



# STEMS<sup>2</sup> Unit Plan: Gardening and Sustainability

## BACKGROUND:

### Lesson Background:

This unit is designed for the 4th and 5th grade garden club students. Since it is an after school program, it is open to any 4th and 5th grade students that want to apply. This unit teaches students about the science behind gardens and the application of sustainability. The lessons are designed so that the students learn about concepts and then they see and apply those concepts in the garden in a hands on way. The background information that the students should have some knowledge about what kinds of things are done in the garden. This includes setting up and establishing the garden, planting seeds/plants, caring for plants, and harvesting the plants. The students should also come willing to do the work in the garden, such as getting dirty and being okay with insects. To help with conducting the garden club, one of my community partners was a fellow 5th grade teacher at my school. She is a teacher who has done the garden club for a few years. She is very knowledgeable about gardening since she grew up in a family where they practiced gardening. Another community partner that I had was the Kokua Hawaii Foundation. They are also very knowledgeable in school gardens and sustainability. In this unit, they presented to the students about recycling and sustainability.

### Unit Overview:

The purpose of this unit is to teach the 4th and 5th graders of the after-school garden club about gardening. The students will learn about how to establish and upkeep a garden, what plants need to survive, about the ecosystem of a garden, why sustainability is important, and how the garden can help our community. The design of this unit is that some learning will take place in the classroom as mini lessons and then the hands-on learning and application will occur outside in the garden. The real world problem addressed with this unit is how can we make our community more sustainable while also using the plants from our garden to help the people of our community.

## STAGE 1:

### Reflections before completing Stage I:

- What is important for students to understand and be able to do?
  - Students will establish a small school garden. They will set up the garden beds with soil and germinate seeds to transplant into the garden beds. The students will then take care of the garden by ensuring the plants have everything they need (sun, water, air, nutrients) and keeping weeds and pests in check. The students will also learn the different ways they can use what is grown in the garden and share it with the community. Students will also keep a notebook where they document their learnings and reflections while working with the garden.
- What do students already know and are already able to do?
  - Students should have some background information about plants. They probably know the parts of a plant (roots, stems, leaves, flowers/fruits) and what plants need to grow



(sun, water, air, nutrients). Students probably know that they have to plant seeds or plants into the garden and take care of them to ensure they grow.

- What are students curious about?
  - The students are curious what kinds of plants they can grow in a garden and how long those plants take to grow. They are also curious about the amount of work it takes to upkeep a garden, methods to keep the garden healthy, and the products that result. They are also curious about what could be done with the products produced in the garden.

Unit Plan Title: Gardening and Sustainability

Essential Question:

How do we care for a garden and how can we use that garden to help our community?

Enduring Understanding(s):

Students will understand how to care for a garden.

Students will understand how the garden ecosystem works

Students will understand how a garden supports sustainability for the community.

Standard Benchmarks and Values

Science	Technology	Engineering	Mathematics	Social Science
<p><u>Standards Addressed</u></p> <p><b>NGSS:</b></p> <p>Practice: 5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]</p> <p>Mastery: 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]</p> <p><b>ELA</b></p> <p>Practice: RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-LS2- 1)</p> <p>Practice: W.5.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)</p> <p>Practice: W.5.7 Conduct short research projects that use several sources to build knowledge</p>				



through investigation of different aspects of a topic.

Mastery: SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Practice: SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-LS2-1)

### **Mathematics**

Introduced: MP.2 Reason abstractly and quantitatively. (5-LS2-1)

Practice: MP.4 Model with mathematics (5-LS2-1)

### **Social Sciences**

Introduced: D2.Civ.6.3-5. Describe ways in which people benefit from and are challenged by working together, including through government, workplaces, voluntary organizations, and families.

Practice: D2.His.14.3-5. Explain probable causes and effects of events and developments.

Mastery: D4.3.3-5. Present a summary of arguments and explanations to others outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, and reports) and digital technologies (e.g., Internet, social media, and digital documentary).

### **Standards Assessed**

#### **NGSS:**

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

#### **ELA:**

SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

#### **Social Sciences:**

D4.3.3-5. Present a summary of arguments and explanations to others outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, and reports) and digital technologies (e.g., Internet, social media, and digital documentary).

### Sense of Place (Nā Hopena A‘o and beyond)

1. Strengthened Sense of Belonging:
  - c. Build relationships with many diverse people
  - e. Am open to new ideas and different ways of doing things
  - f. Communicate with clarity and confidence
  - h. Actively participate in school and communities
  
4. Strengthened Sense of Aloha:
  - a. Give generously of time and knowledge
  - d. Communicate effectively to diverse audiences
  - f. Give joyfully without expectation of reward
  - g. Share the responsibility for collective work
  - h. Spread happiness

#### Critical Skills and Concepts:

By the end of the unit, students will know the process of taking care of a garden and will understand why they need to do certain things to keep the garden healthy. By students understanding how a garden works, they will understand the ecosystem of a garden and how they can help along the process that living things need in the ecosystem. Students will learn how to germinate seeds, transplant those plants, and take care of those plants by watering, weeding, and controlling pests. They will also use composting to produce healthy soil to help the plants in the garden grow. The students will also understand the amount of work that goes into a garden and how they can use what is produced in the garden to help the community. This will help the students to understand sustainability, the amount of work that goes into it, and how it applies to our real world.

## STAGE 2:

### Reflections before completing Stage II:

- What have students learned and how have they grown?

Students will have learned about how a garden works. They would have learned that plants need sun, water, nutrients, and soil to anchor to in order to grow. The students would also have learned about how the ecosystem in the garden works. They would have learned about decomposers and how they help the garden create good soil and nutrients for plants, they would have learned about things that are not good for the garden like weeds and pests. The students would have also learned about all the work and upkeep that goes into taking care of a garden. The students would have also learned about how we can use the products from the garden, such as fruits, vegetables, and herbs to help our community. The students would have also learned about sustainability and its importance to the future of our planet.



#### Authentic Performance Tasks:

Students will give a presentation to teachers about their process when establishing a garden, how they took care of the garden, and how they used the garden to help their community.

After participating in the Garden Club and learning about how to take care of a garden, students will give a presentation to other educators about their process in the garden club. Students will present on the knowledge that they have acquired, the work that they have done to take care of the garden, how their products from the garden can be used to help the school and community, and about why sustainability is important. The reason that this audience of educators is important is because since this is a school garden, what is grown can be used to help teachers and students at the school. Also, some of these teachers may have had these students so it would be great for them to see their growth in caring for a garden. The students will be assessed on the standards listed above.

#### Authentic Audience:

Other educators

The audience that the students will present to other teachers at the school. Teachers know about the garden club and could have had these students in previous grades. This way, they can see what the students are doing in the garden club, how much the students have learned, and see how students are helping the school and community.

#### Other Evidence:

Garden Club Notebooks (notes and reflections)

Seesaw assignments

While in the Garden Club, students will keep notebooks to record what they learn and what they do when we work in the garden. Students will also reflect on what they did in the garden club and record any questions that they have. Students will also do assignments on Seesaw about Garden Club. These assignments would include research about topics that can be applied to the garden club and also reflections about the work done in the garden.

### **STAGE 3:**

#### **Reflections before completing Stage III:**

- How do students best learn?

Students learn best through hands-on learning experiences, being able to connect what they learn to themselves, and applying their learning to the real world. Through the garden club and working outside, students will gain these hands on experiences with gardening and working with plants. By using the plants grown in the garden to help their community, this will allow the students to contribute to their community and provide a real world application for gardening. By students working in the garden, they can build connections with the things they learn about the garden and what they learn from applying that learning in the garden.

#### Learning Plan:



During the Garden Club, mini lessons will be taught at the beginning of each class. After a mini lesson, the students will then go out into the garden and work on it. Depending on the work needed to be done, that is what lessons would be taught. Even though the concepts have been separated by subject, they will be integrated depending on what is being taught in the garden.



Week 1: Establishing a Garden and Using Tools

Grades: 4th and 5th

Lesson 1: Establishing a Garden

Date: February 18, 2020

Time: 2:15 - 3:45

Guiding Questions:

- How do we establish a garden?
- What do healthy gardens need?

Student Outcomes:

- Students will understand the process in establishing a garden
  - Selecting a location
  - Gathering required materials (soil, tools, plants, etc)
  - How to set up the garden
  - How to upkeep the garden
- Students will understand what gardens need to be healthy
  - Good soil
  - Suitable plants
  - Sunlight
  - Water
  - No weeds/pests

Standards:

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]

Materials:

- Garden Club notebook
- Lesson Powerpoint
  - <https://docs.google.com/presentation/d/1v1WXNGIWoknQXCOMvxtHPPSetX>

<p style="text-align: center;"><a href="https://www.ojn.com/record/JPoXdblJzNFw/edit?usp=sharing">OjnR_JPoXdblJzNFw/edit?usp=sharing</a></p> <ul style="list-style-type: none"> <li>● Garden hand tools</li> </ul>
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Activities	
2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	Consent/Assent Forms <ul style="list-style-type: none"> <li>● Collect consent and assent forms</li> <li>● Pass out consent and assent forms to new students and explain the forms               <ul style="list-style-type: none"> <li>○ Purpose of the study</li> <li>○ Why I am doing the study</li> <li>○ What happens if you do/don't participate</li> </ul> </li> </ul>
2:25	Administer Student Self-Efficacy survey <ul style="list-style-type: none"> <li>● Briefly explain the survey               <ul style="list-style-type: none"> <li>○ Please write your name (your survey will be kept confidential)</li> <li>○ Please answer all questions honestly (it is not graded and only Miss Ward will see your answers)</li> <li>○ This survey will help me to understand how you feel about gardening and learning</li> </ul> </li> <li>● Collect surveys as students finish</li> </ul>
2:35	Garden Club Notebook <ul style="list-style-type: none"> <li>● Have students select a notebook</li> <li>● Go over how to set up the Garden Club notebook               <ul style="list-style-type: none"> <li>○ This notebook is your own personal notebook</li> <li>○ You can fill it out in any way you like</li> <li>○ Use it to take notes (words and drawings) about:                   <ul style="list-style-type: none"> <li>■ What we do</li> <li>■ Things you learn</li> <li>■ Questions you have</li> </ul> </li> <li>○ Reflections</li> <li>○ Notebooks will stay in class</li> </ul> </li> <li>● Pass out a half sheet of paper that students will use to decorate a cover for their garden club notebook</li> <li>● Turn to the first page and write the date</li> </ul>

	<ul style="list-style-type: none"> <li>● Explain that notes and reflections for each Garden Club session will go under the date</li> </ul>
2:45	<p>Questions to think about</p> <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions           <ul style="list-style-type: none"> <li>○ How do we establish a garden?</li> <li>○ What do healthy gardens need?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions           <ul style="list-style-type: none"> <li>○ Example: establish, healthy</li> </ul> </li> </ul>
2:47	<p>Video: Establishing a Garden</p> <ul style="list-style-type: none"> <li>● Show students the video and have them take notes in their notebook on important information they want to remember</li> <li>● After the guy in the video gives a step to setting up the garden, pause the video and discuss with the students how it would work in the garden you are setting up           <ul style="list-style-type: none"> <li>○ Example: Deciding a location               <ul style="list-style-type: none"> <li>■ The garden already has an established location</li> </ul> </li> <li>○ Winter preparation               <ul style="list-style-type: none"> <li>■ There is no seasonal winter in Hawaii so we do not have to worry about cold weather and frost</li> </ul> </li> </ul> </li> <li>● After the video, use the next slide to list what we learned/can do in the garden</li> </ul>
3:10	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ Think about what we learned from the video</li> <li>○ What kinds of things do we have to do in the garden?</li> <li>○ Clean up the garden</li> <li>○ Be safe and follow the rules</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Next meeting: Please bring in kitchen scraps (old fruits and vegetables; coffee grounds)</li> <li>● Remind students to bring kitchen scraps since we will be going over composting in Lesson 2</li> <li>● Take students out into the garden and provide them with the necessary garden tools</li> <li>● Students will:           <ul style="list-style-type: none"> <li>○ Clear the dead leaves and weeds out of the garden bed</li> <li>○ Use the tools to loosen the soil</li> </ul> </li> </ul>
3:27	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect and put the tools away. Then go back to the classroom to work on their notebook reflection</li> </ul>
3:30	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook           <ul style="list-style-type: none"> <li>○ What did you learn about gardening?</li> <li>○ What did you do in the garden today?</li> <li>○ What would you like to know more about?</li> </ul> </li> <li>● Students can also draw in their notebooks to explain what they did in the garden</li> </ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"> <li>● Students will turn in their Garden Club notebooks and sign out</li> </ul>

## Lesson 2: Working With Tools

Date: February 20, 2020

Time: 2:15 - 3:45

### Guiding Questions:

- How do we ensure the safe use of tools in the garden?
- How do tools help us to garden more efficiently?
- How can composting improve the overall health of a garden?

### Student Outcomes:

- Students will understand how to safely and effectively use tools in the garden
  - Tool names
  - Tool uses
- Students will understand how to compost and why composting is good for a garden
  - What to compost
  - What not to compost
  - How to manage the compost
  - Benefits of compost

### Standards:

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

### Materials:

- Garden Club notebook
- Lesson Powerpoint
  - <https://docs.google.com/presentation/d/1yAS7FWEtPrbBJ1yqDT38QfNpr5k19m5s0ZKA9TqU7U4/edit?usp=sharing>
- Fruit and Vegetable scraps for the compost
- Garden hand tools

- Garden tools to turn the compost (large pitchfork and shovel)

Activities	
2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	Consent/Assent Forms <ul style="list-style-type: none"> <li>● Collect consent and assent forms</li> </ul>
2:25	Questions to think about <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions               <ul style="list-style-type: none"> <li>○ How do we ensure the safe use of tools in the garden?</li> <li>○ How do tools help us to garden more efficiently?</li> <li>○ How can composting improve the overall health of a garden?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions               <ul style="list-style-type: none"> <li>○ Example: ensure, efficiently</li> </ul> </li> </ul>
2:35	Video: Gardening Tools <ul style="list-style-type: none"> <li>● Show students the video and have them take notes in their notebook on important information they want to remember</li> <li>● After the lady in the video shows a tool, pause the video so the students can write down the name of the tool and sketch it in their notebook</li> <li>● Play the video so the lady can explain the functions/uses of the tool. Pause the video and recap so students can write down the information</li> <li>● Continue to do this throughout the whole video, emphasizing the tools that the students will be using in the garden               <ul style="list-style-type: none"> <li>○ Example: Trowel/shovel, cultivator</li> <li>○ After the video, use the next slide to list what we learned/can do in the garden</li> </ul> </li> </ul>
2:45	Video: Composting

	<ul style="list-style-type: none"> <li>● Show students the video and have them take notes in their notebook on important information they want to remember</li> <li>● After the guy in the video explains information about items that should and should not be composted, pause the video and recap the information so that students can write down the information in their notebook</li> <li>● Continue to do this throughout the whole video, recapping the important information that students will need to know for composting           <ul style="list-style-type: none"> <li>○ Good things for composting: fruit and vegetable peels, unused fruits and vegetables, coffee grounds, herbs</li> <li>○ Bad for composting: meat and dairy products, garlic, onions</li> <li>○ How to make good compost: mix green compostable things and brown compostable things, water compost, turn compost</li> </ul> </li> <li>● After the video, use the next slide to list what we learned/can do in the garden</li> </ul>
3:00	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ Think about what we learned from the videos</li> <li>○ What kinds of things do we have to do in the garden?</li> <li>○ Clean up the garden</li> <li>○ Turn the compost</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Have students grab the kitchen scraps to bring to the compost bin</li> <li>● Take students to the compost bin and have them break up the kitchen scraps into smaller pieces and add them to the compost pile</li> <li>● Have a student water the compost pile</li> <li>● Have students take turns turning the compost pile with a pitchfork and shovel. Switch off the two students so that everyone gets to turn the pile</li> <li>● Take students out into the garden and provide them with the necessary garden tools</li> <li>● Students will:           <ul style="list-style-type: none"> <li>○ Clear the dead leaves and weeds out of the garden bed</li> <li>○ Use the tools to loosen the soil</li> </ul> </li> </ul>

3:27	<p>Clean up</p> <ul style="list-style-type: none"><li>● Students will collect and put the tools away. Then go back to the classroom to work on their notebook reflection</li></ul>
3:30	<p>Notebook Reflection</p> <ul style="list-style-type: none"><li>● Students will answer the following questions in their notebook<ul style="list-style-type: none"><li>○ What tool was most useful to use today and why?</li><li>○ What did you learn about composting? How does our compost look so far?</li><li>○ What kinds of things can you bring in to compost?</li><li>○ What would you like to know more about?</li></ul></li><li>● Students can also draw in their notebooks to explain what they did in the garden</li></ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"><li>● Students will turn in their Garden Club notebooks and sign out</li></ul>



Week 2: Establishing a Garden and Plant Research

Grades: 4th and 5th

Lesson 3: Planning our Garden (Using Math!)

Date: February 24, 2020

Time: 2:15 - 3:45

Guiding Questions:

- How does area and volume affect the way we plant in a garden?

Student Outcomes:

- Students will understand how to calculate area
  - Length x width
- Students will understand how to calculate volume
  - Length x width x height
- Students will understand how to measure
  - 12 inches = 1 foot
- Students will understand how to measure out and mark square footage
  - Create 1 ft<sup>2</sup> in the garden bed

Standards:

- MP.2 Reason abstractly and quantitatively. (5-LS2-1)
- MP.4 Model with mathematics (5-LS2-1)

Materials:

- Garden Club notebook
- Lesson Powerpoint
  - [https://docs.google.com/presentation/d/1Ez\\_OExQfX5qT6aJ9ziyJpXbvLJnEvm\\_zH2TradQO\\_-8/edit?usp=sharing](https://docs.google.com/presentation/d/1Ez_OExQfX5qT6aJ9ziyJpXbvLJnEvm_zH2TradQO_-8/edit?usp=sharing)
- Yard or Meter Sticks

- Skewers
- Yarn
- Scissors

Activities	
2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	Questions to think about <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions               <ul style="list-style-type: none"> <li>○ How does area and volume affect the way we plant in a garden</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions</li> </ul>
2:23	Calculating Area and Volume <ul style="list-style-type: none"> <li>● Go over the slide with how to calculate area and volume               <ul style="list-style-type: none"> <li>○ Area = Length x Width</li> <li>○ Volume = Length x Width x Height</li> <li>○ Calculate the area and volume of 1 garden bed</li> <li>○ How many garden beds do we have available?</li> </ul> </li> </ul>
2:25	Calculating Square Footage <ul style="list-style-type: none"> <li>● Go over the slide with how to calculate square footage               <ul style="list-style-type: none"> <li>○ How many squares (1 ft<sup>2</sup>) are in one garden bed?</li> </ul> </li> <li>● Discuss the picture to show students how the garden beds will look like after we set them up</li> </ul>
2:30	Taking Measurements in the garden and setting up square feet <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden</li> </ul>

	<ul style="list-style-type: none"> <li>○ Think about what we learned about garden bed area</li> <li>○ Continue to prepare the garden for planting</li> <li>○ Measure out squares</li> <li>○ Be safe and follow the rules</li> <li>● Have students grab their garden club notebook, a pencil, yard/meter sticks, skewers, yarn, and scissors</li> <li>● Take students to the garden and explain their task</li> <li>● Students will:           <ul style="list-style-type: none"> <li>○ Be put into groups of 3 or 4</li> <li>○ Use the yard/meter sticks to measure the length, width, and height of their garden bed</li> <li>○ Write down the measurements in their garden club notebook (calculations can be completed at the classroom)</li> <li>○ Use the yard/meter stick to measure square footage using the perimeter of the garden bed               <ul style="list-style-type: none"> <li>■ At the edge of the raised garden bed, students will measure out 12 inches (1 foot) and place a skewer</li> <li>■ They will continue to measure the perimeter and place skewers at every 12 inches</li> <li>■ Once all the skewers are in place, students will measure out yarn to go across the garden bed and tie them to the skewers that are opposite to each other</li> <li>■ Students will continue to measure out yarn between 2 skewers until the garden bed has a grid of yarn on it                   <ul style="list-style-type: none"> <li>● Our garden beds                       <ul style="list-style-type: none"> <li>○ Width: 4 squares</li> <li>○ Length: 8 squares</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>
3:10	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the yard/meter sticks and other supplies. Then go back to the classroom to work on their calculations</li> </ul>
3:12	<p>Calculations</p> <ul style="list-style-type: none"> <li>● For the calculations, ask students what they calculated for width, length,</li> </ul>

	<p>and height but use the teacher measurements (taken of a garden bed) to do the calculations together</p> <ul style="list-style-type: none"> <li>● Record measurements on the slide       <ul style="list-style-type: none"> <li>○ Length: 90 inches</li> <li>○ Width: 42 inches</li> <li>○ Height: 9 inches</li> </ul> </li> <li>● With the students, calculate area and volume using a math strategy (I used the area model for area and standard algorithm for volume)       <ul style="list-style-type: none"> <li>○ Area: 90 inches x 42 inches = 3,780 in<sup>2</sup></li> <li>○ Volume: 3780 in<sup>2</sup> x 9 in = 34,020 in<sup>3</sup></li> </ul> </li> <li>● Record the number of garden beds on the slide       <ul style="list-style-type: none"> <li>○ Number of garden beds: 8</li> </ul> </li> <li>● Record the square footage of a garden bed on the slide       <ul style="list-style-type: none"> <li>○ Width: 4 squares</li> <li>○ Length: 8 squares</li> <li>○ 32 square feet</li> </ul> </li> <li>● Model and have the students draw out a 4 x 8 garden bed (with the squares) in their notebooks</li> </ul>
3:20	<p>Garden Bed Planning</p> <ul style="list-style-type: none"> <li>● Review the slide with the instructions       <ul style="list-style-type: none"> <li>○ In your Garden Club notebook, with a partner, plan out 1 garden bed using any of the plants (referring to the image on the slide)           <ul style="list-style-type: none"> <li>● Draw the garden bed with the correct number of squares</li> <li>● Use dots to represent plantings</li> <li>● Label each square</li> </ul> </li> </ul> </li> <li>● Explain that students will have to plan their garden with some type of order       <ul style="list-style-type: none"> <li>○ There cannot be a group of squares (rows, columns, quads) with all</li> </ul> </li> </ul>

	<p>different plants</p> <ul style="list-style-type: none"><li>○ They can plant by rows, columns, quads, or a mix of all 3. There just needs to be some order to the planting</li><li>○ Model an example (I did 1 row of tomatoes (1 dot in each square, 4 squares total) and 1 row of carrots (6 dots in each square, 4 squares total)</li><li>● Have the students work in pairs<ul style="list-style-type: none"><li>○ With their partner, they will decide what they will plant and where they will plant it</li><li>○ They will work together to fill up their garden bed</li></ul></li></ul>
3:35	<p>Notebook Reflection</p> <ul style="list-style-type: none"><li>● Students will answer the following questions in their notebook<ul style="list-style-type: none"><li>○ How is calculating the area of a garden bed useful?</li><li>○ What kinds of plants are you interested in doing more research on?</li></ul></li></ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"><li>● Students will turn in their Garden Club notebooks and sign out</li></ul>

Lesson 4: Plant Uses	
Date: February 25, 2020	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"> <li>• How are plants beneficial to humans?</li> </ul>	
Student Outcomes: <ul style="list-style-type: none"> <li>• Students will research plant uses             <ul style="list-style-type: none"> <li>○ Food</li> <li>○ Medicine</li> </ul> </li> <li>• Students will record the benefits of plants</li> </ul>	
Standards: <ul style="list-style-type: none"> <li>• RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</li> </ul>	
Materials: <ul style="list-style-type: none"> <li>• Garden Club notebook</li> <li>• Lesson Powerpoint             <ul style="list-style-type: none"> <li>○ <a href="https://docs.google.com/presentation/d/1Ez_OExQfX5qT6aJ9ziyJpXbvLJnEvm_zH2TradOO_-8/edit?usp=sharing">https://docs.google.com/presentation/d/1Ez_OExQfX5qT6aJ9ziyJpXbvLJnEvm_zH2TradOO_-8/edit?usp=sharing</a></li> </ul> </li> <li>• Chromebooks</li> <li>• Google Classroom</li> <li>• Garden tools</li> </ul>	
Activities	
2:15	Check In <ul style="list-style-type: none"> <li>• Check in and snacks</li> </ul>

2:20	<p>Questions to think about</p> <ul style="list-style-type: none"><li>● Go over the slide with the guiding questions<ul style="list-style-type: none"><li>○ How are plants beneficial to humans?</li></ul></li><li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions<ul style="list-style-type: none"><li>○ Example: beneficial</li></ul></li></ul>
2:23	<p>Video: Use of plants</p> <ul style="list-style-type: none"><li>● Show students the video and have them take notes in their notebook on important information they want to remember</li><li>● Students will take notes on plant uses<ul style="list-style-type: none"><li>○ Food</li><li>○ Wood</li><li>○ Spices</li><li>○ Medicine</li></ul></li><li>● After the video, use the next slide to list what we learned/can do in the garden</li></ul>
2:25	<p>Plant Research</p> <ul style="list-style-type: none"><li>● Have students grab their assigned chromebooks, log into their Google account, and go to Google Classroom</li><li>● Students will put in the Google Classroom code to join the Garden Club class</li><li>● On the classroom page, students will click the 2 links to do their research on plant uses and plants we could possibly plant in the garden. They will record the information in their notebook</li><li>● Go over the slide with the research directions<ul style="list-style-type: none"><li>○ On Google Classroom, go to the following websites:<ul style="list-style-type: none"><li>■ <a href="#">Introduction to Herbs for Kids</a></li><li>■ <a href="#">16 Medicinal Plants to Keep in Your Home</a></li></ul></li><li>○ Read about the benefits and uses of these plants and select 2-3 that you think would benefit us</li><li>○ In your notebook, explain why you think these plants would be beneficial for us</li></ul></li></ul>

	<ul style="list-style-type: none"> <li>● After students have researched, they will share out the plant and its benefits. Record the information on the next slide</li> </ul>
3:00	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ Think about the plants you researched</li> <li>○ Where could we plant these in the garden?</li> <li>○ Continue to prepare the garden for planting</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Students will work in the garden to continue loosening the soil in the garden beds to prepare for the plants</li> </ul>
3:30	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>
3:32	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook           <ul style="list-style-type: none"> <li>○ How are plants helpful to humans?</li> <li>○ What plant(s) do you think would benefit us and why?</li> <li>○ Is there anything else you would like to know more about? Why?</li> </ul> </li> </ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"> <li>● Students will turn in their Garden Club notebooks and sign out</li> </ul>



Lesson 5: Plant Research	
Date: February 27, 2020	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"><li>● How do we determine what plants to put in the garden?</li></ul>	
Student Outcomes: <ul style="list-style-type: none"><li>● Students will research plants to put in the garden and consider<ul style="list-style-type: none"><li>○ Space</li><li>○ Time it takes to grow</li><li>○ Sunlight requirements</li></ul></li><li>● Students will record the information from their research in their notebooks</li></ul>	
Standards: <ul style="list-style-type: none"><li>● RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</li></ul>	
Materials: <ul style="list-style-type: none"><li>● Garden Club notebook</li><li>● Lesson Powerpoint<ul style="list-style-type: none"><li>○ <a href="https://docs.google.com/presentation/d/1TL9uikz2KAJv_Rguud59WrUFMonaPWgFWqmcD00Rv5E/edit?usp=sharing">https://docs.google.com/presentation/d/1TL9uikz2KAJv_Rguud59WrUFMonaPWgFWqmcD00Rv5E/edit?usp=sharing</a></li></ul></li><li>● Chromebooks</li><li>● Garden tools</li></ul>	
Activities	
2:15	Check In <ul style="list-style-type: none"><li>● Check in and snacks</li></ul>

2:20	<p>Questions to think about</p> <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions           <ul style="list-style-type: none"> <li>○ How do we determine what plants to put in the garden?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions           <ul style="list-style-type: none"> <li>○ Example: determine</li> </ul> </li> </ul>
2:23	<p>Video: Garden time lapse</p> <ul style="list-style-type: none"> <li>● Show students the video</li> <li>● Discuss with the students that getting a garden to that point will take time and we are in the process of getting it started</li> </ul>
2:25	<p>Research: Things to consider</p> <ul style="list-style-type: none"> <li>● Have a discussion with the students about things they should consider when researching plants for the garden. Guide students to think about:           <ul style="list-style-type: none"> <li>○ Space (of garden and size of plants)</li> <li>○ Amount of sunlight (our garden is very shaded so plants that need full sun will not do well)</li> <li>○ Time it takes to grow (From planting, garden club will only be about 3 months so plants should have a short growing time)</li> </ul> </li> </ul>
2:30	<p>Plant Research</p> <ul style="list-style-type: none"> <li>● Have students grab their assigned chromebooks and log into their Google account</li> <li>● Students will research plants that they are interested in growing and record the plant, how long it takes to grow, and how much sunlight it needs in their notebooks</li> <li>● After students have researched, they will share out the plant and the information on the next slide</li> </ul>
3:00	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden</li> </ul>

	<ul style="list-style-type: none"> <li>○ Think about the type of plants you researched</li> <li>○ Where could we plant these in the garden?</li> <li>○ Continue to prepare the garden for planting</li> <li>○ Be safe and follow the rules</li> <li>● Students will work in the garden to continue loosening the soil in the garden beds to prepare for the plants</li> </ul>
3:30	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>
3:32	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook           <ul style="list-style-type: none"> <li>○ What plant are you most interested in growing? Why?</li> <li>○ How would your plant be beneficial/useful?</li> </ul> </li> </ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"> <li>● Students will turn in their Garden Club notebooks and sign out</li> </ul>



Week 3: Plants and Ecosystems

Grades: 4th and 5th

Lesson 6: Planting

Date: March 2, 2020

Time: 2:15 - 3:45

Guiding Questions:

- How do we determine where to put plants in our garden?

Student Outcomes:

- Students will fill up the garden beds with soil
- Students will determine where to plant in the garden bed
- Students will plant in the garden beds

Standards:

- 5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]
- D2.Civ.6.3-5. Describe ways in which people benefit from and are challenged by working together, including through government, workplaces, voluntary organizations, and families.

Materials:

- Garden Club notebook
- Lesson Powerpoint
  - [https://docs.google.com/presentation/d/1Ip3Q0YZS4eO3Bhm\\_y-I\\_Qy32RiaEUlktTX7GWb9e7TU/edit?usp=sharing](https://docs.google.com/presentation/d/1Ip3Q0YZS4eO3Bhm_y-I_Qy32RiaEUlktTX7GWb9e7TU/edit?usp=sharing)
- Garden tools
- Plants

2:15	<p>Check In</p> <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	<p>Questions to think about</p> <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions           <ul style="list-style-type: none"> <li>○ How do we determine where to put plants in our garden?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions           <ul style="list-style-type: none"> <li>○ Example: determine</li> </ul> </li> </ul>
2:23	<p>Video: Planting in a garden bed</p> <ul style="list-style-type: none"> <li>● Show students the video</li> <li>● Discuss with the students how she plants in the garden bed           <ul style="list-style-type: none"> <li>○ Fills with soil</li> <li>○ Digs a hole with a shovel</li> <li>○ Carefully takes plant out of pot</li> <li>○ Places plant in the hole</li> <li>○ Covers soil and moves soil to make sure plant is planted</li> </ul> </li> </ul>
2:25	<p>Plants</p> <ul style="list-style-type: none"> <li>● On the next slide, tell students what plants were brought to plant in the garden           <ul style="list-style-type: none"> <li>○ Manoa Lettuce</li> <li>○ Romaine Lettuce</li> <li>○ Rosemary</li> <li>○ Lavender</li> <li>○ Serrano Peppers</li> <li>○ Jalapeno Peppers</li> <li>○ Chili Peppers</li> <li>○ Bell Peppers</li> <li>○ English and French Thyme</li> <li>○ Spearmint</li> </ul> </li> <li>● Explain to students when we go out in the garden, we can decide how to distribute the plants.</li> </ul>

	<ul style="list-style-type: none"> <li>● On the next slide, explain to the students that after we plant, we will then sketch out the garden beds and label where the plants are</li> </ul>
2:30	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ Adding soil to the garden beds</li> <li>○ Plant our plants in the decided upon garden beds (but also be open to change)</li> <li>○ Document what and where the plants are in the garden beds</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Students will first add the soil to the garden beds. The yarn grids can be readjusted after filling. Fill up the garden beds that students will be planting in first</li> <li>● After adding the soil, discuss with the students how we should determine which plants to put in the 2 beds we will be using           <ul style="list-style-type: none"> <li>○ Example: one student suggested putting half the plants in one garden bed and half the plants in the other. The students agreed</li> </ul> </li> <li>● Divide up the plants and have students select a square to plant in</li> <li>● After planting, students will sketch in their notebooks where the plants are in the 2 garden beds</li> <li>● Students will continue to add soil to all the other garden beds</li> </ul>
3:28	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>
3:30	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook           <ul style="list-style-type: none"> <li>○ What plants did you plant in the garden?</li> <li>○ Reflect on what you did today in the garden</li> </ul> </li> </ul>



3:45	Sign out <ul style="list-style-type: none"><li>• Students will turn in their Garden Club notebooks and sign out</li></ul>
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Lesson 7: What Plants Need	
Date: March 3, 2020	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"><li>• What resources are necessary for healthy plant growth?</li></ul>	
Student Outcomes: <ul style="list-style-type: none"><li>• Students will understand the materials that plants need to grow<ul style="list-style-type: none"><li>○ Sunlight</li><li>○ Water</li><li>○ Carbon dioxide</li></ul></li><li>• Students will understand photosynthesis<ul style="list-style-type: none"><li>○ Plants take sunlight, water, and carbon dioxide to make glucose and oxygen</li></ul></li></ul>	
Standards: <ul style="list-style-type: none"><li>• 5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]</li></ul>	
Materials: <ul style="list-style-type: none"><li>• Garden Club notebook</li><li>• Lesson Powerpoint<ul style="list-style-type: none"><li>○ <a href="https://docs.google.com/presentation/d/1nh9gklQ0NiW6h4GmYkZGw-INd3EJWkNQMuttle10PEQ/edit?usp=sharing">https://docs.google.com/presentation/d/1nh9gklQ0NiW6h4GmYkZGw-INd3EJWkNQMuttle10PEQ/edit?usp=sharing</a></li></ul></li><li>• Garden tools</li></ul>	

2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	Questions to think about <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions             <ul style="list-style-type: none"> <li>○ What resources are necessary for healthy plant growth?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions             <ul style="list-style-type: none"> <li>○ Example: necessary</li> </ul> </li> </ul>
2:23	Video: How do plants become seeds? <ul style="list-style-type: none"> <li>● Show students the video</li> <li>● Discuss with the students the parts of a seed             <ul style="list-style-type: none"> <li>○ Seed coat</li> <li>○ Embryo</li> <li>○ Endosperm</li> </ul> </li> <li>● Discuss with the students about how seeds germinate and go over picture on the next slide</li> <li>● Recap the information with the students and have them share out what they learned. Type up on the next slide</li> </ul>
2:35	Videos: Grover and Photosynthesis song <ul style="list-style-type: none"> <li>● Show students the video with Grover and discuss what Grover was doing             <ul style="list-style-type: none"> <li>○ Grover was feeding the plants human food. What do plants “eat”? (water)</li> </ul> </li> <li>● Show the photosynthesis song once through. After, go back to the beginning of the video and discuss             <ul style="list-style-type: none"> <li>○ Plants need sunlight, water, and carbon dioxide</li> <li>○ They go through photosynthesis</li> <li>○ Make glucose and oxygen</li> </ul> </li> <li>● Recap the information with the students and have them share out what they learned. Type up on the next slide</li> </ul>
2:50	Working in the garden

	<ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ Think about what plants need to grow. How can we be sure our plants are getting those things?</li> <li>○ Take care of our garden</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Students will work in the garden to continue loosening the soil in the garden beds to prepare for the plants</li> </ul>
3:28	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>
3:30	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook           <ul style="list-style-type: none"> <li>○ How are the plants in your garden bed doing?</li> <li>○ What resources do your plants need?</li> <li>○ How can you make sure our garden is getting those resources?</li> <li>○ Reflect on what you did today in the garden</li> </ul> </li> </ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"> <li>● Students will turn in their Garden Club notebooks and sign out</li> </ul>

Lesson 8: Ecosystems	
Date:	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"> <li>● How are gardens examples of ecosystems?</li> </ul>	
Student Outcomes: <ul style="list-style-type: none"> <li>● Students will understand how ecosystems work             <ul style="list-style-type: none"> <li>○ Food chains</li> <li>○ Food webs</li> <li>○ Decomposers</li> </ul> </li> <li>● Students will understand how the garden is an ecosystem</li> </ul>	
Standards: <p>5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]</p>	
Materials: <ul style="list-style-type: none"> <li>● Garden Club notebook</li> <li>● Lesson Powerpoint             <ul style="list-style-type: none"> <li>○ <a href="https://docs.google.com/presentation/d/1FKOImUh_amTAB4coulk2H7n002t6HYDJ_1WgRotDqfw/edit?usp=sharing">https://docs.google.com/presentation/d/1FKOImUh_amTAB4coulk2H7n002t6HYDJ_1WgRotDqfw/edit?usp=sharing</a></li> </ul> </li> <li>● Garden tools</li> </ul>	
2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>

2:20	<p>Questions to think about</p> <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions           <ul style="list-style-type: none"> <li>○ How are gardens examples of ecosystems?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions</li> </ul>
2:23	<p>Video: Food Chains</p> <ul style="list-style-type: none"> <li>● Show students the video</li> <li>● Discuss with the students</li> </ul>
2:35	<p>Video: Decomposers</p> <ul style="list-style-type: none"> <li>● Show students the video Recap the information with the students and have them share out what they learned. Type up on the next slide</li> </ul>
2:45	<p>Identifying the parts of our garden ecosystem</p>
2:50	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ Think about our garden ecosystem. Can we see it at work in our garden?</li> <li>○ How is your garden bed doing?</li> <li>○ Take care of our garden</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Students will work in the garden to continue loosening the soil and also weed the garden beds with plants in them</li> </ul>
3:28	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>



3:30	<p>Notebook Reflection</p> <ul style="list-style-type: none"><li>● Students will answer the following questions in their notebook<ul style="list-style-type: none"><li>○ How are the plants in your garden bed doing?</li><li>○ What resources do your plants need?</li><li>○ How can you make sure our garden is getting those resources?</li><li>○ Reflect on what you did today in the garden</li></ul></li></ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"><li>● Students will turn in their Garden Club notebooks and sign out</li></ul>



Week 4: Sustainability
Grades: 4th and 5th

Lesson 9: Sustainability and Recycling	
Date: March 9, 2020	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"><li>• How does recycling help us to be more sustainable?</li><li>• Why should we advocate for recycling?</li></ul>	
Student Outcomes: <ul style="list-style-type: none"><li>• Students will learn about sustainability</li><li>• Students will learn about the 3R's (reduce, reuse, recycle)</li><li>• Students will think about how we can start a recycling program at our school</li></ul>	
Materials: <ul style="list-style-type: none"><li>• Garden Club notebook</li><li>• Lesson Powerpoint<ul style="list-style-type: none"><li>○ <a href="https://docs.google.com/presentation/d/1_ukC6y5D9zZnUhhv2gFhIhRnNxp61c86YDYbZQqtTkI/edit?usp=sharing">https://docs.google.com/presentation/d/1_ukC6y5D9zZnUhhv2gFhIhRnNxp61c86YDYbZQqtTkI/edit?usp=sharing</a></li></ul></li><li>• Garden tools</li></ul>	

2:15	Check In <ul style="list-style-type: none"><li>• Check in and snacks</li></ul>
2:20	Questions to think about <ul style="list-style-type: none"><li>• Go over the slide with the guiding questions<ul style="list-style-type: none"><li>○ How does recycling help us to be more sustainable?</li></ul></li></ul>

	<ul style="list-style-type: none"> <li>○ Why should we advocate for recycling?</li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions           <ul style="list-style-type: none"> <li>○ Example: sustainable, advocate</li> </ul> </li> </ul>
2:23	<p>Video: Compost and landfills</p> <ul style="list-style-type: none"> <li>● Show students the video and have them take notes while watching it</li> <li>● On the next slide, discuss with the students why composting is important and how it helps with sustainability</li> </ul>
2:35	<p>Community Partner: Kokua Hawaii Foundation</p> <ul style="list-style-type: none"> <li>● An educator from the Kokua Hawaii Foundation will present to the students about the 3 R's (reduce, reuse, recycle) and discuss ideas for setting up a school recycling program</li> <li>● Students will take notes and participate in the presentation</li> </ul>
3:15	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ How is your garden bed doing?</li> <li>○ Take care of our garden</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Students will take the community partner out into the garden and show/explain what they are working on</li> </ul>
3:28	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>
3:30	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook           <ul style="list-style-type: none"> <li>○ Why is recycling important?</li> </ul> </li> </ul>



	<ul style="list-style-type: none"><li>○ How can we recycle?</li></ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"><li>● Students will turn in their Garden Club notebooks and sign out</li></ul>

Lesson 10: Cooking Research	
Date: March 10, 2020	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"> <li>● How do gardens teach us about sustainability?</li> </ul>	
Student Outcomes: <ul style="list-style-type: none"> <li>● Students will conduct research to recommend simple recipes to make</li> </ul>	
Materials: <ul style="list-style-type: none"> <li>● Garden Club notebook</li> <li>● Lesson Powerpoint             <ul style="list-style-type: none"> <li>○ <a href="https://docs.google.com/presentation/d/1-ISz9dHGzi3O5NpiwS5sYwL_BWt91MIC6PF5d3wYfic/edit?usp=sharing">https://docs.google.com/presentation/d/1-ISz9dHGzi3O5NpiwS5sYwL_BWt91MIC6PF5d3wYfic/edit?usp=sharing</a></li> </ul> </li> <li>● Garden tools</li> </ul>	

2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	Questions to think about <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions             <ul style="list-style-type: none"> <li>○ How do gardens teach us about sustainability?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions             <ul style="list-style-type: none"> <li>○ Example: sustainability</li> </ul> </li> </ul>
2:23	Video: Sustainability <ul style="list-style-type: none"> <li>● Show students the video and have them take notes while watching it</li> <li>● On the next slide, discuss with the students about sustainability and write</li> </ul>

	<p>down important information</p>
2:35	<p>Video: Sustainability Farming</p> <ul style="list-style-type: none"> <li>● Show students the video and have them take notes while watching it</li> <li>● On the next side, discuss with the students about what sustainability farming is and why it is beneficial</li> </ul>
2:45	<p>Recipe Research</p> <ul style="list-style-type: none"> <li>● Have the students grab their chromebooks, log onto Seesaw, and conduct research for recipes that we can make that utilizes some plants in our garden (review garden plants slide if necessary)</li> <li>● On the slide:           <ul style="list-style-type: none"> <li>○ Using your chromebook, you will research some easy recipes (5 ingredients or less) that we can make with some of the plants in our garden</li> <li>○ Share your recipes on Seesaw</li> </ul> </li> <li>● Once students find their recipes, they will post the links on Seesaw</li> </ul>
3:10	<p>Working in the garden</p> <ul style="list-style-type: none"> <li>● Quickly go over the slide with what students should be thinking about and doing while out in the garden           <ul style="list-style-type: none"> <li>○ How is your garden bed doing?</li> <li>○ Take care of our garden</li> <li>○ Be safe and follow the rules</li> </ul> </li> <li>● Students will take the community partner out into the garden and show/explain what they are working on</li> </ul>
3:28	<p>Clean up</p> <ul style="list-style-type: none"> <li>● Students will collect the garden tools. Then go back to the classroom to work on their notebook reflections</li> </ul>
3:30	<p>Notebook Reflection</p>



	<ul style="list-style-type: none"><li>● Students will answer the following questions in their notebook<ul style="list-style-type: none"><li>○ Why is sustainability important?</li><li>○ What are some ways you can help to be sustainable?</li><li>○ How is the garden doing?</li></ul></li></ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"><li>● Students will turn in their Garden Club notebooks and sign out</li></ul>

Lesson 11: Cooking!	
Date: March 12, 2020	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"> <li>● How do gardens teach us about sustainability?</li> </ul>	
Student Outcomes: <ul style="list-style-type: none"> <li>● Students will prepare ingredients to make the selected recipes in small groups</li> <li>● Students will follow cooking safety rules</li> <li>● Students will share their prepared food and consume</li> </ul>	
Materials: <ul style="list-style-type: none"> <li>● Garden Club notebook</li> <li>● Lesson Powerpoint             <ul style="list-style-type: none"> <li>○ <a href="https://docs.google.com/presentation/d/1oBw_UHebXzkPoZoXAU58q-dohBZ_TvsQWoD2XKKHE_R0/edit?usp=sharing">https://docs.google.com/presentation/d/1oBw_UHebXzkPoZoXAU58q-dohBZ_TvsQWoD2XKKHE_R0/edit?usp=sharing</a></li> </ul> </li> <li>● Cooking tools and utensils needed for the recipe</li> <li>● Ingredients needed for the recipe</li> </ul>	

2:15	Check In <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	Questions to think about <ul style="list-style-type: none"> <li>● Go over the slide with the guiding questions             <ul style="list-style-type: none"> <li>○ How do gardens teach us about sustainability?</li> </ul> </li> <li>● Clarify any unfamiliar vocabulary in the questions and clarify the definitions             <ul style="list-style-type: none"> <li>○ Example: sustainability</li> </ul> </li> </ul>
2:23	Video: Cooking Safety

	<ul style="list-style-type: none"> <li>● Show students the video and have them take notes while watching it</li> <li>● Go over other safety rules and procedures that need to be addressed (no walking around with knives, don't touch things and then touch the food, measuring, etc)</li> </ul>
2:35	<p>Recipes</p> <ul style="list-style-type: none"> <li>● Go over the recipes with students</li> <li>● Basil Pesto Dip           <ul style="list-style-type: none"> <li>○ <a href="https://www.mybakingaddiction.com/fresh-basil-pesto-recipe/">https://www.mybakingaddiction.com/fresh-basil-pesto-recipe/</a></li> </ul> </li> <li>● Basil Pesto Pasta           <ul style="list-style-type: none"> <li>○ <a href="https://www.justataste.com/basil-pesto/">https://www.justataste.com/basil-pesto/</a></li> </ul> </li> <li>● Tomato Salsa           <ul style="list-style-type: none"> <li>○ <a href="https://www.allrecipes.com/recipe/214893/the-best-fresh-tomato-salsa/">https://www.allrecipes.com/recipe/214893/the-best-fresh-tomato-salsa/</a></li> </ul> </li> <li>● Guacamole           <ul style="list-style-type: none"> <li>○ <a href="https://www.allrecipes.com/recipe/14064/easy-guacamole/">https://www.allrecipes.com/recipe/14064/easy-guacamole/</a></li> </ul> </li> <li>● Split up students into 4 groups and give them a hard copy of the recipe</li> <li>● Distribute the cooking tools and ingredients</li> </ul>
2:45	<p>Cooking!</p> <ul style="list-style-type: none"> <li>● Have students follow their group's recipe to prepare the ingredients and assist with necessary</li> <li>● Have teacher use blender and skillet (not students)</li> <li>● After students have prepared their recipe, they should clean up their work station and help others who need it</li> </ul>
3:30	<p>Eating!</p> <ul style="list-style-type: none"> <li>● Have students bring their prepared dishes to a table and serve :)</li> </ul>
3:35	<p>Notebook Reflection</p> <ul style="list-style-type: none"> <li>● Students will answer the following questions in their notebook (while they eat)           <ul style="list-style-type: none"> <li>○ What did you cook today?</li> <li>○ Reflect on the process? Was it fun? Hard work? Rewarding? Delicious?</li> </ul> </li> </ul>



3:45	<p data-bbox="349 262 462 304">Sign out</p> <ul data-bbox="397 346 1250 388" style="list-style-type: none"><li data-bbox="397 346 1250 388">● Students will turn in their Garden Club notebooks and sign out</li></ul>
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Week 5: Community and Presentation

Grades: 4th and 5th

Lesson 12: Preparing for the garden presentation

Duration: 3 days

Time: 2:15 - 3:45

Guiding Questions:

- How can our garden help us?
- How can our garden help our community?

Student Outcomes:

- Students will create a presentation to explain what they learned in garden club

Standards:

- 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]
- SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- D4.3.3-5. Present a summary of arguments and explanations to others outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, and reports) and digital technologies (e.g., Internet, social media, and digital documentary).

Materials:

- Garden Club notebook
- Chromebooks

2:15	<p>Check in</p> <ul style="list-style-type: none"> <li>● Check in and snacks</li> </ul>
2:20	<p>Questions to think about</p> <ul style="list-style-type: none"> <li>● Write the guiding questions on the board           <ul style="list-style-type: none"> <li>○ How can our garden help us?</li> <li>○ How can our garden help our community?</li> </ul> </li> </ul>
2:23	<p>Explaining the presentation</p> <ul style="list-style-type: none"> <li>● Tell students that next week, they will be presenting to other teachers about what they learned in garden club, how they feel about garden club, and how gardens can help us and our community</li> <li>● Let students know they can create the presentation in any way they would like (chromebooks, posters, etc)</li> </ul>
2:30	<p>Work Time</p> <ul style="list-style-type: none"> <li>● Over the course of 3 days, students will work on their presentations</li> <li>● Remind students that they can refer back to their garden club notebooks to help them remember what they learned and did</li> <li>● Provide assistance if needed</li> <li>● If students would like to go out into the garden to look at things, that's fine</li> </ul>
3:40	<p>Clean up</p> <ul style="list-style-type: none"> <li>● At the end of each day, students will clean up</li> </ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"> <li>● Students will turn in their Garden Club notebooks and sign out</li> </ul>



Lesson 13: Garden Presentation	
Duration: 1 day	Time: 2:15 - 3:45
Guiding Questions: <ul style="list-style-type: none"><li>● How can I use my knowledge about gardening to give back to my community?</li></ul>	
Student Outcomes: <ul style="list-style-type: none"><li>● Students will present to teachers about what they learned in garden club and how a garden can help our community</li></ul>	
Standards: <ul style="list-style-type: none"><li>● 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]</li><li>● SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</li><li>● D4.3.3-5. Present a summary of arguments and explanations to others outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, and reports) and digital technologies (e.g., Internet, social media, and digital documentary).</li></ul>	
Materials: <ul style="list-style-type: none"><li>● Student presentations</li><li>● Garden Club notebook</li><li>● Chromebooks</li></ul>	
2:15	Check in



	<ul style="list-style-type: none"><li>● Check in and snacks</li></ul>
2:20	<p>Questions to think about</p> <ul style="list-style-type: none"><li>● Write the guiding questions on the board<ul style="list-style-type: none"><li>○ How can I use my knowledge about gardening to give back to my community?</li></ul></li></ul>
2:23	<p>Explaining the presentation</p> <ul style="list-style-type: none"><li>● Tell students that the day for their presentations is finally here!</li><li>● Wait for teachers to arrive</li></ul>
2:30	<p>Presentation time!</p> <ul style="list-style-type: none"><li>● Thank the teachers for coming</li><li>● Explain that the students will present and then take the teachers out into the garden to show them and explain what they have learned</li><li>● Monitor discussions between students and teachers</li><li>● After the presentations, thank the teachers for coming :)</li></ul>
3:45	<p>Sign out</p> <ul style="list-style-type: none"><li>● Students will turn in their Garden Club notebooks and sign out</li></ul>