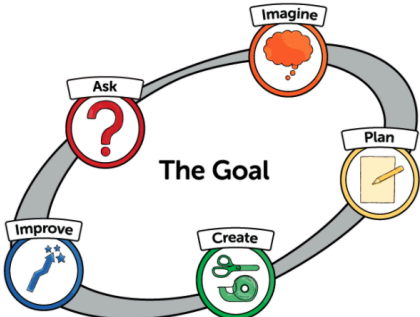
Look carefully at the image. **Talk** with your partner, **draw and write** about your ideas, and then **share** your writing. Use important vocabulary words as you talk and write. **Circle** the important words you use.



Unit 4: The Power of Pollinators

WEEK 7 Lesson 1

Science and Engineering
Designing Hand Pollinators

Big Idea	Pollination is a result of animal behavior.
Guiding Question	How does pollination happen?
Content Objective	I can apply my knowledge about properties of materials to design a hand pollinator for a specific kind of flower. (2-PS1-1, Practice 1)
Language Objective	I can talk with my partner about which materials are best for the design of a hand pollinator. (SL.1.2)
Vocabulary	constraint: limitation
Materials and Preparation	<p>Beginning with this lesson, children re-embark on a design challenge, guided, as in Unit 3, by the Engineering is Elementary (EiE) Engineering Design Process. If needed, review the EiE website. (https://www.eie.org/overview/engineering-design-process). The following graphic summarizes the Engineering Design Process steps and will be recreated on a chart during the lessons. (A free poster of this graphic can be downloaded from the EiE website.)</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  </div> <div style="flex: 2; padding-left: 20px;"> <p>ASK: What is the problem? How have others approached it? What are the constraints?</p> <p>IMAGINE: What are some solutions? Brainstorm ideas. Choose the best one.</p> <p>PLAN: Draw a diagram. Make lists of needed materials.</p> <p>CREATE: Follow the plan and create something. Test it out.</p> <p>IMPROVE: What works? What doesn't? What could work better? Modify the design to make it better. Test it out.</p> </div> </div>

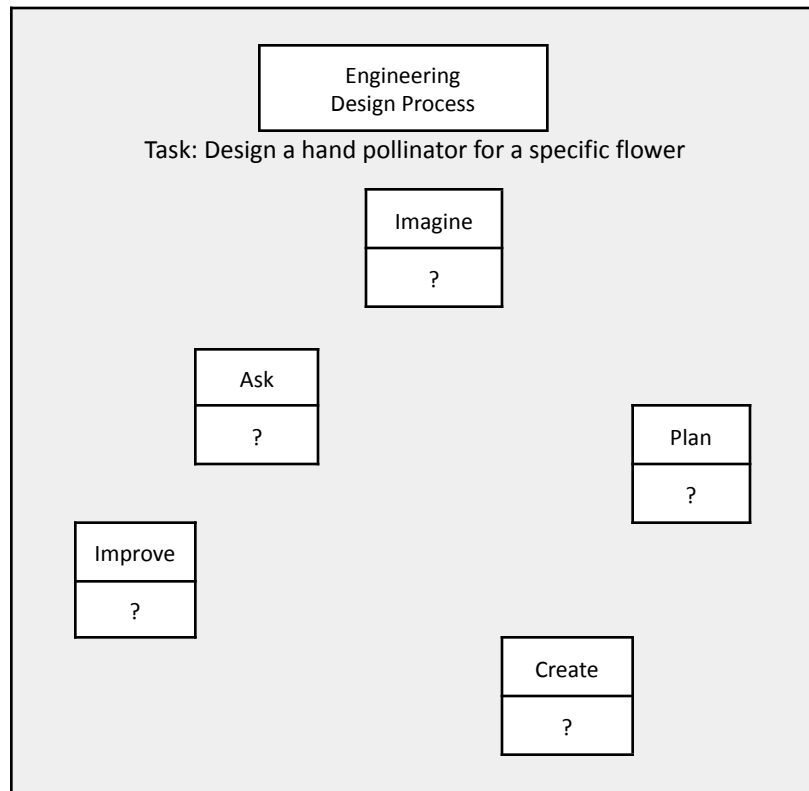
- **Model Flower Structures Background Information and Assembly Instructions**

Assemble the model flowers according to the instructions provided, making one model for each pair of children. Before doing so, review each of the model flowers to inform assignments of particular flowers to particular pairs of children. Note that the poppy will be the easiest flower for which to design a hand pollinator, and the bucket orchid the most difficult. Materials are provided for only two pairs of children to work on the bucket orchid.

- glue stick or tape
- chart paper
- Engineering Design Process cards, cut apart
- Design Process Questions, cut apart

As in Unit 3, create a chart like the one below by attaching the Engineering Design Process title card at the center top of the chart paper. Below this write, Task: Design a hand pollinator for a specific flower.

Then, add the Engineering Design Process cards with corresponding Design Process Questions below each. Draw arrows from one step to the next. (Alternatively, use the EiE poster linked above.)



	<ul style="list-style-type: none"> ● Evaluating Materials for Hand Pollinators chart, from Week 6 ● Flower Models: Bucket Orchid, Dutchman’s Pipe, Jack in the Pulpit, and Poppy ● Science and Engineering packets ● writing and drawing tools <p>Add to each pair’s collection of materials from Week 6:</p> <ul style="list-style-type: none"> ● selected model flower ● 1 craft stick ● 1 straw ● 1 piece of floral wire, 6” long ● 1 piece of string, 6” long <p>If needed, replace the aluminum foil or waxed paper squares.</p>
Note	<p>Looking at the yellow lady’s slipper is helpful in imagining how the bucket orchid is pollinated. Watch: Yellow Lady’s Slipper with Two Potential Pollinators (https://www.youtube.com/watch?v=hys7JPJnv8w) (1:16) Read: “Yellow Lady’s Slipper - Like Winning the Lottery” (https://the-natural-web.org/tag/yellow-ladys-slipper/)</p>
Opening 10 minutes	<p><i>Last week you explored the properties of materials to identify which are most effective for picking up and depositing pollen. This week you will use that information to begin designing hand pollinators.</i></p> <p><i>What do you remember about why farmers and gardeners might need to use hand pollinators?</i></p> <p>Support children’s recall. Refer to the video from Week 6, “Disappearance of the Bees: What’s the Impact?” [Flowers need pollinators in order to reproduce and form seeds; in some places pollinators are disappearing or the right kind of pollinator does not live in that area. When that happens, people need to design hand pollinators.]</p> <p><i>You will work with a partner, and together you’ll receive a model of a flower that needs to be hand pollinated. Your job is to design a hand pollinator for that particular species of flower.</i></p> <p><i>The flowers you will work with don’t all have the same structures; they have pollen in different places. In some flowers the pollen is easy to find, while in others the pollen is difficult to see or access. Along with thinking about materials that will pick up and deposit pollen, you will also need to consider the handle of the hand pollinator. For each flower, depending on where the pollen is, it might be different.</i></p> <p>Show the four model flowers and indicate where the pollen is located in</p>

	<p>each (see background information).</p> <p><i>Instead of real flowers, we'll use models to do this work, just like we did last week. Models are helpful because they allow us to try out different ideas and designs without damaging the real flowers if our designs do not work properly at first. The structure of the flower you are using is a constraint in your design work—it's something that cannot be changed.</i></p> <p><i>We used the Engineering Design Process for the Our Neighborhood Project exhibit. We'll use that process again now to help design hand pollinators. This time we'll use each step a bit more carefully.</i></p> <p>Refer to the chart and review the steps.</p> <p><i>Today, in pairs, you'll just begin with the Ask part of the Engineering Design Process. Ask yourselves: What is the problem? What are the constraints—the things we cannot change for our design? The materials available are the ones in your collections. Availability of materials is an important constraint!</i></p> <p>Distribute packets and materials, and send children to work.</p>
<p>Investigation 10 minutes</p>	<p>Guided by the “Ask” page of your science and engineering packet, children work in pairs to analyze their model flower. Note the different parts of the flower and where the pollen is located. Have children draw a detailed picture of their flower model and their flower, labeling all the parts they will need to consider for their design. Have them identify materials that could be useful for a hand pollinator for their particular flower structure, and consider how they will test their designs.</p> <p>Once they have decided on and recorded their initial ideas, have pairs of children working with the same model get together to compare ideas.</p> <p>At clean up, children should collect and organize materials for use in future lessons.</p>
<p>Discussion 5 minutes</p>	<p>Bring the children back to the whole group.</p> <p>Ask children, in pairs or flower-specific groups, to share the type of flower they will be working with, the location of the pollen, and the materials they will test. Encourage children to justify why they chose particular materials.</p>
<p>Closing</p>	<p><i>Today you engaged in the first step of the design process: Ask. You asked yourselves some questions and came up with some possible ideas for designing your hand pollinators. Tomorrow you will move</i></p>

	<i>to Imagine and Plan.</i>
Standards and Practices	<p>SL.1.2 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.</p> <p>2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p> <p>2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</p>
Ongoing assessment	<p>Reflect on the class discussions.</p> <p>Do children apply knowledge about properties of available materials to their designs?</p> <p>Do children consider the constraints of flower structures when selecting the materials?</p>

Notes

Model Flower Structures Assembly Instructions and Background Information

The model flowers used in this lesson represent the shapes of actual flowers. The diagrams below indicate the location of pollen in the real flower and where it should be placed in the model flower.

Bucket Orchid

The bent PVC pipe represents a bucket orchid (*Coryanthes* genus).

Assembly: Attach the plastic cap to the end of the curved plastic pipe using cellophane tape.

Pollen: The “pollen” is located inside the pipe at the end where the cap is (the bottom of the flower’s “bucket”).

The bucket orchid grows well in tropical climates and is native to Central and South America. The flowers droop below the stems of the plant, creating a cup or bucket that collects fluid secreted by the plant. When insects become trapped in that fluid, they naturally travel through a sort of escape tunnel located at the bottom of the bucket. As the insect climbs out of this tunnel, the pollen coating the tunnel walls attaches to the insect’s body.



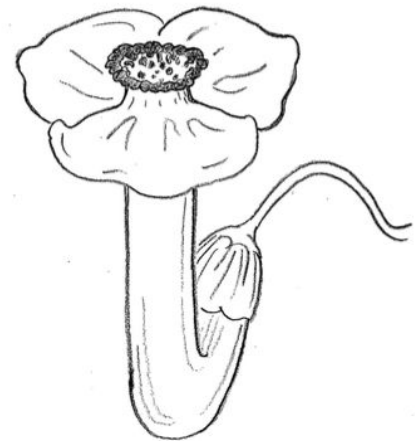
Dutchman’s Pipe

The straight test tube represents a Dutchman’s pipe (*Aristolochia clematitis*).

Assembly: Use a straight test tube; no assembly required.

Pollen: The “pollen” is located at the bottom of the test tube.

The Dutchman’s pipe is found in Europe. The flower has a large, cupped opening, tapering to a thin pipe and small bulbous chamber at the base. The chamber houses the pollen and the nectar of the flower.



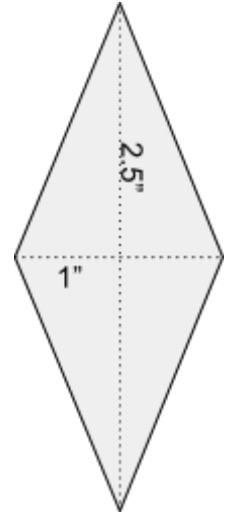
Adapted from *The Best of Bugs: Designing Hand Pollinators*, developed by Engineering is Elementary®, Museum of Science, Boston. Used with permission. Drawings by J. Martin.

Jack-in-the-Pulpit



The straight test tube with a “flap” (or spathe) over the top represents a Jack-in-the-pulpit (*Arisaema triphyllum*).

Assembly: Using an index card or other stiff paper, cut a diamond shape from an index card that is 2.5 inches tall and 1 inch wide. Fold it in half the long way. This will be the flap (spathe) over the tops of the test tube. Tape one end of the diamond to the test tube, leaving approximately $\frac{3}{4}$ ” clearance between the top of the diamond and the top of the test tube. Then fold the top of the diamond over a bit to create a flap.



Pollen: Like in the Dutchman’s pipe, the “pollen” is located at the bottom of the test tube.

Jack-in-the-pulpits grow in rich, moist woods throughout the eastern United States. At the base of the spadix, which sticks up in the middle of the flowers, are the male and female flower parts. Tiny flies are lured into the base of the spadix by the scent the flower gives off.

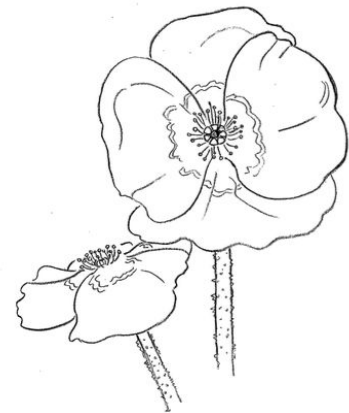
Poppy

The petri dish represents a poppy (*Papaveraceae* family).

Assembly: Use the petri dish; no assembly required.

Pollen: The “pollen” is located in the center of the petri dish.

Poppies have papery, colorful petals surrounding a central area of stigma and anthers, where pollen is produced and nectar is found. These flowers are found on several continents, including North America, Europe, Asia, and northern Africa.



Adapted from *The Best of Bugs: Designing Hand Pollinators*, developed by Engineering is Elementary®, Museum of Science, Boston. Used with permission. Drawings by J. Martin.

**Engineering
Design Process**

Ask

Imagine

Plan

Create

Improve

Engineering Design Process Questions

Cut apart and add to the Engineering Design Process chart.

What's the problem?

What have others done?

What are the constraints?

What could be some solutions?

Brainstorm ideas.

Choose the best one.

Draw a diagram.

Make a list of materials you will need.

Follow your plan and create it.

Test it out!

Make your design even better.

Test it out!

Name: _____ Date: _____

A

B

Bucket Orchid



Illustration by J. Martin

Name: _____ Date: _____

A

B

Dutchman's Pipe

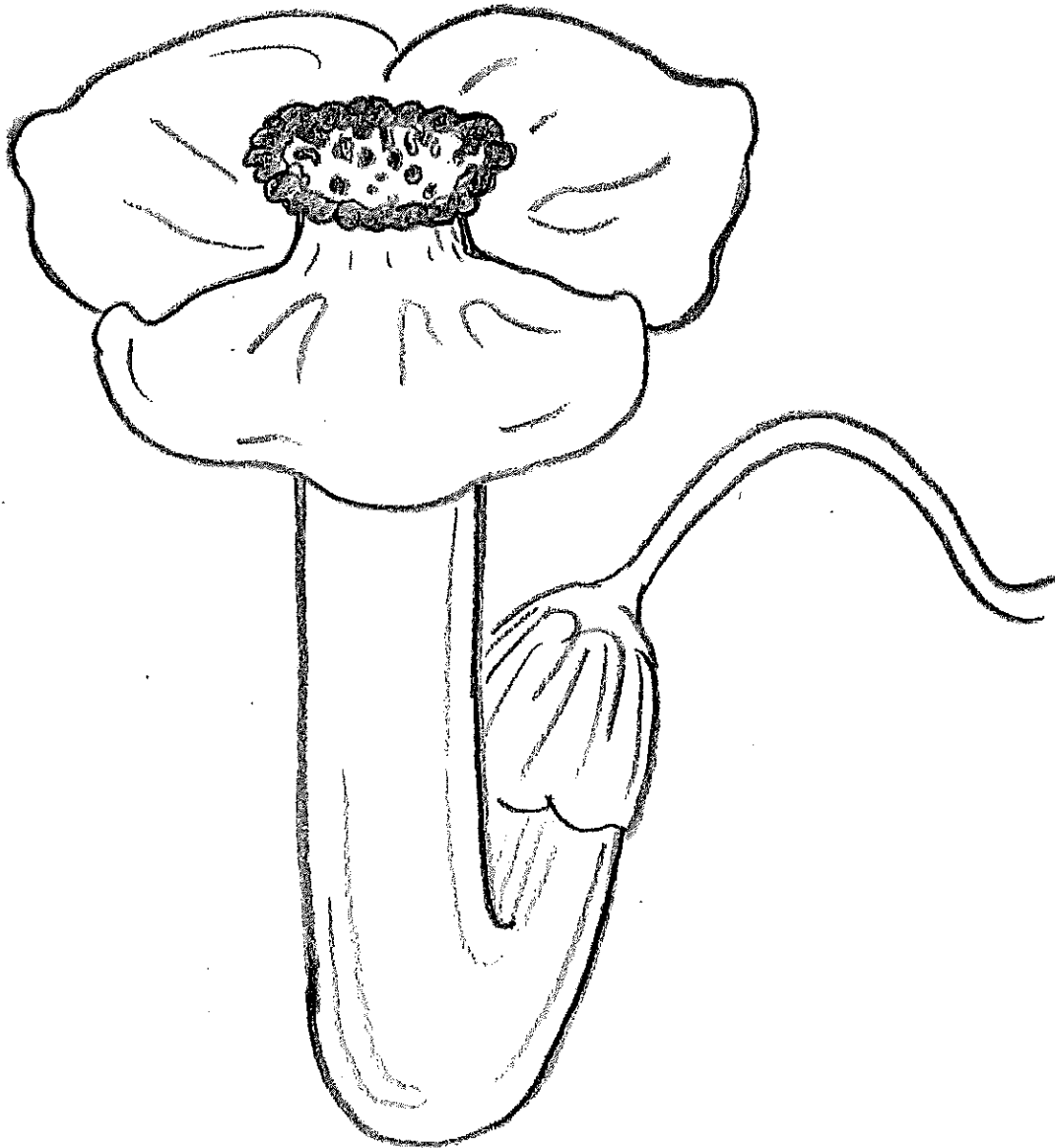


Illustration by J. Martin

Name: _____ Date: _____

A

B

Jack-in-the-Pulpit



Illustration by J. Martin

Name: _____ Date: _____

A

B

Poppy

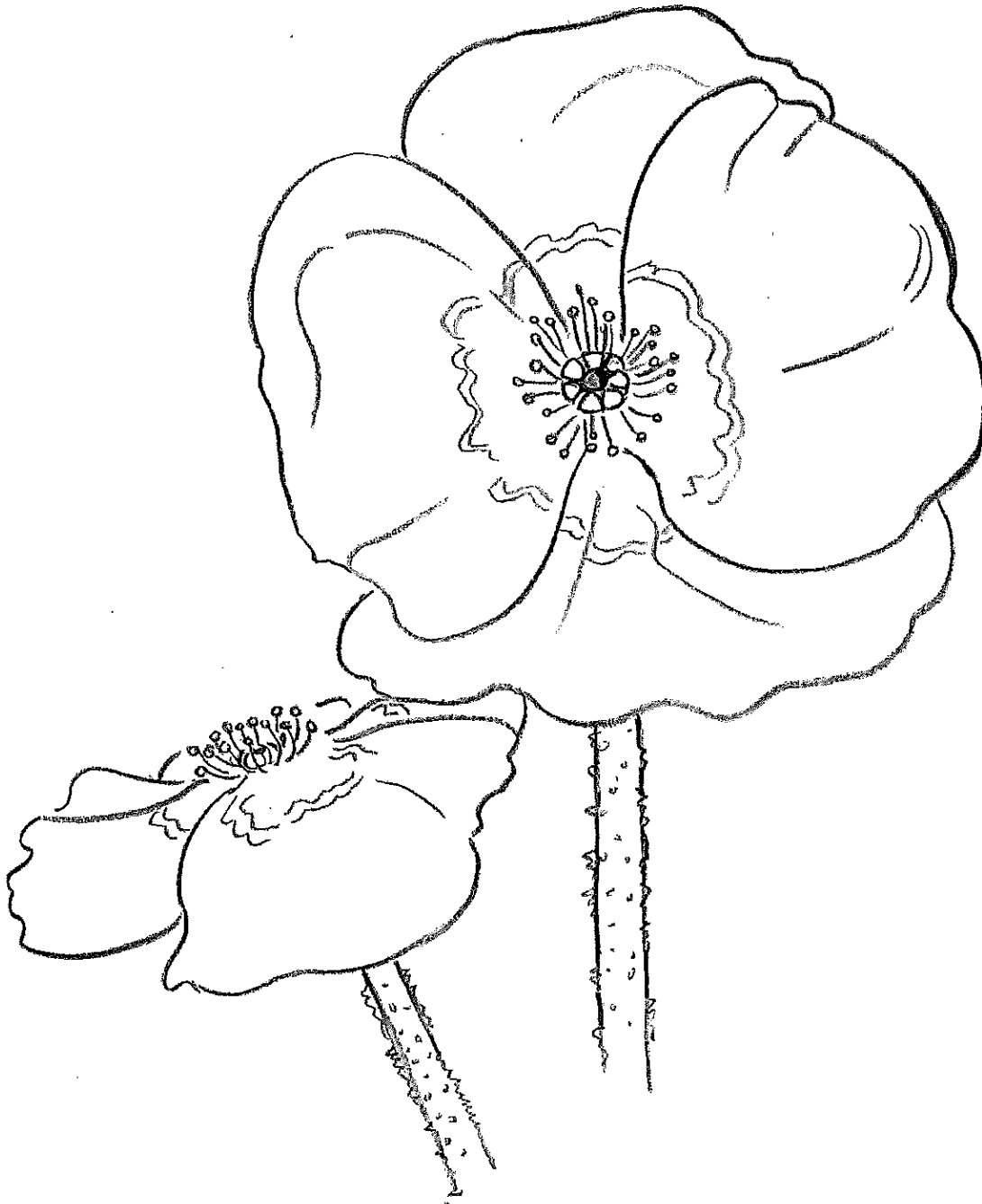


Illustration by J. Martin

Unit 4: The Power of Pollinators

WEEK 7 Lesson 2

Science and Engineering

Designing Hand Pollinators

Big Idea	Pollination is a result of animal behavior.
Guiding Question	How does pollination happen?
Content Objectives	I can think of different designs to create a hand pollinator that will pick up and deposit pollen on a flower model. (2-PS1-1, 2-LS2-3 (MA), Practice 6) I can sketch my ideas on paper. (W.3)
Language Objective	I can discuss with my partner and give reasons for testing a particular model. (SL.2.2.b)
Vocabulary	brainstorm: a conversation to come up with ideas sketch: a rough drawing
Materials and Preparation	<ul style="list-style-type: none"> ● Engineering Design Process chart, from Lesson 1 ● Science and Engineering packets ● writing and drawing tools ● materials from the previous lesson <p>Prepare a small bag, container, or tray for each pair of children with:</p> <ul style="list-style-type: none"> ● plain white paper, 1 sheet ● eraser, 1 piece (one third of the provided eraser sticks) ● marble, 1 ● aluminum foil or wax paper, 1 2-inch square ● pompom, 1 ● pipe cleaner, 1 2-inch piece ● tape, 1 piece about 2 inches long ● selected model flower ● 1 craft stick ● 1 straw ● 1 piece of floral wire, 6" long ● 1 piece of string, 6" long

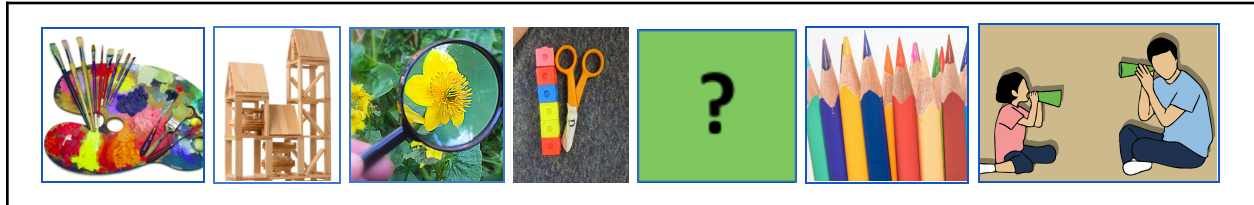
<p>Opening 5 minutes</p>	<p><i>Yesterday we started the Engineering Design Process with the first step: <u>Ask</u>. You identified constraints of the flower structure you're working with and materials available.</i></p> <p>Review the Engineering Design Process chart.</p> <p><i>Today we'll move to the next step: <u>Imagine</u>. In this step you'll brainstorm ideas of possible hand pollinator designs and choose one. You'll begin by thinking on your own and then share your ideas with your partner. Please include labels or lists of materials that you will need. Try to come up with three or four possible designs together—don't just think the first design you come up with will be the best one! Sketch each design idea, look at the sketches together, and then decide one you would like to try.</i></p> <p><i>When you decide, record it on the <u>Plan</u> page. You'll have the rest of today's session to come up with a design idea.</i></p>
<p>Investigation 25 minutes</p>	<p>Children work first independently, quietly sketching their ideas. Then, they share their ideas with a partner and discuss which one they think is best and why. Finally, they agree on a design and record it in their packet.</p> <p>Circulate as they work. Some questions to support them:</p> <ul style="list-style-type: none"> ● What will your hand pollinator look like? Why might that be a good design? ● How large or small will your hand pollinator be? Why? ● What materials will you use? Why? ● How will you attach the materials that will pick up and drop off the pollen to the handle?
<p>Discussion</p>	<p><i>No discussion in this lesson.</i></p>
<p>Closing</p>	<p>Have children clean up and organize their materials. Bring the group back together.</p> <p><i>Today you brainstormed ideas for a hand pollinator design for your flower and discussed them with your partner. If you have not yet completed your plan, you can do that at the Discovery Studio. Your design needs to be ready to build next week!</i></p>
<p>Standards and Practices</p>	<p>W.3 Routinely produce a variety of clear and coherent writing in which the development, organization, and style are appropriate to task, audience, and purpose</p> <p>SL.2.2.b Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.</p> <p>2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p>

	2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
Ongoing assessment	Reflect on children’s work. What variety of ideas are children coming up with? How do children discuss their ideas with their partners? Do children capture important details in their sketches? How do children integrate knowledge of properties of materials into their designs? To what degree do children keep in mind the structure of the particular flower they are designing for?

Notes

Unit 4: The Power of Pollinators

WEEK 7 Studios



Pollinator/Pollination Projects

In all studios, children continue work contributing to the Pollinator Project, according to the class Project Plan.

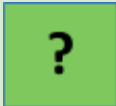
In the Research Studio, children may look more closely at a class resource to find examples of how pollinators impact food production and supply.



<p>Big Ideas</p>	<p>Organisms in an ecosystem are interdependent. Animals, including humans, benefit from and depend on pollination.</p>
<p>Weekly Question</p>	<p>Why is pollination important to people and other animals?</p>
<p>Materials and Preparation</p>	<ul style="list-style-type: none"> ● Pollinator Project Plan, from Text Talk, Day 1 ● children’s Planning sheets ● studios prompts from Week 6 ● Unit 4 Observation Sheet <p><u>For the Research Studio:</u></p> <ul style="list-style-type: none"> ● Consider adding additional resources for children to conduct further research on the impact of pollinators. <p>Review the Project Plan. Review the work in progress of individuals and small groups along with their Planning sheets, and add needed next steps to the Progress Notes column of the chart. Make notes in the boxes on the following pages about how to support the work in each studio. Consider conversations that have arisen out of Text Talks that are relevant to specific work children are undertaking, and make those connections. Be prepared to suggest a small group project the children have not yet identified in the Project Plan, in order to extend the ways of communicating about the importance of pollinators and to enhance children’s advocacy for convincing community gardeners to plant for pollinators.</p>



	<p>Ensure that as many unit resources as possible are available at the Research Studio and accessible throughout the classroom.</p> <p>Plan to facilitate a Thinking and Feedback session one day this week to:</p> <ul style="list-style-type: none"> ● provide encouragement to a struggling child or group; ● provide group analysis and suggestion for work that needs strengthening; ● coordinate efforts among children and groups and minimize duplication of effort; or ● highlight an aspect of work that might positively inspire others' work.
<p>Opening</p>	<p><i>Last week you planned, set up, and began work on projects that communicate about the importance of pollinators to community gardeners and others. You'll continue that work this week.</i></p> <p>[if there are additional resources to research]</p> <p><i>Here are a few other resources for us to look at the Research Studio. If you read carefully, you will find additional information here about how pollinators impact our food supply. This information could be important in your projects.</i></p> <p><i>Sometimes when we start working, we go off in a different direction than we originally planned. That might be okay, if the work is still connected to our original idea. But we also might need to get back on track.</i></p> <p>Distribute or have children access their Planning sheets.</p> <p><i>Before you get started, take a moment to check in with the other children you have been working with and answer these questions: how is our work going? Is this what we planned? Would it be helpful to get some feedback? What are our next steps?</i></p> <p>Circulate to listen in to these conversations, and offer suggestions where useful, without too heavily directing the course of children's work.</p> <p>If ideas or reminders that would be helpful for all children emerge from small group conversations, bring the group back together for just a moment to share these. Otherwise, disperse children to work.</p>
<p>Facilitation</p>	<p>Encourage children to follow, revise, and add to their plans, as appropriate for effective communication of their ideas.</p>



	<p>Assist children in gathering needed materials, and suggest potentially useful resources.</p> <p>Facilitate and foster cross-pollination of ideas by suggesting that groups take a break to look at each other’s work, ask questions, and be inspired by their classmates’ efforts.</p> <p>Facilitate careful, intentional work by asking children questions about their plans, processes, discoveries, changes in course, collaborations, and successes. Insist that children articulate their work orally, artistically, or in written form in order to hold them accountable to the purpose of the work.</p> <p>Encourage children to review and refer to notes to make sure they attend to plans they have made and feedback they have received.</p> <p>Support children if they struggle to come to group consensus about next steps.</p>
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<p>Standards</p>	<p>Some standards addressed will depend on the studios in which children work. Some possibilities include work towards those listed in the Studios Introduction (Part 1) and the following studio-specific standards.</p> <p><u>Research:</u> RI.2.5. Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key factors or information in a text efficiently.</p>
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<p>Research</p> 	<p>Gathering More Information</p> <p><u>Content Objective:</u> I can gather important information from different kinds of texts.</p> <p><u>Process:</u> Children read and interpret text(s). They determine whether this information can be meaningfully added to their work in progress. Ask children to share information with classmates as relevant.</p> <p><u>Facilitation:</u> <i>What do you find here?</i> <i>How can you figure out what that means?</i> <i>Why is it important?</i></p>
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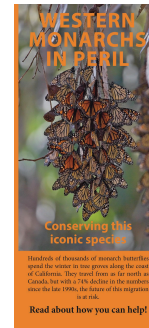
<p style="text-align: center;">Art</p> 	<p>Project(s): _____</p>
<p>Current state of the project</p>	
<p>Questions to prompt further work</p>	
<p>Needed resources, materials, collaboration</p>	
<p style="text-align: center;">Building</p> 	<p>Project(s): _____</p>
<p>Current state of the project</p>	
<p>Questions to prompt further work</p>	
<p>Needed resources, materials, collaboration</p>	

<p>Discovery</p> 	<p>Project(s): _____</p>
<p>Current state of the project</p>	
<p>Questions to prompt further work</p>	
<p>Needed resources, materials, collaboration</p>	
<p>Math</p> 	<p>Project(s): _____</p>
<p>Current state of the project</p>	
<p>Questions to prompt further work</p>	
<p>Needed resources, materials, collaboration</p>	

<p>Research</p> 	<p>Project(s): _____</p>
<p>Current state of the project</p>	
<p>Questions to prompt further work</p>	
<p>Needed resources, materials, collaboration</p>	
<p>Writing and Storytelling</p> 	<p>Project(s): _____</p>
<p>Current state of the project</p>	
<p>Questions to prompt further work</p>	
<p>Needed resources, materials, collaboration</p>	

Unit 4: The Power of Pollinators

WEEK 7 Day 1



Writing Argument
 Joint Construction and Deconstruction: Adjectives

Content Objective	I can choose appropriate adjectives. (W.3.2)						
Language Objectives	I can choose adjectives that relate to a topic. (L.1.2.e) I can order closely-related adjectives. (L.5)						
Vocabulary	<p>adjective: a word or phrase used to describe a person, place, thing, or idea</p> <p>argument: a genre of writing whose purpose is to convince someone to do something or about something</p> <p>negative: not good</p> <p>positive: good</p> <p>reason: why the audience should do or think something</p>						
Materials and Preparation	<ul style="list-style-type: none"> ● chart paper and marker Prepare the following Argument Adjectives chart. <div style="text-align: center; margin: 10px 0;"> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <th colspan="2" style="padding: 5px;">Argument Adjectives</th> </tr> <tr> <th style="width: 50%; padding: 5px;">Positive</th> <th style="width: 50%; padding: 5px;">Negative</th> </tr> <tr> <td style="height: 100px;"></td> <td style="height: 100px;"></td> </tr> </table> </div> <ul style="list-style-type: none"> ● Reasons chart, from Week 6, Day 1 	Argument Adjectives		Positive	Negative		
Argument Adjectives							
Positive	Negative						

	<p>Before the lesson, underline the adjectives in the reasons.</p> <ul style="list-style-type: none"> ● “Western Monarchs in Peril” brochure ● writing tools ● Shades of Meaning sheet, one copy for each pair of children and one for the class ● children’s writing
<p>Opening 1 minute</p>	<p><i>When we wrote an argument letter together, we learned that adjectives are an important tool writers use. Remember, adjectives are words that describe people, places, things, or ideas. We listed positive and negative adjectives to describe our school, to make our argument stronger.</i></p> <p><i>Today we will talk more about adjectives in arguments and choose among closely-related adjectives to decide which are most appropriate for your arguments, a bit like the Shades of Meaning activity we have done during Language lessons.</i></p>
<p>Joint Construction 8 minutes</p>	<p>Show the Reasons chart.</p> <p><i>In our reasons, we have already included some adjectives. Some of the adjectives we included are positive—they relate to the good things pollinators do. Some are negative—they relate to the problems that would happen without pollinators. Let’s review the adjectives we used and record them in this chart.</i></p> <p>Show the Argument Adjectives chart. Along with the children, read the adjectives from the Reasons chart and record them in the Argument Adjectives chart, in the appropriate columns.</p> <p><i>Are there any other adjectives to describe pollinators or what they do that we could add to the chart?</i></p> <p>Harvest children’s ideas and add them to the appropriate columns.</p>
<p>Deconstruction 15 minutes</p>	<p><i>When writers write arguments, they make choices about the adjectives they use.</i></p> <p>Show “Western Monarchs in Peril.”</p> <p><i>This brochure is called “Western Monarchs in Peril.” “In peril” means “in danger,” but is a stronger way of saying that. What is one more way to communicate “in peril,” or “in danger”? [threatened, at risk, unsafe, vulnerable]</i></p> <p>Show the Shades of Meaning sheet.</p> <p><i>Let’s order these adjectives. Which of these three is the strongest? Order the three adjectives on the sheet: “in peril,” “in danger,” and the</i></p>

	<p>children’s added suggestion.</p> <p>Facilitate a discussion about the writer’s choice of the intensity of adjectives.</p> <p><i>Why do you think the writer chose to use such a strong adjective: “in peril”?</i></p> <p><i>How would the title change if a different adjective were used?</i></p> <p>Distribute Shades of Meaning sheets and writing tools.</p> <p><i>Now it’s your turn. With a partner, choose one of the adjectives from the chart. Then think of two other adjectives that mean the same thing. Write them in order on your sheet, with the strongest one at the top of the page.</i></p>
<p>Closing 6 minutes</p>	<p>Gather the class back together. Have several pairs share their work. Ask the children to choose which adjective would be best in their argument, and why.</p> <p>Note that the strongest adjectives are not always the most effective. Choice of adjectives depends on the audience and the particular point the writer is trying to make.</p> <p><i>Today we talked about using adjectives to strengthen arguments. Tomorrow you will think about the adjectives in your arguments and continue writing.</i></p>
<p>Standards</p>	<p>W.3.2 Use a combination of drawing and writing to communicate a topic with a beginning, middle (including details), and an end.</p> <p>L.1.2.e Use adjectives and adverbs and choose between them depending on what is to be modified.</p> <p>L.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings sufficient for reading, writing, speaking, and listening..</p>
<p>Ongoing assessment</p>	<p>During the lesson, note children’s understanding.</p> <p>Do children identify adjectives?</p> <p>Do they sort adjectives as positive and negative?</p> <p>Do children generate and order related adjectives?</p> <p>What do children understand about writers’ choices of adjectives?</p>

Name: _____

stronger

weaker

Monarch Ecology

The monarch butterfly is well-known for its long-distance seasonal migration and its spectacular winter gatherings. While many monarchs migrate to central Mexico, monarchs in western states also migrate to the California coast, which is the only place in the United States that regularly hosts the awe-inspiring sight of thousands of monarchs gathered for the winter. These days, most of California's monarchs cluster in groves of nonnative eucalyptus, although they prefer native trees such as Monterey pine, Monterey cypress, and redwood. Many of these native trees are now less common on California's coast, which may explain why monarchs tend to be seen on eucalyptus.

In the spring, monarchs disperse across California and the West, searching for milkweed plants on which to lay their eggs. Monarch caterpillars will only eat milkweed to grow and develop into adults. Several generations are produced throughout the spring, summer, and fall, with the last generation migrating to the California coast in the fall. Remarkably, monarchs overwinter in the same groves of trees as prior generations. How they navigate to these groves each year remains a mystery.

Monarch nectaring on narrow-leaved milkweed, a key caterpillar host plant in western states. (USFWS Pacific Region.)



The Xerces Society is a nonprofit organization that protects wildlife through conservation of invertebrates and their habitat. To protect western monarchs, the

Xerces Society is working with multiple partners, to:

- ⇒ Understand where monarchs are breeding in the western United States in order to prioritize restoration and active management efforts,
- ⇒ Increase production of native milkweed seed to help reverse loss of milkweed in important monarch breeding areas,
- ⇒ Protect, manage, and restore coastal California overwintering habitat,
- ⇒ Empower citizen scientists and land managers to track and conserve western monarchs and their habitats, and
- ⇒ Provide technical guidance to public and private agencies and citizens on monarch habitat restoration and enhancement.

www.xerces.org/monarchs



The Monarch Joint Venture is a partnership of federal and state agencies, nongovernmental organizations, and academic programs that are taking a science-based approach to protecting the monarch migration across the Lower 48 U.S. states. The MJV is achieving this goal through a combination of: 1) monarch habitat conservation; 2) education; and 3) research and monitoring to inform monarch conservation efforts.

www.monarchjointventure.org



The Pacific Grove Museum of Natural History inspires discovery, wonder, and stewardship of the natural world. The Museum highlights the miraculous life and endangered migration of monarch butterflies throughout the California Central Coast, and provides education and interpretation at the Monarch Grove Sanctuary in downtown Pacific Grove.

www.pgmuseum.org

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Support for the Xerces Society's western monarch conservation projects comes from Xerces Society members as well as Alice C. Tyler Perpetual Trust, Bay and Paul Foundations, Hind Foundation, CS Fund, the Disney Conservation Fund, the Edward Gorey Charitable Trust, Endangered Species Chocolate, Monarch Joint Venture, the Turner Foundation, Inc., and U.S. Fish and Wildlife Service.

(Front photo: The Xerces Society/Carly Voigt.)

WESTERN MONARCHS IN PERIL



Conserving this iconic species

Hundreds of thousands of monarch butterflies spend the winter in tree groves along the coast of California. They travel from as far north as Canada, but with a 74% decline in the numbers since the late 1990s, the future of this migration is at risk.

Read about how you can help!

Monarchs in Decline

The future of the western monarch migration is at risk. Since 1997, citizen scientists have monitored California's overwintering monarchs, revealing a 74% decline in the population since the late 1990s. This underscores the need to gain a clear understanding of the status of monarchs and their habitat, and to take conservation action.

Scientists suspect monarchs are disappearing because:

- ⇒ **Breeding habitat is being lost and degraded** due to herbicides and insecticides, urban and rural development, and the intensification of agriculture, as well as long-term drought, which may be linked to climate change;
- ⇒ **Overwintering groves are being destroyed** by development; and
- ⇒ **The quality of overwintering habitat is declining** as trees in the monarch groves age.



Overwintering cluster in Monterey pine. (The Xerces Society/Candace Fallon.)



Monarch caterpillar on showy milkweed. (The Xerces Society/Candace Fallon.)

Six Things YOU Can Do To Help Protect Western Monarchs and Their Habitat

- 1. Plant native milkweed in its historic range.** This can be in your backyard, at your workplace, or at your school. Nonnative tropical milkweed, although widely available, should not be planted because it may interfere with the monarchs' natural breeding and overwintering cycles and increase monarch parasites. We also recommend against planting milkweed within 5–10 miles of an overwintering site, as it may confuse monarchs into breeding out of season. Use our Milkweed Seed Finder to find plant suppliers: <http://www.xerces.org/milkweed-seed-finder/>.
- 2. Plant native flowers.** Monarchs need nectar to provide energy to migrate, breed, and overwinter. Flowers can be planted anywhere, including overwintering sites. See <http://www.xerces.org/monarch-nectar-plants/> for lists of good flowers to use in your area.
- 3. Avoid using insecticides and herbicides.** These may kill or harm butterflies or caterpillars and the plants that monarchs use for nectar or breeding.
- 4. Consult with a monarch expert before cutting or trimming any trees,** if you live near an overwintering site or monarchs roost on your property. Monarchs are very choosy about the overwintering sites they use. Improper tree trimming or removal may result in unsuitable habitat for overwintering monarchs.
- 5. Become a citizen monitor.** The Xerces Society is looking for volunteers to:
 - visit overwintering sites to monitor monarch populations for the Western Monarch Thanksgiving Count, www.westernmonarchcount.org; and
 - report monarch and milkweed observations across the West through the Western Monarch Milkweed Mapper, www.westernmonarchmapper.org.
- 6. Support monarch conservation efforts.** Volunteer for or donate money to projects and nonprofit organizations that protect monarchs.

Unit 4: The Power of Pollinators

WEEK 7 Day 2

Writing Argument

Individual Construction

Content Objective	I can write an effective argument. (W.3.2, W.2, W.1.2.a, W.1.2.b)
Language Objectives	I can write using English conventions. (L.1) I can use adjectives to strengthen my argument. (L.1.2.b)
Vocabulary	adjective: a word or phrase used to describe a person, place, thing, or idea argument: a genre of writing whose purpose is to convince someone to do something or about something medium: a form of communication
Materials and Preparation	<ul style="list-style-type: none">● Shades of Meaning sheets, from Day 1● writing tools● children’s writing● writing paper aligned with children’s choice of media: notebooks, brochure pages, blank paper, etc.● Thesis chart, from Week 5, Day 5● Reasons chart, from Week 6, Day 1● copies of children’s Gathering Evidence sheets, from Week 6, Day 2● Argument Planners, from Week 6, Day 3● research materials, from Week 6, Day 2● Argument Observation Tools, from Week 5, Day 5● argument mentor texts, for children’s reference● media mentor texts, for children’s reference● Argument Letter slides, from Unit 1, Week 6, Day 4, for children’s reference (parts of a letter on slide 15)
Opening 5 minutes	<i>Today you will continue writing your arguments. People who are writing in the same medium can sit together to help each other.</i> <i>Yesterday we discussed using adjectives to strengthen arguments.</i>

Writing U4 W7 D2

	<p><i>Before you continue writing today, take a look at your writing. Underline all of the adjectives. You might not have used any adjectives yet; in that case, you'll need to revise to include some. If you would like to replace an adjective with one that is stronger or weaker, you can use a Shades of Meaning sheet to help you think about that.</i></p>
<p>Individual Construction 15 minutes</p>	<p>Send children to write. As they write, circulate to support their work and provide resources, as needed for individuals and groups. Guide children to include the aspects of argument outlined on the Argument Observation Tool.</p>
<p>Closing 10 minutes</p>	<p>Bring the class back together. Use the Thinking and Feedback protocol for a challenge one child is facing. Record suggestions on sticky notes to place in the child's writing folder.</p> <p><i>Tomorrow you will continue writing your arguments.</i> Have the children put away their papers in their writing folders.</p> <p>After the lesson, review the Argument Observation Tools. Note any emerging trends. Plan for individual, small group, and/or whole group instruction based on these needs, following the guidance outlined in Days 3-4.</p>
<p>Standards</p>	<p>W.3.2 Use a combination of drawing and writing to communicate a topic with a beginning, middle (including details), and an end.</p> <p>W.2 Develop, strengthen, and produce polished writing by using a collaborative process that includes the age-appropriate use of technology.</p> <p>W.1.2.a Investigate questions by participating in shared research and writing projects.</p> <p>W.1.2.b Gather information from provided sources and/or recall information from experiences in order to answer questions.</p> <p>L.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <p>L.1.2.b Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, fish).</p> <p>L.2.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades.</p>
<p>Ongoing assessment</p>	<p>During the lesson, use the Argument Observation Tool to assess the children's individual writing. Consider how groups of children working in a shared medium support one another.</p>

Unit 4: The Power of Pollinators

WEEK 7 Days 3-4

During Days 3-4 children continue to write independently and to receive feedback on their work using Thinking and Feedback (see Day 2 for a detailed lesson). In addition, children's writing is assessed using the Argument Observation Tool, and individual/small group/whole group lessons are added in response to children's needs.

Preparation:

Review each child's Argument Observation Tool. Note any trends that are emerging. Plan for individual, small group, or whole group instruction based on these needs. Areas of need may include, but are not limited to, the following.

Writing Argument: (see the attached lessons for recommendations)

- thesis
- reasons and evidence
- reinforcement of the thesis
- adjectives

Conventions: (no suggested lessons included)

- writing and expanding complete sentences
- capitalization
- end punctuation, commas, and apostrophes
- applying rules and strategies taught in phonics lessons

Writing Behaviors: (no suggested lessons included)

- using spelling strategies, such as chunking and writing word parts
- using resources such as texts, environmental print, and phonics materials for spelling
- re-reading own writing

Use the following sheet to plan instruction for Days 3-4. Make additional copies as necessary to plan for multiple individual or small group lessons.

Day 3

Target Students (individual, small group, or whole group?):

Topic:

Day 4

Target Students (individual, small group, or whole group?):

Topic:

Writing Argument

Deconstruction and Revision: Thesis

Materials:

- Argument anchor chart
- argument mentor text: Argument Stages slides, from Week 5, Day 2; another mentor text; or a child's writing with a strong thesis
- Thesis chart, from Week 5, Day 5

Process (small or whole group):

- Review the stages of argument using the Argument anchor chart.
- Remind children that a thesis is written at the beginning of an argument to state what the writer is trying to get the audience to do.
- Review the thesis in the mentor text.
- Ask children to identify what their arguments are about and what they are trying to convince their audiences to do. Refer to the Thesis chart for ideas.
- Have children orally rehearse their thesis statements. Provide them with feedback about the thesis statements, based on their audience of community gardeners.

Writing Argument

Deconstruction and Revision: Reasons and Evidence

Materials:

- Argument anchor chart
- argument mentor text: Argument Stages slides, from Week 5, Day 2; another mentor text; or a child's writing with strong reasons and evidence
- research materials, from Week 6, Day 2

Process (small or whole group):

- Review the stages of argument using the Argument anchor chart.
- Remind children that writers use reasons and evidence to support their thesis statements.
- Review the reasons and evidence in the mentor text. Discuss how these reasons and evidence support the thesis and appeal to the audience.
- Depending on children's needs, guide them to
 - generate more reasons and evidence, based on the research articles and/or charts;
 - revise their reasons and evidence to appeal better to their audience; or
 - revise their reasons and evidence to better support their thesis statements.
- Support children as they revise and/or write their reasons and evidence.

Writing Argument

Deconstruction and Revision: Reinforcement of the Thesis

Materials:

- Argument anchor chart
- argument mentor text: Argument Stages slides, from Week 5, Day 2; another mentor text; or a child's writing with a strong reinforcement of the thesis

Process (small or whole group):

- Review the stages of argument using the Argument anchor chart.
- Remind children that reinforcement of the thesis is written at the end of an argument, and that it repeats the thesis, in a new way.
- Review the thesis and reinforcement of the thesis in the mentor text.
- Have the children reread their own thesis statements. Then, have them orally rehearse a reinforcement of the thesis, which repeats the thesis, in a new way.
- Guide them to add/revise the reinforcement of the thesis in their own arguments.

Writing Argument

Deconstruction and Revision: Adjectives

Materials:

- Argument anchor chart
- Argument Adjectives chart, from Day 1
- Shades of Meaning sheets, from Day 1

Process (small or whole group):

- Review the Language section of the Argument anchor chart and discuss how adjectives strengthen an argument.
- Review the positive and negative adjectives on the Argument Adjectives chart.
- Refer to the Shades of Meaning sheets. Remind children that writers choose the intensity of their adjectives based on their audience and the argument they are making. (Note that the strongest adjective is not always the most effective.)
- Have the children go back to their argument letters to underline where they mention pollinators or plants. Refer them back to the collection of adjectives on the Argument Adjectives chart, and guide them to include two or more adjectives to strengthen their arguments.

Unit 4: The Power of Pollinators

WEEK 7 Day 5

Writing Argument
Peer-to-Peer Feedback

Content Objective	I can use feedback to plan next steps for revising. (W.2.2.a, W.3.2, W.4)
Language Objective	I can ask my partner questions to understand their writing choices and answer questions about my own writing choices. (SL.2.2.b)
Vocabulary	appeal: to be interesting argument: a genre of writing whose purpose is to convince someone to do something or about something audience: an individual or group for whom a piece of writing is composed feedback: specific, helpful suggestions given to improve work stages: the parts of a piece of writing
Materials and Preparation	Plan for pairs of children to provide feedback to each other. <ul style="list-style-type: none">● writing tools● Argument Feedback packet, one for each child● writing folders, including children’s arguments
Opening 5 minutes	<p><i>Today you will review and provide feedback to each other about your arguments, making sure that they include all of the stages, and that they appeal to your audience: community gardeners.</i></p> <p>Introduce the Argument Feedback packet.</p> <p><i>Partner 1 will read their work, section by section, pausing for Partner 2 to record feedback. Then Partner 2 will read their work, section by section, pausing for Partner 1 to record feedback. Then both partners will discuss the feedback they gave each other, with a chance to ask each other questions. Finally, both partners will set their own next steps, based on the feedback they received.</i></p>

Peer-to-Peer Feedback 20 minutes	Circulate to support pairs as they share work, provide feedback, and plan for next steps. Select one child to share the feedback they received, along with their next steps.
Closing 5 minutes	Bring the class back to the whole group. Have the selected child share the feedback received, along with their plan for revision. Ask probing questions to elicit why the child chose to incorporate those specific areas of feedback. <i>Today you received feedback on your writing. Next week you will revise and publish your arguments.</i>
Standards	W.3.2 Use a combination of drawing and writing to communicate a topic with a beginning, middle (including details), and an end. W.2 Develop, strengthen, and produce polished writing by using a collaborative process that includes the age-appropriate use of technology. W.2.2.a With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. SL.2.2.b Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
Ongoing assessment	Collect the Argument Feedback packets and children’s folders. What feedback are children given? Does it match your assessment? What next steps do children set for themselves and each other? Are there any trends emerging?

Notes

Date: _____

Argument Feedback

Writer's Name: _____

Reviewer's Name: _____

Thesis

states what the writer is convincing the audience **to do**

Yes	Not Yet
Feedback:	

appeals to the audience

Yes	Not Yet
Feedback:	

Reasons

support the thesis

Yes	Not Yet
Feedback:	

appeal to the audience

Yes	Not Yet
Feedback:	

Evidence

supports the reasons

Yes	Not Yet
Feedback:	

appeals to the audience

Yes	Not Yet
Feedback:	

Reinforcement of the Thesis

repeats the thesis **in a new way**

Yes	Not Yet
Feedback:	

appeals to the audience

Yes	Not Yet
Feedback:	

Writer's Next Steps:

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