



Growing healthy keiki, schools, and communities
A program of the Kōkua Hawai'i Foundation

THE THREE SISTERS GARDEN

Student Workbook

Grade 5

Student's Name: _____

Teacher's Name: _____

Date: _____

www.kokuahawaiifoundation.org/aina



A program of the Kōkua Hawai'i Foundation

A farm to school program connecting children to their land, waters, and food to grow a healthier Hawai'i

'ĀINA In Schools is a farm to school initiative launched in 2006 that connects children to their local land, waters, and food to grow a healthier Hawai'i. In addition to encouraging the use of locally grown fruits and vegetables in school meals and snacks, the program includes a standards-based nutrition, garden, and compost curriculum that empowers children to grow their own food, make informed food decisions, and reduce waste. 'ĀINA In Schools also promotes field trips to local farms, chef cooking demonstrations in classrooms, as well as waste reduction, garden, and cooking educational opportunities for families and community members.

Six Integrated Program Components

Core components:

- **Nutrition Education** empowers students to try new foods and make healthy choices that will last a lifetime.
- **Garden-Based Learning** transforms the school garden into a learning laboratory where all subjects are explored.
- **Healthy Food on Campus** increases local, fresh products in school lunches and snacks to provide healthy choices and support local farms.

Additional components:

- **Agricultural Literacy** introduces students to where their food comes from and who grows and prepares their food.
- **Waste Reduction** reduces, reuses, and recycles waste in gardens, schoolyards, cafeterias, and classrooms.
- **Family & Community Outreach** raises awareness to support student, family, and community health and wellness.



"As an educator, I appreciate your program on so many levels. Your program does more than simply address state standards, but gives our students meaning and relevance as they study and engage in a living classroom where they literally see the fruits (and vegetables!) of their labor."

School Principal

'ĀINA In Schools Curriculum

- The 'ĀINA In Schools curriculum includes 8 lessons per year for grades K-6 that are standards-based, multi-subject, and hands-on. The curriculum supports a variety of learning styles and covers topics from the Nutrition, Garden, and Waste Reduction components. Successive units enable students to build on previous knowledge while developing a solid foundation in 'āina-based systems thinking. Nutrition and garden lessons also include close to the source, healthy snacks that reinforce key concepts.
- 'ĀINA In Schools Curriculum Trainings for Educators and online access to all materials via the Kōkua Hawai'i Foundation website enable educators to bring the 'ĀINA In Schools experience to students throughout Hawai'i and beyond. Lessons meet Common Core and HCPSIII standards for grades K-6 and are easily adaptable for other grades.

Key KHF Farm to School Partnerships

- Co-leader and founding partner of the **O'ahu Farm to School Network**: www.oahufarmtoschool.org.
- Founding member of the **Hawai'i Farm to School & School Garden Hui**: www.hawaiischoolgardenhui.org.
- Hawai'i Core Partner for the **National Farm to School Network**: www.farmtoschool.org.
- Kōkua Hawai'i Foundation is also an Advisory Committee member of the **Hawai'i Environmental Education Alliance**: www.heea.org.

'ĀINA In Schools is a program of the Kōkua Hawai'i Foundation

kōkua hawai'i foundation



www.kokuahawaiifoundation.org/aina

I have been at this school since grade: K 1 2 3 4 5 (circle one)

This Pre-Unit Survey is to see what you already know about these topics. It is ok if you don't know any of the answers. You will be learning about these topics this semester. Try your best and have fun!

1. The Three Sisters Garden is a gardening method used by Native Americans. Which of these plants make up the Three Sisters Garden? Circle the three plants:



a. Corn



b. Basil



c. Sweet Potato



d. Squash



e. Peas



f. Lemon



g. Carrots



h. Pole beans

2. What are the reason(s) for planting companion plants? Circle ALL the correct answers:

- | | |
|-------------------------------------|-------------------------|
| a. Provides nutrients to each other | c. Helps conserve water |
| b. Provides shade | d. Repels pests |

3. What are the use(s) for herbs? Circle ALL the correct answers:

- | | |
|----------------------|--------------------|
| a. Flavoring foods | d. Keep pests away |
| b. Medicine | e. Fragrance |
| c. Food preservation | |

4. Draw a line to match each word to its correct definition:

- | | |
|---------------------|---|
| a. Biodiversity | 1. The availability of food and one's access to it |
| b. Self-sufficiency | 2. The diversity of life within species, between species, and of ecosystems |
| c. Crop Varieties | 3. Cultivated forms of plants each bearing certain characteristics |
| d. Food Security | 4. Able to supply one's own needs without external assistance |

5. Approximately how much of Hawai'i's food is imported from out of state? Circle ONE answer:

- | | | | |
|------------|------------|--------|------------|
| a. 10%-15% | b. 25%-30% | c. 50% | d. 80%-90% |
|------------|------------|--------|------------|

6. Do you like gardening? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

7. Do you like eating fruits and vegetables? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

8. Do you like cooking? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

9. Do you like making compost? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

10. Do you like 'ĀINA Lessons? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

11. Do you and your family grow any food at home? Circle: Yes or No

If yes, please list the foods you grow at home: _____

12. Do you compost at home? (compost pile, worm bins, or bokashi bucket) Circle: Yes or No

13. How often do you eat fruits and vegetables? Circle ONE answer:

- a. I don't eat fruits and vegetables
- b. 1-2 times a week
- c. 3-5 times a week
- d. Every day

14. Circle the fruits and vegetables that you like to eat:

- Apple Cantaloupe Banana/Mai'a Blueberries Avocado Coconut/Niu Guava Dragonfruit
- Mango Passionfruit/Liliko'i Honeydew Rambutan Tangerine Strawberry Blackberries
- Lemon Starfruit Breadfruit/'Ulu Lychee Orange Papaya Pineapple Watermelon
- Radish Spinach Basil Beans Broccoli Squash Zucchini Sweet Potato/'Uala Corn Tomato
- Lettuce Watercress Taro/Kalo Cucumber Green Beans Asparagus Carrots Celery Kale

Other: _____

15. Describe what 'āina means to you: _____

16. List two ways that you take care of the 'āina:

1. _____
2. _____

17. Complete the following sentence:

My favorite thing about 'ĀINA In Schools Lessons is _____

Dear Parent or Caregiver:

This semester, 5th graders will be participating in four 'ĀINA In Schools Garden Lessons. 'ĀINA In Schools, a program of Kōkua Hawai'i Foundation, is a farm to school initiative that connects children to their local land, waters, and food to grow a healthier Hawai'i. Program components vary from school to school and include nutrition education, garden-based learning, farm field trips, chef visits, waste reduction, and family and community outreach.

Although the lessons are delivered once a month, the students will be engaged in between lessons with regular garden activities that include watering, weeding, making observations, and spending time in the garden.

Photos and Media Releases: By now each of you should have received a Kōkua Hawai'i Foundation Media Release Form. We hope that you have completed this form and have submitted it to your child's classroom teacher. From time to time, KHF takes photos/videos of our lessons to highlight activities that are noteworthy.

To keep yourself up to date on what your child is experiencing in 'ĀINA, we suggest putting this letter up on your refrigerator or bulletin board and talking with your child as the lessons are delivered. You can help reinforce, engage, and learn along with your child by discussing the lessons and activities after each lesson. A lesson summary and suggested questions/activities for each lesson are listed below.

Mahalo!

In the **Three Sisters Garden** unit, students will plant a Three Sisters Garden, which is a traditional Native American vegetable garden of corn, beans, and squash. They will also plant culinary and medicinal herbs including mint, rosemary, dill, and basil. They will harvest their garden herbs and vegetables to make fresh butter and cook a Three Sisters Stew.

Key concepts for the unit include 'āina, food miles, food security, companion plants, biodiversity, agriculture, crop varieties, seed selection, seed saving, dependence and self-sufficiency, food processing, community, mindfulness, proper harvesting and food handling, and gardening and culinary arts.



Lesson 1 - Living Plants, Living People

In this lesson, students discuss the arrival of the first European settlers who migrated to North America and learn about the traditional Native American Three Sisters Garden of corn, beans, and squash. They will discuss the concept of food security and the benefits of growing and consuming local produce. Using traditional-style tools, they will plant their garden, starting with the corn, and discuss the culinary and medicinal uses of several different kinds of herbs.

Questions to discuss with your child:

- What are the three sisters and how do they work together as companion plants?
- What are food miles and how does this relate to food security?



Suggested home activity:

- On your next grocery shopping trip, identify which foods are locally grown/made and imported.
- Compare and discuss the impact of imported vs. locally grown foods.

Lesson 2 - Biodiversity

In this lesson, students discuss the concept of biodiversity and how it relates to agriculture, exploring how gardeners and farmers have developed numerous varieties of corn, bean, and squash crops through seed selection and seed saving. They will care for their gardens and herbs and plant bean and squash seeds.

Questions to discuss with your child:

- What is biodiversity?
- What role does agriculture play in protecting the biodiversity of nature?

Suggested home activity:

- Observe and discover the different types of plants, animals, and insects in your garden or community.
- Discuss whether the same plants and animals will survive in a place where there's snow.



Lesson 3 - Self-Sufficiency

In this lesson, students discuss the concepts of dependence and self sufficiency and explore the ways Colonial and other traditional/self-sufficient people obtained and processed their food. Students will get hands-on experience in traditional food processing skills by making and sampling butter with fresh garden herbs. They will care for their garden by removing weeds and adding compost and vermicast.



Questions to discuss with your child:

- Describe several ways in which we are dependent on others.
- How did you practice self-sufficiency today?

Suggested home activity:

- Start a small garden and plant items that your family regularly use. For tips and info, visit: <https://www.ctahr.hawaii.edu/site/Info.aspx>

Lesson 4 - Community

In this lesson, students will discuss the importance of working as a community, then put theory to practice as they harvest, wash, chop, and cook their vegetables and herbs, creating a delicious and nutritious Three Sisters Stew for all to share and enjoy at the Harvest Party. They will remove the remaining garden plant parts, chop them and place them as mulch over the soil, putting the garden bed to rest for the summer.

Questions to discuss with your child:

- How did you practice working as a community?
- How did you practice being mindful?
- Share something you have learned in The Three Sisters Garden.

Suggested home activity:

- Make and prepare Three Sisters Stew. Your child will be taking home the instructions and recipe.



If you have any questions or are interested in becoming an 'ĀINA In Schools docent, please do not hesitate to ask.

To learn more about 'ĀINA In Schools at your child's school, please contact your school's 'ĀINA Team Coordinator, or contact:



'ĀINA In Schools
Program



aina@kokuahawaiifoundation.org

I WILL BE SAFE

*

I WILL BE KIND

*

**I WILL HAVE
AN OPEN MIND**

*

**I WILL USE
MY TIME WELL**



Notes, Drawings, and Observations
THE THREE SISTERS GARDEN

Name

Class Date

Directions: Use this space to record your notes, drawings, and observations.



Guided Notes
THE THREE SISTERS GARDEN
Lesson 1 * Living Plants, Living People

Name

Class Date

KEY TERMS AND CONCEPTS

‘Āina - Land; that which feeds, nourishes, and sustains us (e.g., food, water, air)

Antioxidant - An enzyme or other organic substance that can counteract damage in animal tissues; for example eating foods with antioxidants help to prevent diseases, cancer, diabetes, etc.

Companion Plants - Plants that are grown together and enhance each other’s growth or protect each other from pests

Food Miles - The distance food travels from where it is grown to where it is finally eaten

Food Security - The availability of food and one’s access to it

Herbs - Plants whose leaves, seeds, and/or flowers are used for flavoring, food, medicine, or fragrance

Migration - The movement of persons from one country or locality to another

Trellis - A structure used as a support for growing plants (especially vines)

Directions: Use this space to record your notes, drawings, and observations.



FOOD MILES

Directions:

Use “Google Maps” or “Google Earth” on a computer to calculate the number of food miles each food item will travel from its origin (where it was grown) to its destination (where it will be eaten). Enter the data into the table below.

	FOOD ITEM	ORIGIN	DESTINATION	FOOD MILES
1.	English Tea	London, England	Boston, Massachusetts	
2.	Pineapple	Wahiawa, Hawai'i	Los Angeles, California	
3.	Gala Apple	Yakima Valley, Washington	Honolulu, Hawai'i	
4.	Apple Banana	Kahuku, Hawai'i	Hale'iwa, Hawai'i	
5.	Banana	Guayaquil, Ecuador	Kailua, Hawai'i	

Reflection:

6. Do you grow any food at your house? If so, what would the Food Miles of these items be?

7. Why is it important to consider the Food Miles of the things we eat? _____

8. Why is it healthier for our bodies and our planet to eat foods that have very low Food Miles?



Guided Notes
THE THREE SISTERS GARDEN
Lesson 2 * Biodiversity

Name

Class Date

KEY TERMS AND CONCEPTS

Directions: Use this space to record your notes, drawings, and observations.

Agriculture - The science, art, and occupation of growing crops and raising animals for food and other products

Beneficial - Good, helpful

Biodiversity - Biological diversity; the diversity (variability) of life within species, between species, and of ecosystems

Crop - A plant that people grow for food, especially fruits, vegetables, and grains

Crop Varieties - Cultivated forms of one species of plant each bearing certain characteristics

Diversity - Variety; variability; of various kinds

Seed Selection - The process of selecting, saving, and planting good quality seeds from plants with the most desirable characteristics in order to grow a strong and healthy successive crop that possesses the desired features

Seed Saving - The practice of harvesting, drying, and saving seeds for future planting



CROP VARIETIES

Directions:

Read the text in the box below, then fill in your answers to the questions.

A crop is a plant that people grow for food, especially fruits, vegetables, and grains. Thanks to biodiversity, many "varieties" of each crop exist, each with its own special characteristics.

1. Choose one type of fruit or vegetable that you love to eat (e.g., grape tomatoes). What is it and why do you love it? _____

2. In the table below, list and describe two or more different varieties of your chosen fruit or vegetable. Include important features such as color, size, origin, etc.

You may want to visit a few websites for assistance, such as:

- Southern Exposure Seed Exchange: www.southernexposure.com, "Vegetables"; lists the origin of their crop varieties! See "Growing Guides" section for lots of growing advice!
- High Mowing Organic Seeds: www.highmowingseeds.com, "Organic Vegetables"

FRUIT/VEGETABLE VARIETY	COLOR	SIZE	ORIGIN	GROWING CONDITIONS
Example: "Yellow Oxheart" Tomato	Bright yellow	About 1 pound each	A family heirloom from Virginia, 1915	Full sun
Example: "Black Prince" Tomato	Deep reddish brown	About 7 ounces each	Irkutsk, Siberia	Full sun



Guided Notes
THE THREE SISTERS GARDEN
Lesson 3 * Self-Sufficiency

Name

Class Date

KEY TERMS AND CONCEPTS

Dependent - Relying on someone or something else for aid or support

Food Processing - The transformation of raw plant or animal materials, such as grains, produce, meats, and dairy, into other food products

Self-Sufficiency - Able to supply one's own needs without external assistance

Traditional - Information, customs, beliefs, etc. handed down for generations

Directions: Use this space to record your notes, drawings, and observations,

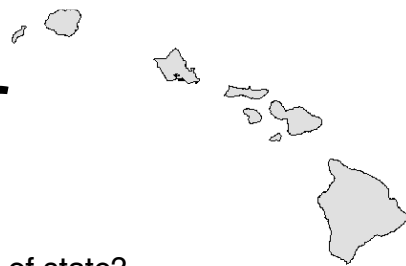


Student Worksheet
THE THREE SISTERS GARDEN
Lesson 3 * Self-Sufficiency

Name

Class Date

A REAL LOCAL MEAL



Directions: Fill in your answers to the questions below.

1. About how much of Hawai'i's food is currently imported from out of state? _____

2. How does the imported food get to Hawai'i? _____

3. List the places where can you find (harvest or buy) food that is grown in Hawai'i. Create a mini-map of these places in relation to where you live.



4. Imagine that one day there is no more imported food. What would you eat for breakfast, lunch, and dinner, and where would your food come from? _____



Guided Notes
THE THREE SISTERS GARDEN
Lesson 4 * Community

Name

Class Date

KEY TERMS AND CONCEPTS

Community - A social group whose members reside in a specific locality, and share government or common characteristics, interests, culture, and/or historical heritage

Mindful - Conscious or aware of something

Directions: Use this space to record your notes, drawings, and observations.

THREE SISTERS STEW RECIPE

Ingredients

- 6 cups water
- 3 vegetable bouillon cubes
- 3 cups fresh corn kernels (about 5 ears)
- 3 cups beans chopped in 1/2 inch pieces
- 2 cups summer squash chopped in 1/4 inch pieces
- 1 tsp chopped fresh dill (optional)
- 1 tsp chopped fresh rosemary (optional)
- 1 tsp chopped fresh basil (optional)
- 1 1/2 tsp salt



Supplies

- Stove or portable burner
- Large pot with lid
- Measuring cups
- Measuring spoons
- Wooden spoon
- Cups for serving (washable/biodegradable)
- Forks/spoons (washable)





GARDEN REFLECTION

Directions: Fill in your answers to the questions below.

1. What do you remember most about your garden experience this semester? _____

2. What foods did you prepare and how did they taste? _____

3. What do you like about gardening? _____

4. Why is gardening important? _____

5. How can you help Hawai'i grow more of its own food? _____



Student Worksheet
THE THREE SISTERS GARDEN
Lesson 4 * Community

Name

Class Date

6. What are the benefits of working together as a community? _____

7. Describe the feelings you experienced while working as a community with your class. _____

8. What is the most meaningful lesson you learned from the Three Sisters Garden? _____

9. Name one thing you learned that you will teach your family to do: _____

10. Draw a picture of your most memorable gardening experience this year:



Notes, Drawings, and Observations
THE THREE SISTERS GARDEN

Name

Class Date

Directions: Use this space to record your notes, drawings, and observations.



Notes, Drawings, and Observations
THE THREE SISTERS GARDEN

Name

Class Date

Directions: Use this space to record your notes, drawings, and observations.

I have been at this school since grade: K 1 2 3 4 5 (circle one)

1. The Three Sisters Garden is a gardening method used by Native Americans. Which of these plants make up the Three Sisters Garden? Circle the three plants:



a. Corn



b. Basil



c. Sweet Potato



d. Squash



e. Peas



f. Lemon



g. Carrots



h. Pole beans

2. What are the reason(s) for planting companion plants? Circle ALL the correct answers:

- | | |
|-------------------------------------|-------------------------|
| a. Provides nutrients to each other | c. Helps conserve water |
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3. What are the use(s) for herbs? Circle ALL the correct answers:

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| b. Medicine | e. Fragrance |
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4. Draw a line to match each word to its correct definition:

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8. Do you like cooking? Circle ONE answer:

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- d. I like a lot

9. Do you like making compost? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

10. Do you like 'ĀINA Lessons? Circle ONE answer:

- a. I do not like
- b. unsure
- c. I like a little
- d. I like a lot

11. Do you and your family grow any food at home? Circle: Yes or No

If yes, please list the foods you grow at home: _____

12. Do you compost at home? (compost pile, worm bins, or bokashi bucket) Circle: Yes or No

13. How often do you eat fruits and vegetables? Circle ONE answer:

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- Lettuce Watercress Taro/Kalo Cucumber Green Beans Asparagus Carrots Celery Kale

Other: _____

15. Describe what 'āina means to you: _____

16. List two ways that you take care of the 'āina:

- 1. _____
- 2. _____

17. Complete the following sentence:

My favorite thing about 'ĀINA In Schools Lessons is _____

OUTSIDE-
COVER
BLANK