



## **Philbrick School/Boston Nature Center Partnership**

### **Grade 2**

### **Plants**

#### **Summary**

During this integrated science and literacy unit, students start and care for a variety of vegetables and flowers in the schoolyard, including lettuce, peas, daffodils, and marigolds. They observe plants growing in other places, such as the Clark-Cooper Community Gardens, Drumlin Farm, and City Farm Nursery. While students tend the garden, they do close observation and make accurate descriptions using drawing and writing. Students also read books about plants and gardens. In the science classroom, students do the New Plants unit, in which they grow a variety of different kinds of plants with a focus on plant structure and propagation.

The culminating project is a writing piece about gardening which synthesizes students' experiences and knowledge. At a harvest party, students share their writing with families while eating some of the vegetables they grew. Students carry their enthusiasm for hands-on, minds-on experiences in the science classroom and the garden into the literacy component, and both science and literacy curricula are enhanced.

FOSS New Plants unit overview is attached.

#### **Guiding Questions**

- What do plants need?
- How do we grow and care for plants?
- What is the life cycle of a plant?
- How do we use plants?

# Objectives

## Massachusetts Science and Technology/Engineering Standards, Grades PreK-2

### *Life Science*

1. Recognize that animals (including humans) and plants are living things that grow, reproduce, and need food, air, and water.
3. Recognize that plants and animals have life cycles, and that life cycles vary for different living things.
4. Describe ways in which many plants and animals closely resemble their parents in observed appearance.
7. Recognize changes in appearance that animals and plants go through as the seasons change.

### **Additional Science Objectives**

- Label and describe the structures and functions of flowering plants (root, stem, leaf, bud, flower, seed).
- Observe and describe changes in appearance that plants go through as they grow.
- Organize and communicate observations through drawing and writing.

## Massachusetts English Language Arts and Literacy Standards, Grade 2

### *Reading – Literature – Key Ideas and Details*

2. Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.

### *Reading – Informational Text – Key Ideas and Details*

1. Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

### *Reading – Informational Text – Craft and Structure*

4. Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*.
5. Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

### *Writing – Text Types and Purposes*

2. Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
3. Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

### *Writing – Production and Distribution of Writing*

5. With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.

### *Speaking and Listening – Presentation of Knowledge and Ideas*

4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

### *Language – Conventions of Standard English*

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

## **Additional English Language Arts Objective**

- Tailor writing to a specific audience (e.g., magazine reader, letter recipient, someone seeking how-to information).

# Scope and Sequence

## September

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
<p>What is the life cycle of a plant?</p> <p>How do we use plants?</p>	<p>As plants grow, they develop roots, stems, leaves, buds, flowers, and seeds in a sequence called a life cycle.</p> <p>Bees and other insects help some plants by moving pollen from flower to flower.</p> <p>We eat vegetables because they are delicious and healthy.</p> <p>We use herbs to flavor food.</p> <p>We grow flowers because they are pretty and attract pollinators.</p>	<p>Journal pre-assessment</p> <p>Observing schoolyard plants in the fall</p> <p>Fall field trip to BNC</p>	

## October

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
<p>What is the life cycle of a plant?</p> <p>How do we use plants?</p>	<p>Bulbs are alive and need water to start growing.</p> <p>We grow flowers because they are pretty and attract pollinators.</p>	<p>Fall bulbs</p> <p>Read about habitats and how animals survive</p>	<p><u>Unit 2: Exploration</u></p> <p>Week 3: What can we discover by exploring nature?</p> <p>Week 4: What can we learn by exploring the desert?</p>

## November

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
What is the life cycle of a plant?	<p>As plants grow, they develop roots, stems, leaves, buds, flowers, and seeds in a sequence called a life cycle.</p> <p>We put dead plants in the compost so they turn into nutrient-rich soil.</p>	<p>Fall garden cleanup</p> <p>Outdoor compost bin</p>	

## January

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
What do plants need?	<p>We put dead plants and food leftovers in the compost so they turn into nutrient-rich soil.</p> <p>Worms need food, water, air, and space.</p> <p>Worms turn dead plants and food leftovers into nutrient-rich soil.</p>	<p>Indoor compost bin</p> <p>Read about George Washington Carver and the many uses for plants like corn and peanuts</p>	<p><u>Unit 3: Creative Ideas</u></p> <p>Week 5: Where do creative ideas come from?</p>

## February

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
<p>What do plants need?</p> <p>How do we grow and care for plants?</p> <p>What is the life cycle of a plant?</p> <p>How do we use plants?</p>	<p>Bulbs are alive and need water to start growing.</p> <p>Plants need water, air, nutrients, and light to grow and develop.</p> <p>We grow flowers because they are pretty and attract pollinators.</p>	<p>Winter bulbs</p> <p>Read about plant life cycles</p> <p>Read about animal life cycles</p>	<p><u>Unit 4: Our Changing World</u></p> <p>Week 2: How do plants change as they grow?</p> <p>Week 3: How do animals change as they grow?</p>

## March

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
<p>What do plants need?</p> <p>How do we grow and care for plants?</p> <p>What is the life cycle of a plant?</p> <p>How do we use plants?</p>	<p>Seeds are alive and grow into new plants when they get water and light.</p> <p>We can grow vegetables that mature quickly and don't mind cool weather.</p> <p>Some vegetables and plants can be planted outdoors in cool weather. Others need to be started indoors and transplanted.</p> <p>Plants need water, air, nutrients, and light to grow and develop.</p> <p>As plants grow, they develop roots, stems, leaves, buds, flowers, and seeds in a sequence called a life cycle.</p>	<p>FOSS: Brassica Seeds</p> <p>Grade 4 students share nonfiction writing as a model for Grade 2 Garden Book</p> <p>Early March: Choosing garden plants</p> <p>Early March: Observing schoolyard plants in the winter</p> <p>Mid-March: Planting seeds indoors</p> <p>Late March: Planting seeds outdoors</p>	

## April

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
<p>What do plants need?</p> <p>How do we grow and care for plants?</p> <p>What is the life cycle of a plant?</p> <p>How do we use plants?</p>	<p>Seeds are alive and grow into new plants when they get water and light.</p> <p>Some vegetables and plants can be planted outdoors in cool weather. Others need to be started indoors and transplanted.</p> <p>Plants need water, air, nutrients, and light to grow and develop.</p> <p>As plants grow, they develop roots, stems, leaves, buds, flowers, and seeds in a sequence called a life cycle.</p> <p>Plants have different structures that function in growth and survival.</p> <p>Wheat and other cereals that we eat come from seeds called grains.</p>	<p>FOSS: Grass and Grain Seeds</p> <p>Observing and recording indoor and outdoor plant growth</p> <p>Thinning seedlings</p> <p>Transplanting seedlings</p> <p>City Farm Nursery Field Trip</p>	

## May

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
<p>What do plants need?</p> <p>How do we grow and care for plants?</p> <p>What is the life cycle of a plant?</p> <p>How do we use plants?</p>	<p>Plants need water, air, nutrients, and light to grow and develop.</p> <p>As plants grow, they develop roots, stems, leaves, buds, flowers, and seeds in a sequence called a life cycle.</p> <p>Bees and other insects help some plants by moving pollen from flower to flower.</p> <p>Plants have different structures that function in growth and survival.</p> <p>New plants can grow from stems of mature plants.</p> <p>Bulbs are alive and need water to start growing.</p> <p>Parts of roots will grow into new plants.</p>	<p>FOSS: Stems</p> <p>FOSS: Bulbs and Roots</p> <p>Observing and recording indoor and outdoor plant growth</p> <p>Transplanting seedlings</p> <p>Starting Garden Book</p> <p>Spring BNC field trip</p> <p>Drumlin Farm field trip</p> <p>Adding worm compost to plants in garden</p>	



## June

Guiding Questions	Essential Content	Experiences and Activities	Reading Street Connections
What do plants need?  How do we grow and care for plants?  What is the life cycle of a plant?  How do we use plants?	As plants grow, they develop roots, stems, leaves, buds, flowers, and seeds in a sequence called a life cycle.  We eat vegetables because they are delicious and healthy.	Finishing Garden Book  Harvesting vegetables and herbs  Harvest Celebration with families  Recording fruit and vegetable consumption  Planting fall vegetables  Journal post-assessment	

Science specialist's FOSS New Plants unit plan is attached.

# Lesson Plans

- Journal Pre- and Post-assessment
- Observing Schoolyard Plants in the Fall
- Fall BNC Field Trip: Observing Garden Plants and Animals
- Fall Bulbs
- Fall Garden Cleanup
- Outdoor Compost Bin
- Indoor Compost Bin
- Winter Bulbs
- Choosing Garden Plants
- Observing Schoolyard Plants in Late Winter
- Planting Seeds Indoors
- Planting Seeds Outdoors
- City Farm Nursery Field Trip
- Writing Garden Book
- Drumlin Farm Field Trip
- Harvesting Vegetables and Herbs
- Planting Fall Vegetables

# **Assessment**

## **Science Assessment**

FOSS New Plants unit assessment is attached.

## **Journal Assessment**

BNC journal rubric and student-friendly journal learning targets are attached.

## **Garden Book Assessment**

Grade 2 writing rubric is attached.

# Resources

## Topic List

- How to
- Personal narrative
- Informational
  - The life cycle of one plant/vegetable
  - Annotated garden maps and drawings
  - Where food comes from
  - Advice for next year's students (letter)
- Persuasive essay
  - Why gardens are important

## Books

Plant-related guided reading books are in book room – sign them out during the winter unit.

FOSS New Plants unit bibliography is attached.

## Science Vocabulary

Alfalfa	Daffodil	Harvest	Onion	Seedpod
Alive	Dead	Journal	Paper white	Soil
Brassica	Different	Kale	Peas	Sprout
Broccoli	Farm	Lawn	Peat moss	Stem
Bud	Fertilizer	Leaf	Plant	Structure
Bulb	Flower	Lettuce	Pollen	Thin
Calendar	Garden	Light	Potato eye	Transplant
Carrot	Garlic	Manure	Radish	Vermiculite
Change	Germination	Mold	Root	Water
Community garden	Grain	Mow	Rye grass	Wheat
Compost	Grass	Node	Same	
Cutting	Grow	Nursery	Seed	
	Growlight	Nutrients	Seedling	

## **ELA Vocabulary**

Audience  
Bold print  
Caption  
Conclusion  
Electronic  
menu  
Glossary  
How to  
Icon  
Index  
Informational  
Key fact  
Main topic  
Persuasive  
Subheading

## **Reading Street Vocabulary**

Unit 2, Week 3

<i>detective</i>	<i>identify</i>	<i>underneath</i>
<i>fascinating</i>	<i>slimy</i>	<i>wildlife</i>
<i>galaxy</i>	<i>tranquil</i>	

Unit 2, Week 4

<i>arid</i>	<i>forbidding</i>	<i>ledge</i>
<i>discovery</i>	<i>haven</i>	<i>precipitation</i>
<i>dunes</i>	<i>landform</i>	

Unit 3, Week 5

<i>accomplish</i>	<i>original</i>	<i>scientist</i>
<i>excel</i>	<i>process</i>	<i>unusual</i>
<i>opportunity</i>	<i>research</i>	

Unit 4, Week 2

<i>adapt</i>	<i>bury</i>	<i>sprout</i>
<i>ancient</i>	<i>massive</i>	<i>undisturbed</i>
<i>annual</i>	<i>nutrients</i>	

Unit 4, Week 3

<i>appearance</i>	<i>forepaw</i>	<i>stage</i>
<i>canopy</i>	<i>pursue</i>	<i>transform</i>
<i>forage</i>	<i>restless</i>	