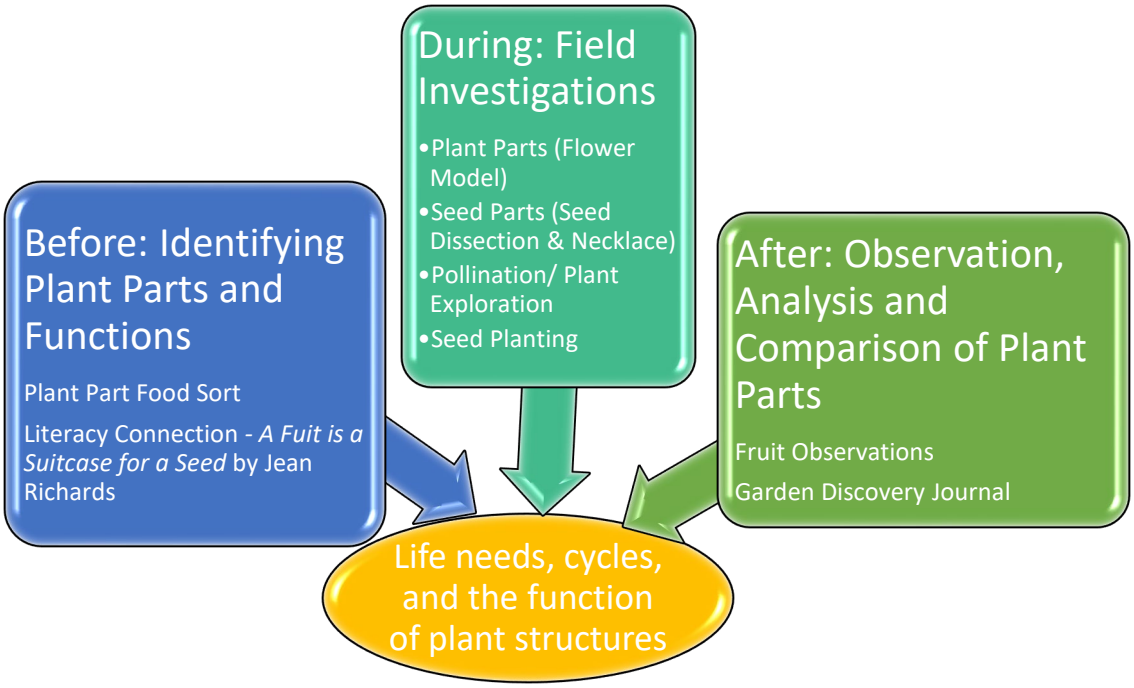
LET'S SPROUT



Your students will be visiting Blandy to engage in a field investigation focused on plant life needs, life cycles, and the function of plant structures.

To enhance classroom connections, we have developed lesson clusters. **Field investigations** are more meaningful to students when they are integrated into their curriculum. This lesson cluster can be used to introduce and/or review and synthesize for a systems approach and increase depth of knowledge about plants. **Before-visit activities** introduce students to plant parts, the function of plant parts, and the different plant parts we eat. There is a focus on sorting and very basic classification. With the **after-visit activities**, students delve more deeply into observing, investigating and understanding the function of plant parts. They will be fine-tuning their observational skills and recording data on different fruits.

LET'S SPROUT

BEFORE: Plant Parts On Your Plate

Before your visit, introduce students to the basic plant parts (root, stem, leaves, and flower). Students watch a video reviewing the different plant parts we eat. Students classify vegetable/ fruit images from magazines according to the plant part that is pictured. Students then explain their sorts to each other.

Standards Addressed:

Science (2018): K.1c; 1.4; 2.8

Math (2025): K.PS.1a; 1.PS.1a

Materials

- 5-6 magazines with various fruits and vegetables pictured throughout
- Photo of pea plants and catmint plants. (*Appendix* A - Catmint and Pea Plant Photos)
- Access to the following YouTube video - *Food Wise Kids: What Plant Parts Do We Eat?* https://youtu.be/eBSAb24QpcY
- Scissors (1 per student)
- Glue sticks (1 per student)
- Large sheets of white paper; about 18"x 24" or larger (5-6 sheets)
  - Four sections drawn on the paper
  - Title written on the paper: *Plant Parts We Eat*
  - Sections labeled: Roots, Stems, Leaves, Flowers

  Example:

Plant Parts We Eat

Roots	**S**tems
Leaves	**F**lowers

Lesson Preparation

1. Collect magazines.
2. Label and write the title on the papers if students will not be doing this.
- Make sure the class has access to the YouTube video: *Food Wise Kids: What Plant Parts Do We Eat?* https://youtu.be/eBSAb24QpcY
3. Group students into teams of 4-5.
4. Distribute scissors, glue sticks, magazines and paper to student groups (This can be done after the video.)

LET'S SPROUT

Instructional Strategy

1. **Introduction**
   The instructor will derive prior knowledge from students by asking them what plant parts they recognize in the photos of the pea plants and catmint plants. (leaves, stems, roots, flowers) (Optional question: Are there any parts not visible or missing?)
2. **Lesson Body**
   - Students will watch the video: *Food Wise Kids: What Plant Parts Do We Eat?* https://youtu.be/eBSAb24QpcY
   - Students will work in small groups to cut out photos of fruits and vegetables from magazines and glue them into the correct plant part section of their chart.
   - Students will share their charts with another group discussing why they sorted the fruits and vegetables the way they did.
3. **Lesson Closing**
   - The instructor will lead the final discussion.

   Optional Question prompts:

- *What is your favorite plant part to eat?* (Students are encouraged to state the part of the plant they enjoy eating and the specific fruit or vegetable. For example: "Leaves are my favorite plant part because my favorite vegetable is spinach.")
- *What plant parts do wild and domesticated (farm) animals eat?* (Possible answers: cottontail rabbits eat clover leaves and flowers; cows eat grass leaves; bees drink flower nectar and eat flower pollen; squirrels eat tree nuts/seeds, etc.)

LET'S SPROUT

BEFORE: Suitcase for Seeds (Part 1 – Read Aloud)

A Fruit is a Suitcase for Seeds by Jean Richards is read aloud and discussed.

Standards Addressed:

Science (2018) K.7; 1.4; 2.4

Language Arts (2024) K.RI.1; K.RV.1; 1.RI.1; 1.RV.1; 2.RI.1; 2.RV.1

Materials

- *A Fruit is a Suitcase for Seeds* by Jean Richards (Hard copy of book or access to the YouTube video.)

Procedures

1. **Lesson Introduction**
   Optional opening question prompts:
- Have you ever seen the inside of a pumpkin or watermelon before? If a pumpkin or watermelon were cut open, what would you observe inside? (Possible responses: "guts", flesh, water, juice, **seeds)**
- What is a suitcase? (Possible response: A closed case/ bag with a handle used for carrying clothes and other items.)
- Pumpkins and watermelons are suitcases for seeds. Why is that a good name for them? (Possible response: Suitcases carry things inside of them and watermelon/ pumpkins carry seeds.)

2. **Lesson Body**
   A Fruit is a Suitcase for Seeds by Jean Richards is read aloud by the teacher or at the following YouTube address: https://youtu.be/Ku8UHAZvg1k
3. **Lesson Closing**
   - The instructor will lead a whole-group discussion.

   Optional question prompts after the book is read aloud:
- Why do plants make fruit? (Possible responses: Fruit protects the seed(s)/ baby plants; Fruits are eaten by animals; this helps to spread the seeds to other locations in animal droppings.)
- What will the seed need to grow into a plant? (Possible response: Seeds need water, oxygen, and the proper temperature to germinate/ begin to grow.)

LET'S SPROUT

DURING: Field Investigation

Virginia SOL addressed:

Science (2018): K.1, K.3, K.5, K.6, K.7; 1.1, 1.4, 1.7; 2.1, 2.4, 2.5, 2.8

Math (2023): K.NS.1, K.PFA.1(A), K.PS.1(A,); 1.NS.1(A), 1.PFA.1(A), 1.PS.1(A); 2.NS.1(J), 2.PFA.1 (A), 2.PS.1 (C)

English (2024): K.C.2(A,C), K.FFW.1(A,B,C,D), K.LU.1(A,C), K.R.1(C,D), K.DSR.1** ; 1.C.2(C), 1.FFW.1(A,B), 1.LU.1(A,D), 1.R.1(D,E); 2.LU.1(A), 2.R.1(E)

****=** only with book read-aloud teacher-led activity

During your field investigation at Blandy, students explore and observe plants and their habitats at the Arboretum to learn that plants go through a life cycle, have life needs, and display similar parts. Students learn how to care for plants when they are seeds and as they become young plants (students plant seeds at Blandy to take home).

Below is an overview of the "standard" program activities to assist you with integrating this field experience into the classroom experiences. This is subject to change due to weather, the volume of students, or communication with environmental educators.

- **Plant Parts (Flower Model):** Using the Fred the Flower model, review the parts of the plant (roots, stem, leaves, flower) and the function of each. Students role-play the process of germination through song and pantomime.
- **Seed Parts (Seed Dissection and Seed Necklace):** Using a felt seed model, students review the parts of the seed and the function of each part. Students dissect and observe seeds using hand lenses. Each student also creates a "seed necklace" to observe the germination of their very own seed in a small plastic bag.
- **Field Investigation: Plant Exploration:** Students observe and draw plants. They label the parts of their plants and discuss the details they noticed during their observations.
- **Seed Planting:** Students plant seeds in soil and discuss proper plant care. Teachers have the option to read and discuss the book *Jack's Garden* by Henry Cole.

LET'S SPROUT

AFTER: Suitcase for Seeds (Part 2)

This lesson is completed after A Fruit is a Suitcase for Seeds by Jean Richards is read aloud and discussed.

Students observe the outside and inside of a fruit and draw a "fruit suitcase". A piece of paper is folded in half like a card. On the front of the card, students draw the outside of a fruit. On the inside of the card, students draw the inside of the fruit. Optional: Students can write a description of the inside and outside of the fruit under each of their drawings. The following is a photo of a completed "fruit suitcase" activity. (Appendix B- Fruit Suitcase- Activity Example)

Virginia SOLs Addressed:

Science (2018): K.1b, K3, K5; 1.1b; 2.1b

Materials

- Fruit cut in half (Fruit must contain seeds that are visible inside) – 1 per small group of 3-4 students
  - Possible fruits to use include apples, oranges, kiwis, bell peppers, cucumbers, and figs.
- White paper (8.5" x 11") – 1 per student
- Pencils – (1 per student)
- Colored pencils and/or crayons
- Magnifying lenses (optional)

Lesson Preparation

1. Cut fruit in half.
2. Group students into teams of 3-4.
5. Distribute paper, pencils, fruit halves, crayons, and colored pencils. (This can be done after the introduction.)

Procedures

1. **Lesson Introduction**

As a class, discuss why a fruit is a suitcase for a seed.

Optional question prompt:

- Pumpkins and watermelons are suitcases for seeds. Why is that a good name for them? (Possible response: Suitcases carry things inside of them and watermelon/ pumpkins carry seeds.)

2. Lesson Body

- The instructor will explain that students will be observing and drawing fruit suitcases today.
- Each student will fold a piece of white paper in half like a card.
- The students will draw and color the outside of the fruit they are observing on the front of the card.
- The students will draw and color the inside of the fruit on the inside of the card.

- Optional: Students write a description of the inside and outside of the fruit under each of their drawings.
  NOTE: If different student groups observe different fruits, students may want to visit the other fruits and look at what their classmates drew.

3. Lesson Closing

The instructor will lead a whole-group discussion.
Optional question prompts:

- Using your sense of sight, touch, and smell, how would you describe:
  - The outside of your fruit?
  - The inside of your fruit?
- How many seeds were inside your fruit and what did they look like, feel like, and/or smell like?
- Share any interesting observations you made while drawing your fruit.

AFTER: Plant Heroes Journal

NOTE: There are English and Spanish versions of the journal.

Students record observations of school yard plant in a field notebook. Students are reminded to use their senses of sight, hearing, touch, and smell as they make their observations.
English version:
https://plantheroes.wpenginepowered.com/wp-content/uploads/2023/05/Garden-Disc-Journal_REV2_ENG.pdf
Spanish version:
https://plantheroes.org/wp-content/uploads/2023/05/Garden-Disc-Journal_REV2_SPA.pdf

Virginia SOLs Addressed:

Science (2018): K.1b, K3, K5; 1.1b; 2.1b

English (2024): K.W.1B; 1.W.1B

Materials

- Plant Hero *Garden Discovery* Journals – 1 per student (Appendix C- Garden Discovery Journal)
- Pencils – 1 per student
- Crayons/ colored pencils (optional)
- Rulers (optional)
- Magnifying lenses (optional)

Lesson Preparation

1. Print and construct journals.
2. Visit outdoor space being used and confirm that it is a safe place for a lesson. (Check for insect nests, low/ dangling branches, large holes in the ground, uneven terrain etc.)

3. Distribute journals, pencils, and other supplies.

Procedures

1. **Lesson Introduction**
   - The teacher will introduce the nature journals.
     Optional introduction: *Botanists, scientists who study plants, use nature journals to record observations. They call them field notebooks. Today you will use your very own nature journal or field notebook to write or draw your observations.*
   - The teacher will explain to the students the page(s) of the notebook they will be completing today.
2. **Lesson Body**
   - Students are encouraged to use their senses of sight, hearing, touch, and smell as they write in their journals.
   - Distribute journals and materials.
   - The teacher will indicate safe schoolyard boundaries for students to journal within, and students will complete their journal page(s) at this time.
3. **Lesson Closing**
   - Students will be provided with an opportunity to share their completed journal entries with their classmates.

NOTE: The teacher will decide what journal pages to complete and whether students will complete the notebook over days/ weeks.

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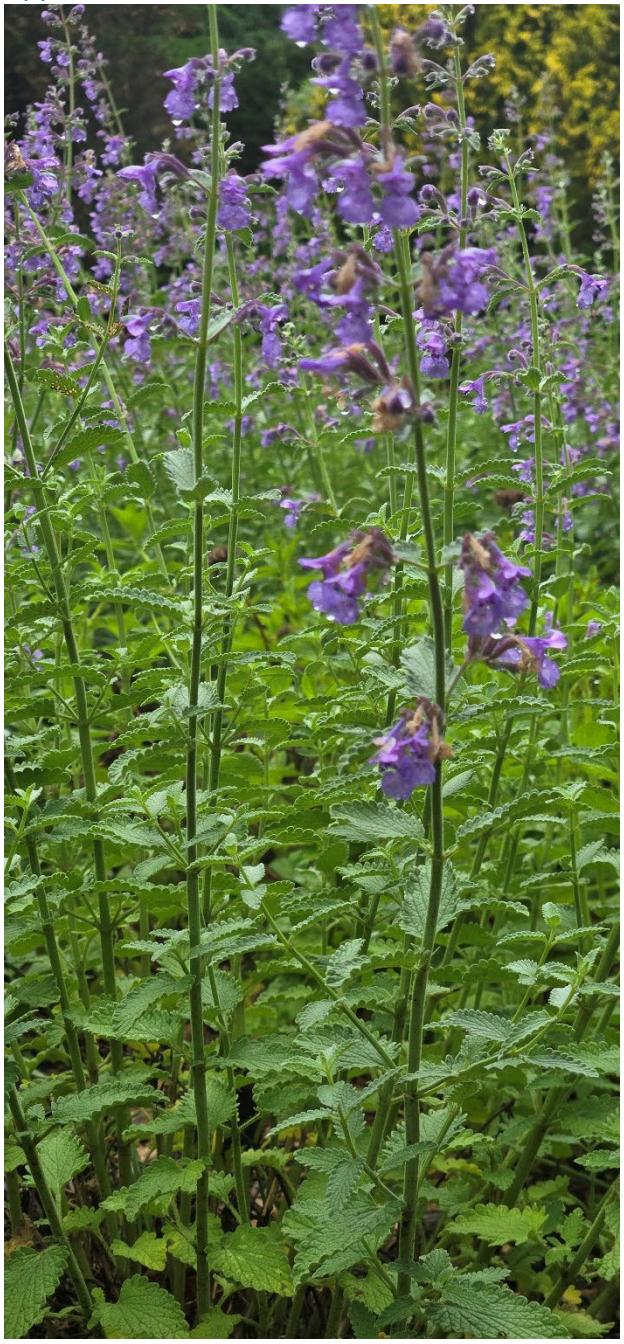
Appendix A - Catmint and Pea Plant Photos



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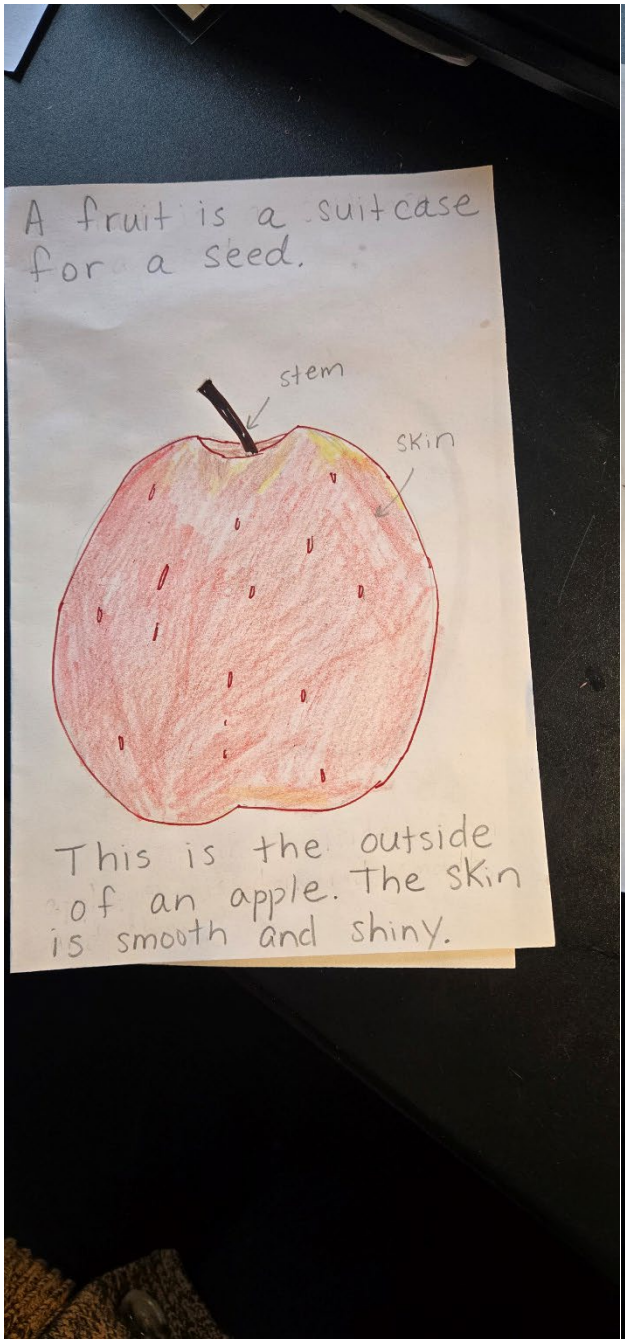
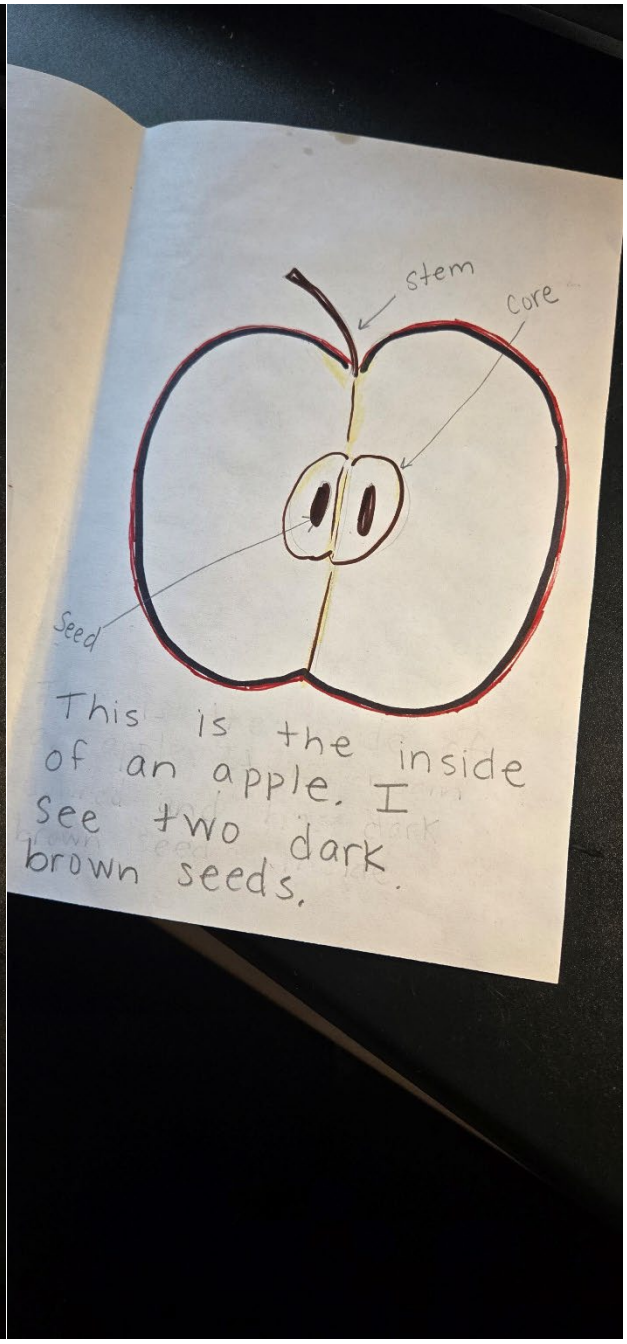
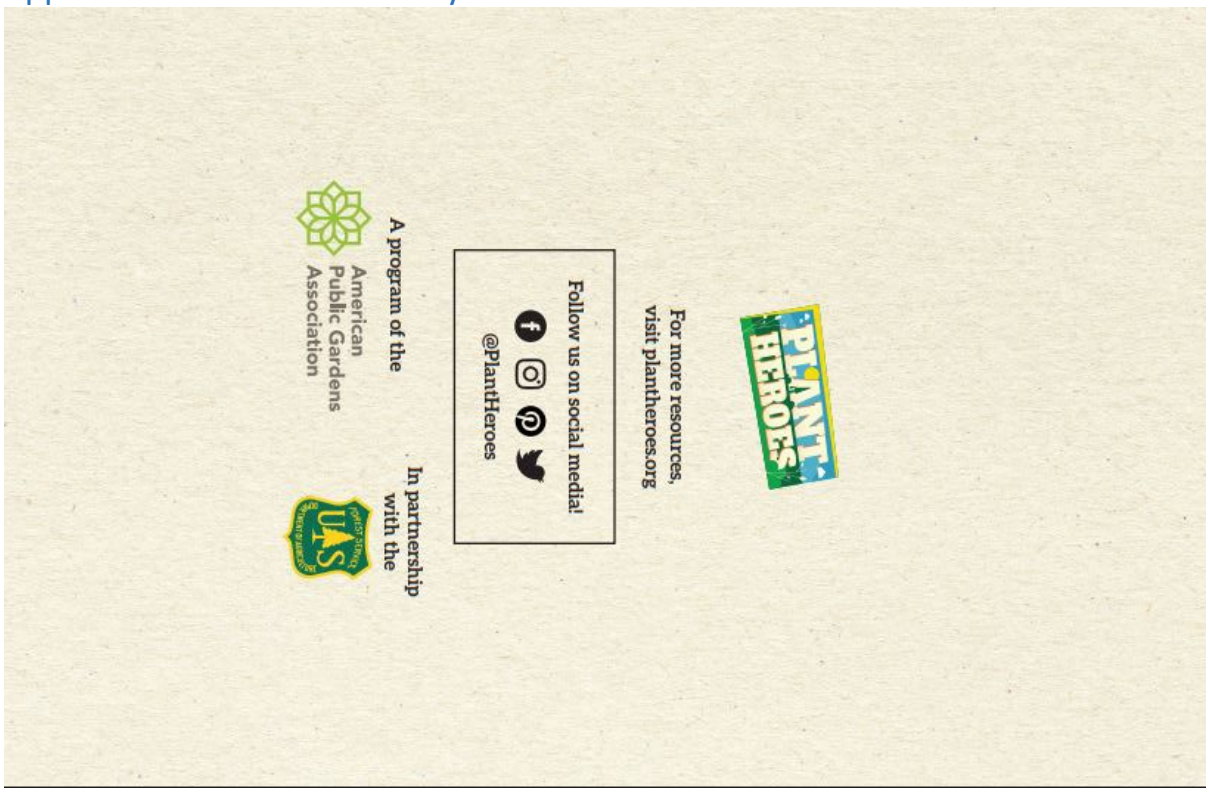
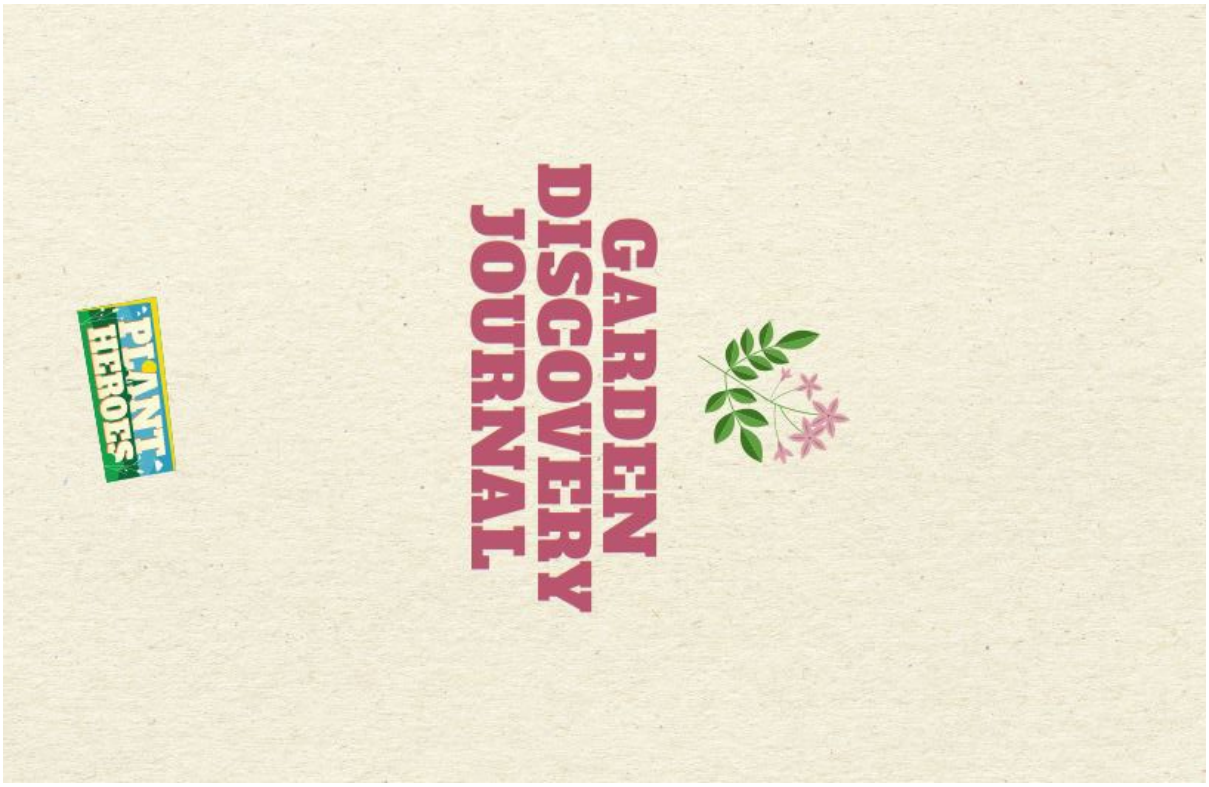
Appendix B- Fruit Suitcase- Activity Example





Appendix C- Garden Discovery Journal





Name:

Date:

Time of day:

Describe the location:

Temperature:

Weather observations:

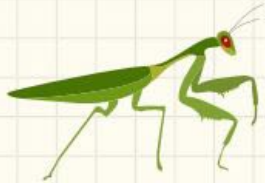
NATURE JOURNALING

Nature journals are a place to write and draw your observations and feelings about your experiences in nature. You can include sketches of plants and animals, questions you have, poems, and more in a journal.

Use this journal to record your garden discoveries. Remember to use your sense of sight, hearing, touch, and smell as you journal.

DID YOU KNOW?

Botanists, scientists who study plants, use nature journals to record their important discoveries. They call them field notebooks. These notebooks hold measurements, data, observations, sketches, and pressed plants.



WONDER CORNER

I wonder...

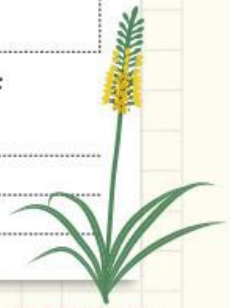
My favorite spot in the garden is...

PLANT

Circle the colors that most closely match your plant

Sketch your plant here:

Describe your plant with 3 words:



INSECT

Circle the colors that most closely match your insect

Sketch your insect here:

Describe your insect with 3 words:

GARDEN MYSTERY OBJECT

Circle the colors that most closely match your garden mystery object

Sketch your garden mystery object here:

Describe your garden mystery object with 3 words: