STEMS²

Adapting & Coexisting

BACKGROUND:

Lesson Background:

Hawaii is known for being a "melting pot." We are muilti-culturual and multiracial state. As many people with different backgrounds coexist on this small island, many animals with different adaptations do as well. Through this unit, students will learn about the internal and external structures of living things (both plants and animals) and how these structures help a plant/animal survive. There is always a dominant western narrative present in school curriculum; and this unit is centered around plants and animals that students see in Hawai'i. Students will learn that all living things need one another to survive and that coexisting in a community is the most important part of it all.

Having community partners makes learning more meaningful and allows students to see that their learning goes beyond the four walls of a classroom. An important part of this unit, specifically designed for fourth graders, is that they attend the usual fourth grade field trips (pre-covid). Field trips: Loko'ia, Lo'i Patch, Geography Field Trip, Aquarium- anywhere we go we will be able to see living plants/animals. Without knowing anything about it- you can observe and engage in discourse about the structure, function, adaptations, and more. These learning journeys usually take place in the first and second quarter. I would plan to teach this unit alongside the Loko'ia learning journey. As the teacher, it is okay that you are not the expert during these learning journeys. It is important to communicate with your community partners key points/themes you'd like for them to address and trust the experiences. You are facilitating these learning experiences and humbly entertaining another's space.

Unit Overview:

This interdisciplinary unit is designed to be used in a fourth grade classroom. Throughout the unit's activities, students will understand how living things use their structures to help them survive. By the end of the unit, students will understand that everything plays a part in the community and that we all need each other. Students will understand that all their actions cause a reaction-

positive or negative and that they get to decide what kind of footprint they make. Without background knowledge of a specific living thing- students will be able to draw conclusions about visible structures/adaptations providing reasonable explanation. Finally, students will pick their own indigenous plant or animal to teach about. They will be creating diagrams on their chosen living thing. They will share their findings with families, school faculty, and appropriate community members (invite experts from learning journeys). We will hold a gallery walk though in the cafeteria (pre-covid) or use PCHES productions (school video announcements) to share our new-found knowledge.

Lesson Plan - Table of Contents			
Week 1 Lesson Plans	Week 2 Lesson Plans	Week 3 Lesson Plans	Week 4 Lesson Plans
W1, L1 Field trip to Fishpond	W2, L1 Introduce Project & Station Work	W3, L1 GLAD: Taro	W4, L1 Research Day 1
W1, L2 Guessing Game	W2, L2 Plant guts	W3, L2 GLAD: Ae'o Bird	W4, L2 Research Day 2 (same as day 1)
W1, L3 See/Think/Wonder	W2, L3 Plant guts	W3, L3 Project Focus	W4, L3 Research Day 3 (Optional, same as day 1)
			Presentation of Findings

STAGE #1:

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This unit will allow students to apply various discipline concepts that they are learning throughout the school year. By the end of this unit, students will design a diagram that shows their plant/animal's internal and external structures. Students will be able to identify how those living things exist in their environment. Students already know: how to write informational pieces, about adaptations (wonders), natural resources in an ahupua'a (social studies). Students get to choose how they want to present their findings at the end of the unit.

Unit Plan Title: Adapting & Coexisting

Essential Question: Why do living things need one another to coexist?

Enduring Understanding(s):

- Students will understand that organisms have adaptations that help them survive
- Students will understand that if we don't preserve these environments, then these organisms won't survive
- Students will understand how we can be detrimental or positively impact the environment
- Students will understand how our actions affect the survival of other species

Standard Benchmarks and Values:

Science	Technology	Engineering	Mathematics	Social Science

STANDARDS INTRODUCED (touched on not in depth):

SCIENCE

- 4-LS1-2Performance Expectation: Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

ELA

- Standard 2: Reading: READING COMPREHENSION: Use reading strategies to construct meaning from a variety of texts
  - Benchmark LA.4.2.2: Use organizational patterns (e.g., sequential, cause and effect) to access and understand information

SOCIAL STUDIES

- Standard 8: Economics: RESOURCES, MARKETS, AND GOVERNMENT-Understand economic concepts and the characteristics of various economic systems

ART:

- Standard 1: VISUAL ARTS: Understand and apply art materials, techniques, and processes in the creation of works of art and understand how the visual arts communicate a variety of ideas, feelings, and experiences
    - Benchmark FA.4.1.2: Use a combination of visual and performing arts to create an original artwork

STANDARDS ADDRESSED:

SCIENCE

- 4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

ELA

- Standard 1: Reading: CONVENTIONS AND SKILLS: Use knowledge of the conventions of language and texts to construct meaning for a range of literary and informational texts for a variety of purpose
    - Benchmark LA.4.1.2: Use print and online resources to clarify meaning and usage

- Standard 6: Oral Communication: CONVENTIONS AND SKILLS: Apply knowledge of verbal and nonverbal language to communicate effectively in various situations: interpersonal, group, and public: for a variety of purposes
    - Benchmark LA.4.6.2: Give short, informal presentations to inform or persuade
    - Benchmark LA.4.6.3: Use visual structures and summarize key ideas when listening to oral messages in order to improve comprehension
    - Benchmark LA.4.6.5: Vary expression, pacing, pitch, and intonation according to content and purpose
    - Benchmark LA.4.6.6: Use gestures, facial expressions, and consistent eye contact to engage listeners and enhance the spoken word

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GLO Standards:

- GLO #1: Self-Directed Learner (The ability to be responsible for one's own learning)
- GLO 3: Complex Thinker (The ability to demonstrate critical thinking and problem solving)
- GLO #2: Community Contributor (The understanding that it is essential for human beings to work together)
- GLO #5: Effective Communicator (The ability to communicate effectively)

ISTE - TECHNOLOGY

- **Standard #3: Knowledge Constructor**
  - (D) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

Sense of Place (Nā Hopena A ʻo and beyond)

- **Standard #1: Strengthened Sense of Belonging**
  - (B) Know about the place I live and go to school
  - H) Actively participate in school and communities
- **Standard #2: Strengthened Sense of Responsibility**
  - (B) See self and others as active participants in the learning process
  - (D) Ask for help and feedback when appropriate
  - (H) Honor and make family, school and communities proud
- **Standard #3: Strengthened Sense of Excellence**
  - (H) Assess and make improvements to produce quality work
- **Standard #4: Strengthened Sense of Aloha**
  - (A) Give generously of time and knowledge
  - (E) Respond mindfully to what is needed
  - (G) Share the responsibility for collective work
  - (H) Spread happiness
- **Standard #5: Strengthened Sense of Total Well-Being**
  - (E) Utilize the resources available for wellness in everything and everywhere
  - (G) Engage in positive, social interactions and has supportive relationships

Critical Skills and Concepts:

By the end of this unit students should be able to make a supported claim. This claim should exhibit a deep understanding of animal adaptations. Students should be able to know that their actions impact other living creatures.

- Living creates need reciprocal relationships to coexist
    - Our part in this
- Living organisms have internal and external structures that help them survive

STAGE 2:

At this point in the unit students have already seen a real fishpond and the inner workings of that community. Students are very familiar with the essential vocabulary and have been introduced to several indigenus plants and animals.

Authentic Performance Tasks:

Students will have a negotiated assessment. They need to create a diagram to teach others the findings on their chosen native animal. Their findings can be presented as a drawing, diagram, written paper, video public service announcement, comic strip, ect. Students can also propose a way to present their findings. Students will pick their own indigenous plant or animal to teach about. They will be creating diagrams on their chosen living thing. Students will need to show that they know the internal and external structures of their plant/animals and explain how it is able to exist in its environment.

Authentic Audience:

They will share their findings with families, school faculty, and appropriate community members. Depending on circumstances; there will be different authentic audiences. If school continues the way it is; we will use PCHES productions (school video announcements) to share our new-found knowledge. If we have to continue staying in class bubbles; we will hold a gallery walk though in the cafeteria. In a indeal non-covid world, we will ask fishpond community experts to be a guest in our classroom.

Other Evidence:

Throughout the unit students will notetake in their science notebook and contribute to class discussions.

- Science notebook/learning journal
- Discussion participation

- Presentation
- Drawings
- Teacher observations
- Active speaking & Listening

STAGE 3:

- Students learn best when they are given student choice and student voice. Students also learn best when they are able to apply their knowledge outside of the classroom. Students also learn best when that learnt knowledge is visible in their community.
- Students learn best when there are various examples- I will be providing students with written, verbal, and visual teaching materials. I have created corresponding powerpoint slides. This will allow me to differentiate for the students in my classroom. Students learn best from multiple modes of learning. Throughout this unit they will have the opportunity to work in large groups, small group activities, and individual work.

Learning Plan:

Each lesson in this unit is designed to create a foundation for understanding the native plants/animals on this island and our kuleana to care.

- Students will first start with a field trip to the fishpond as a "hook." Students need to know that the learning is *real.* This will take ½ of a school day.
- Then will we do a game that also gets them familiarized with the essential vocabulary. This will take 30-45 minutes.
- Afterwards I will do a see/think/wonder - this helps inform me as a teacher & see where our learning is going.
- I will then introduce the project and have students work in small groups at stations. The stations are:
    - Adaptation match up
    - Picture vocabulary card game
    - Compare and contrast
    - Reading response

  Each station will be about 15-20 minutes. All will be small groups, but the reading response will be independent.
- In the next two lessons we will dissect different plants and talk about their structures/adaptations/survival. (30-45 mins)
- The next two lessons will be a GLAD strategy taught lesson on Taro and A'o bird. 45 mins.
- Students will zoom in and focus on finding the direction to their project. Students will make proposals/decide on how they will share their findings. (45 mins)

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- The next 3 days are research days.
- Lastly, students will present their findings.

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			Presentation of Findings

Corresponding slides to project for students	(click here for resource)

Week One Lessons:

Week 1	Lesson 1: Field trip to Fishpond
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	**Standards:** ❑ **GLO #2:** Community Contributor (The understanding that it is essential for human beings to work together) ❑ **GLO #5:** Effective Communicator (The ability to communicate effectively) **Understandings:** ❑ Students will understand that they have to abide by the rules they set and agree upon. ❑ Students will understand that they can listen respectfully by actively listening to the speaker, ask

	questions to show their engagement and show appreciation by thanking the speaker for sharing their knowledge.

Notes and Nuances:
Vocabulary, connections, common mistakes, typical misconceptions, etc.
	• Teacher will ask the Fishpond expert to share information about the following:
	  ▪ Point out animals essential to the fishpond
	  ▪ Point out plants essential to the fishpond
	  ▪ Discourse around survival, behavior, adaptations, community

Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	• Need to find a Loko I'a Community Partner ○ He'eia Fishpond

Lesson Launch Notes:
Exactly how will you use the first five minutes of the lesson?
	• Teacher verbally tells students we are going to go on a learning journey, we are going to visit a Loko I'a.
	• Teacher reviews field trip expectations by asking students students the following:
	  ○ What are some rules we should follow on the bus and during our field trip?
	  ○ How can we make sure we are being respectful to our person sharing information?
	  ○ What can we do to show we appreciated them taking the time out of their day to help us grow and learn?

Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	• Students stay engaged and respectful of the space.
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a foreshadowing of tomorrow? List the questions.*	• What did you learn? • What did you see? • What wonderings do you have? --- Once students have completed the activity- have a discussion about the essential question: "Why do living things need one

	another to coexist?"

Evidence of Success:
What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.
	Expectation of students:
	• Abide by learning journey rules they set and agreed upon
	• Abide by discussion rules and ask questions
	  ○ raising their hand before they speak
	  ○ speaking loud and clear
	  ○ listen to others when they are speaking
	  ○ Sharing their ideas
	  ○ Asking questions
	• Showing gratitude by saying thank you and staying engaged

Week 1	**Lesson 2: Guessing Game**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. GLO 3: Complex Thinker (The ability to demonstrate critical thinking and problem solving) GLO #2: Community Contributor (The understanding that it is essential for human beings to work together) GLO #5: Effective Communicator (The ability to communicate effectively) --- Students will discuss with their group the three characteristics given (outer covering, locomotion, and how it gets food) for their organism, and they will create clues for their chart.
Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	Note: Students may have a hard time working with a small group to come up with clues for their organism. Reinforce active listening skills with students by modeling listening behavior such as making eye contact with the speaker and making comments or asking questions once they are done speaking. Post sentence starters

	I agree, because _____ . I disagree, because _____ . I think _____ .
Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	Prepare a four-column chart on the board or chart paper with the following column titles: 1. Guesses for Plants and Animals 2. Clues for Outer Covering 3. Clues for Locomotion 4. Clues for How It Gets Food Write the name of a plant or animal on separate note cards. Suggestions are as follows: Plumeria, Mongoose, Ti Leaf, Myna bird, Centipede, Tara, Cockroach, Lizard, Moneypod tree, Ti Plant, Nene bird, Kukui nut tree, Frog, Dog, Butterfly, Tortoise, Aloe vera plant, Succulent, ect. (Substitute other organisms as desired, or increase the total number of note cards as needed for the number of groups in the class.)
Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	Place students into groups of three to four. Give each group a secret organism on a note card.
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	Student groups should discuss the three characteristics on the chart's column titles (outer covering, locomotion, and how it gets food) and create "clues for their organism. After 5 minutes, record each group's clues on the chart. Give each group a turn to present their clues to the rest of the class and record the guesses from the class on the chart. After recording a few guesses, ask the group to circle the correct organism or write in the correct organism if it was not guessed. Continue to rotate groups until all groups have had a turn.
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a*	Open class discourse: • Did any of the animals or plants have similar outer coverings?

foreshadowing of tomorrow? List the questions.	• Did any of the animals or plants have similar locomotion? • Do any of the animals have similar ways of getting food? Once students have completed the activity, have them refer to the Investigative Phenomena question, anchor their learning, and revise their thinking.
Evidence of Success: *What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.*	Students should be able to discuss three characteristics given (outer covering, locomotion, and how it gets food) for their organism.

Week 1	**Lesson 3: See - Think - Wonder** **Investigative Phenomena** **(30-45 mins)** **Slides #**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	**Standard #3: Knowledge Constructor** (D) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. GLO 3: Complex Thinker (The ability to demonstrate critical thinking and problem solving) --- • Students will be filling in a See - Think - Wonder

	• Students will be creating a driving question for the unit
Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	Throughout the unit students should revisit the driving question. Encourage students to ask any additional questions about this or other related phenomena.
Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	• Chart paper- Large See-Think-Wonder • Wonder Wall (somewhere posted in the classroom) • Video: Hawaiian stream fish climb waterfalls ○ Video of native Hawaiian stream fish (o'opu) climbing a waterfall. These unique fish have a fused pelvic fin that acts like a sucker and allows them to climb waterfalls. They have been found at the top of 420 ft falls! This video was taken during the Pacific Island Network Inventory & Monitoring Program's Streams Monitoring Protocol. • Science Notebook • Pencil
Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	Allow students to view the video • Display or project the Investigative Phenomena video • Student draw a 3-table chart in their science notebook, see-think-wonder
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	Ask students if they have ever wondered what an animal's unique parts have to do with its survival? Allow students time to generate possible answers to the question or even generate their own questions. You could record the student responses - have them "cocreate" the driving question/ lead students there (Jamboard if virtual, sticky-notes to chart paper if in person) Let students know that, in order to explain the phenomena they have just seen, they are going to be investigating what an animal's unique parts have to do with its survival.
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a*	Students now have created a driving question (guided by the teacher) that they will refer to throughout the unit. Once students have completed the activity- have a discussion

foreshadowing of tomorrow? List the questions.	about the essential question: "Why do living things need one another to coexist?"
Evidence of Success: *What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.*	Students will interact with the following everyday phenomena: • How do characteristics of plants and animals differ from each other? • What are the different parts and structures of plants? • How do our internal body structures interact to help us survive? • How do physical traits support an organism's ability to survive, grow, and reproduce?

Week Two Lessons:

Week 2	**Lesson 1: Introduce Project & Station Work**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	GLO #1: Self-Directed Learner (The ability to be responsible for one's own learning) GLO 3: Complex Thinker (The ability to demonstrate critical thinking and problem solving) GLO #2: Community Contributor (The understanding that it is essential for human beings to work together) GLO #5: Effective Communicator (The ability to communicate effectively) 4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Standard 1: Reading: CONVENTIONS AND SKILLS: Use knowledge of the conventions of language and texts to

	construct meaning for a range of literary and informational texts for a variety of purpose ○ Benchmark LA.4.1.2: Use print and online resources to clarify meaning and usage Standard 6: Oral Communication: CONVENTIONS AND SKILLS: Apply knowledge of verbal and nonverbal language to communicate effectively in various situations: interpersonal, group, and public: for a variety of purposes Students will be able to effectively work in small groups.
Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	Students will match physical traits with how they support an organism's ability to survive, grow, and reproduce. Standard #2: Strengthened Sense of Responsibility Students will be working in small groups.
Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	1. Adaptation match up- Print and cut cards for students 2. Picture vocabulary- Cut out and shuffle the I Have . . . Who Has? cards. You'll need one set if you plan to play with the whole class, or several sets if you're going to have students play in groups. 3. Compare and contrast- 4.
Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	Pre activity discussion: ● What are adaptations? ● How long does it take for adaptations to occur? ● What types of organisms have adaptations?
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions,*	<table><tr><td>Adaptation match up done as a station</td><td>Picture Vocabulary I have... Who Has</td><td>Compare & contrast 'Ulili and Ae'o</td><td>Reading response Students read</td></tr></table>

or tasks will students be working on during the lesson?	Use local plant/animals & create cards Students work in their small groups and match up the plant & animal cards with the adaptation card game. The student with the first card starts and reads the card. ("I have the first card. Who has . . . ? The student who has the matching word for the definition on the first card reads his or her card. Students continue to listen to peers' definitions and read the I Have . . . Who Has? cards until all cards have been read. Bird bird based off of external structures/adaptations about 'Ohi'a Lehua AND Answer question: How do external structures help animals survive in their environment? If students get done early- Students can read the mo'olelo for 'Ohi'a Lehua
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a foreshadowing of tomorrow? List the questions.*	Today's lesson is very independent and reinforces previous knowledge. Students will be introduced to their project and told that they get to choose an organism to teach others abouts. Students homework: Of the following choices- how will you share your findings? Students will have a negotiated assessment. They need to create a diagram to teach others the findings on their chosen native animal. Their findings can be presented as a drawing, diagram, written paper, video public service announcement, comic strip, ect. Students can also propose a way to present their findings. Students will pick their own indigenous plant or animal to teach about. They will be creating diagrams on their

	chosen living thing. Students will need to show that they know the internal and external structures of their plant/animals and explain how it is able to exist in its environment. Authentic Audience: They will share their findings with families, school faculty, and appropriate community members. Depending on circumstances; there will be different authentic audiences. If school continues the way it is; we will use PCHES productions (school video announcements) to share our new-found knowledge. If we have to continue staying in class bubbles; we will hold a gallery walk though in the cafeteria. In a indeal non-covid world, we will ask fishpond community experts to be a guest in our classroom. --- Once students have completed the activity- have a discussion about the essential question: "Why do living things need one another to coexist?"
Evidence of Success: *What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.*	• Students will be able to explain how physical traits support an organism's ability to survive, grow, and reproduce. • Students will interact with vocabulary and talk though explainainations with one another.

Week 2	**Lesson 2: Plant Guts**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	**Standard #3: Knowledge Constructor** ○ (D) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

	GLO 3: Complex Thinker (The ability to demonstrate critical thinking and problem solving) 4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. --- Students will be able to observe, ask questions, collect and analyze data. Students will be able to draw and communicate reasonable conclusions that are important to all individuals.
Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	Teacher Preparation • Cut the fruits open so the students are able to view the seeds inside. The knife will no longer be needed. • Print worksheet/have students write in a science notebook.
Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	Reusable • 1 Knife (for teacher) • 1 Pair of scissors (per group) • 1 Cup or clear bottle (per class) • 1 Ruler (per group) Consumable • 1 Potted, flowering plant with a thick stem and leaves (can be any type: suggested plant is a gerbera daisy (per group) • 1 Celery stalk with leaves (per class) • 1 Fruit with internal seeds (tomato, orange, apple, cucumber, etc.) (per group) • 1 Bottle of food coloring (per class) • 1 Liter of water (per class) • 1 Plate for dissection (per group)

Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	Distribute a flowering plant to each group and allow them to observe the parts.
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	• Roots: What do you think the purpose of the roots might be? • Stem: What do you think the purpose of the stem might be? • Leaves: What do you think the purpose of the leaves might be? • Colored petals: What is the purpose of the colored petals? Each group will remove the plant carefully from the dirt, gently shaking off the dirt. Using the scissors, they should cut the stem vertically. Have students observe the internal structures of the plant. • What do you notice? Have students draw their observations in their science notebook. --- Next, demonstrate how internal structures bring water from the roots to the stem. • Prepare a cup or bottle by filling the container halfway with water. • Add a few drops of food coloring to the jar. • Show the students the celery stalk. • What do you predict will happen to the celery once it is placed in the colored water? Why do you think this? (The students will pull the celery stalk out of the water, place it on a paper towel, and measure how far the color has traveled. They will do this for four consecutive days, beginning the day after it was originally placed in the colored water. Students will create a bar graph on their science notebook, using these measurements.) • What do you notice about the color in the celery each day?

	• After color has reached the leaves, cut the stem in half vertically (so it is symmetrical) to show the path of the water. • What structures allowed the change in the celery to take place? • How do these structures support the plant's survival and growth?
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a foreshadowing of tomorrow? List the questions.*	Students will be asked what the different parts and structure of the fruit are? --- Once students have completed the activity- have a discussion about the essential question: "Why do living things need one another to coexist?"
Evidence of Success: *What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.*	• Students should be able to compare and contrast internal structures. Action. Students should be able to interact with vocabulary words. • Students should be able to understand that leaves/stems/petals/ect. are essential to survival. • Students will be able to explain why these characteristics are important for this plant. • Students should be able to observe, ask questions, collect and analyze data. • Students should be able to draw and communicate reasonable conclusions that are important to all individuals.

Week 2	**Lesson 3: Plant Guts**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	**Standard #3: Knowledge Constructor** ○ (D) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. GLO 3: Complex Thinker (The ability to demonstrate critical

	thinking and problem solving) 4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. --- Students will be able to observe, ask questions, collect and analyze data. Students will be able to draw and communicate reasonable conclusions that are important to all individuals.
Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	• Internal structure- a part inside a plant or animal • External structure- a part outside a plant or animal Behavior- what a plant or animal does • Growth- an increase or expansion • Basic functions- what different body parts normally do • Reproduction- the act of making copies or similar versions of something • Survival- the process of staying alive and in existence • Function- what something does
Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	Reusable • 1 Knife (for teacher) • 1 Pair of scissors (per group) Consumable • 2 Local Fruit with internal seeds (tomato, orange, apple, cucumber, etc.) (per group) • 1 Plate for dissection (per group)
Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	• Have students look at the two halves of one of the fruits and talk about the seed structures seen. Then have them compare the two halves of a different fruit.

Lesson Tasks, Problems, and Activities (attach resource sheets if needed):
What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?
	• Explain that seeds are found inside fruits. When fruits are broken open or fall to the ground, seeds might fall out. When seeds fall to a new place, reproduction can occur, and a new plant can begin to grow.
	• The students will draw two fruits in their science notebook and answer the questions that follow.
	• As students work through the activity, look for teachable moments to introduce students to the following vocabulary terms. Try to point out examples of the terms as students are working so that they can connect the meaning of the words with their experiences. Encourage students to use the following words as they record and discuss their findings.
	  ○ Internal structure: a part inside a plant or animal
	  ○ External structure: a part outside a plant or animal
	  ○ Behavior: what a plant or animal does
	  ○ Growth: an increase or expansion
	  ○ Basic functions: what different body parts normally do
	  Reproduction: the act of making copies or similar versions of something
	  ○ Survival: the process of staying alive and in existence
	  ○ Function: what something does

Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a foreshadowing of tomorrow? List the questions.*	Once students have completed the activity- have a discussion about the essential question: "Why do living things need one another to coexist?"

Evidence of Success:
What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.
	• Students should be able to compare and contrast internal structures.
	  Action.
	  Students should be able to interact with vocabulary words.
	• Students should be able to understand that seeds are essential to reproduce.
	• Students will be able to explain why these characteristics are important for this plant.
	• Students should be able to observe, ask questions,

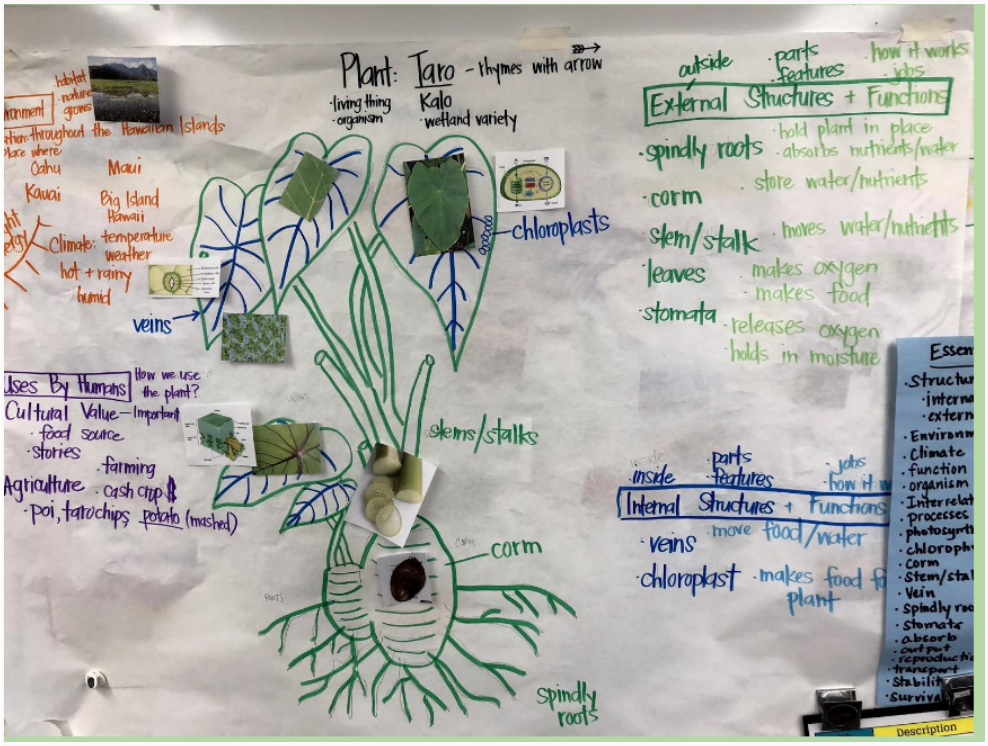
	collect and analyze data. ● Students should be able to draw and communicate reasonable conclusions that are important to all individuals.

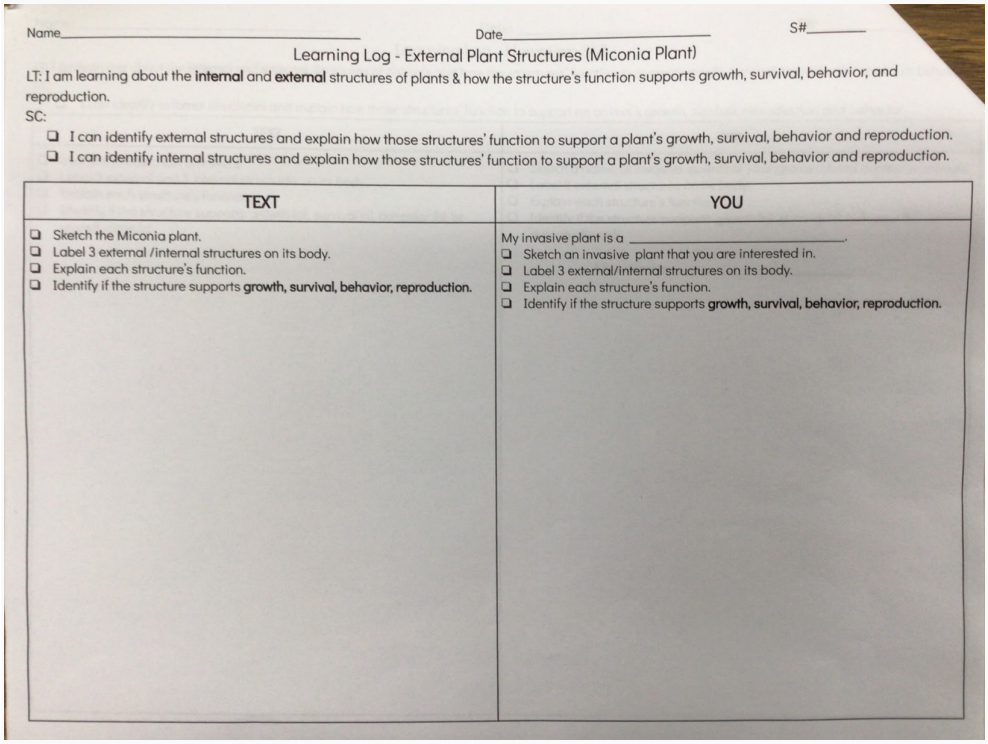
Week Three Lessons:

Week 3	**Lesson 1: GLAD: Taro**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. --- Students will be able to observe, ask questions, collect and analyze data. Students will be able to draw and communicate reasonable conclusions that are important to all individuals.
Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	-

Resources:

What materials or resources are essential for students to successfully complete the lesson tasks or activities?





Name_____ Date_____ S#_____

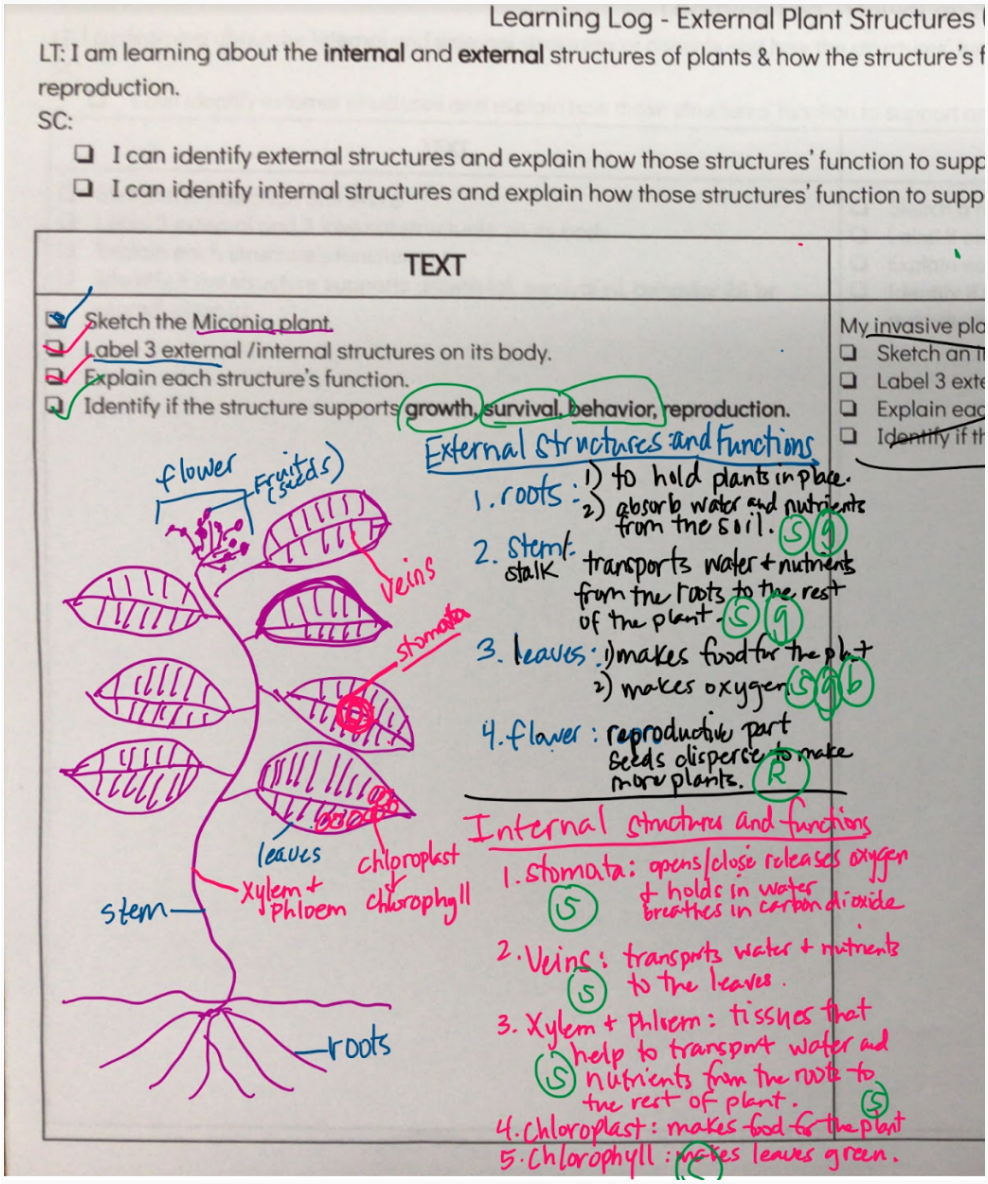
Learning Log - External Plant Structures (Miconia Plant)

LT: I am learning about the **internal** and **external** structures of plants & how the structure's function supports growth, survival, behavior, and reproduction.

SC:

- ❑ I can identify external structures and explain how those structures' function to support a plant's growth, survival, behavior and reproduction.
- ❑ I can identify internal structures and explain how those structures' function to support a plant's growth, survival, behavior and reproduction.

TEXT	YOU
❑ Sketch the Miconia plant. ❑ Label 3 external /internal structures on its body. ❑ Explain each structure's function. ❑ Identify if the structure supports **growth, survival, behavior, reproduction.**	My invasive plant is a _____. ❑ Sketch an invasive plant that you are interested in. ❑ Label 3 external/internal structures on its body. ❑ Explain each structure's function. ❑ Identify if the structure supports **growth, survival, behavior, reproduction.**



Learning Log - External Plant Structures

LT: I am learning about the **internal** and **external** structures of plants & how the structure's f reproduction.

SC:

- ❑ I can identify external structures and explain how those structures' function to supp
- ❑ I can identify internal structures and explain how those structures' function to supp

TEXT

- ❑ Sketch the Miconia plant.
- ❑ Label 3 external /internal structures on its body.
- ❑ Explain each structure's function.
- ❑ Identify if the structure supports growth, survival, behavior, reproduction.

My invasive pla
- ❑ Sketch an
- ❑ Label 3 exte
- ❑ Explain eac
- ❑ Identify if th

External structures and functions

1. roots: 1) to hold plants in place. 2) absorb water and nutrients from the soil. S G
2. stem/stalk: transports water + nutrients from the roots to the rest of the plant. S G
3. leaves: 1) makes food for the plant 2) makes oxygen S G b
4. flower: reproductive part seeds disperse to make more plants. R

Internal structures and functions

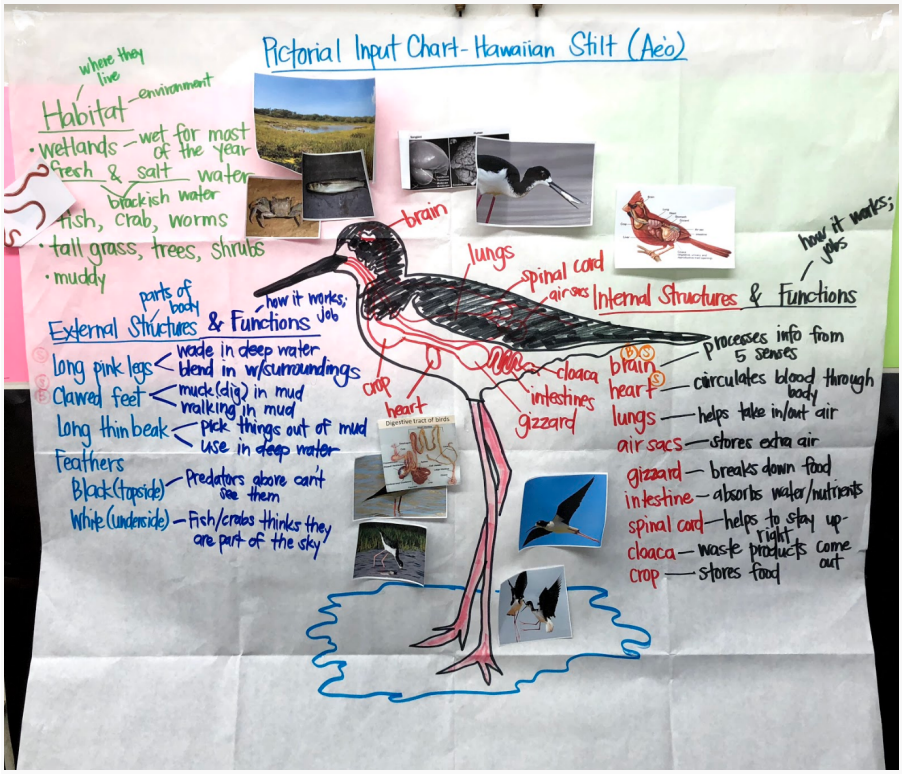
1. stomata: opens/close releases oxygen + holds in water breathes in carbon dioxide S
2. Veins: transports water + nutrients to the leaves. S
3. Xylem + Phloem: tissues that help to transport water and nutrients from the roots to the rest of plant. S S
4. Chloroplast: makes food for the plant
5. Chlorophyll: makes leaves green. C

Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	I will ask students to come to the front carpet area and sit on the floor. All they will see is white paper (if you look closely you can see sketches). I will begin drawing and explaining things (direct instruction).
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	• Students will sit and listen. • Students will share what they already know & ask questions if necessary. Afterwards student will return to their desk and take individual notes: - Sketch the taro

	- Label 3 internal structures - Label 3 external structures - Tell me the function of each Choose another plant & do the same. You may use your chromebook.
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a foreshadowing of tomorrow? List the questions.*	Reinforce learning by asking questions & have students share the plant they did. Once students have completed the activity- have a discussion about the essential question: "Why do living things need one another to coexist?"
Evidence of Success: *What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.*	• Students will be able to sketch the taro • Students will be able to label 3 internal structures • Students will be able to label 3 external structures • Students will be able to tell me the function of each • Students will be able to talk about it's habitat and the things it needs to exist

Week 3	**Lesson 2: Glad Ae'o Bird**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Students will be able to observe, ask questions, collect and analyze data. Students will be able to draw and communicate reasonable conclusions that are important to all individuals.

STEMS²

Notes and Nuances: *Vocabulary, connections, common mistakes, typical misconceptions, etc.*	-
Resources: *What materials or resources are essential for students to successfully complete the lesson tasks or activities?*	
Lesson Launch Notes: *Exactly how will you use the first five minutes of the lesson?*	• I will ask students to come to the front carpet area and sit on the floor. All they will see is white paper (if you look closely you can see sketches). • • I will begin drawing and explaining things (direct instruction).
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	• Students will sit and listen. • Students will share what they already know & ask questions if necessary. Afterwards student will return to their desk and take individual notes: - Sketch the ae'o bird - Label 3 internal structures - Label 3 external structures - Tell me the function of each

	Choose another plant & do the same. You may use your chromebook.
Lesson Closure Notes: *Exactly what summary activity, questions, and discussion will close the lesson and provide a foreshadowing of tomorrow? List the questions.*	Reinforce learning by asking questions & have students share the animal they did. --- Once students have completed the activity- have a discussion about the essential question: "Why do living things need one another to coexist?"
Evidence of Success: *What exactly do I expect students to be able to do by the end of the lesson, and how will I measure student mastery? That is, deliberate consideration of what performances will convince you (and any outside observer) that your students have developed a deepened (and conceptual) understanding.*	• Students will be able to sketch the ae'o bird • Students will be able to label 3 internal structures • Students will be able to label 3 external structures • Students will be able to tell me the function of each • Students will be able to talk about it's habitat and the things it needs to exist

Week 3	**Lesson 3: Project Focus**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Standard 6: Oral Communication: CONVENTIONS AND SKILLS: Apply knowledge of verbal and nonverbal language to communicate effectively in various situations: interpersonal, group, and public: for a variety of purposes GLO #1: Self-Directed Learner (The ability to be responsible for one's own learning)

	GLO #5: Effective Communicator (The ability to communicate effectively) Students will be able to observe, ask questions, collect and analyze data. Students will be able to draw and communicate reasonable conclusions that are important to all individuals.
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	Students meet with the teacher one-on-one and pitch their idea for their negotiated assessment. They can create a diagram to teach others the findings on their chosen native plant.animal. Their findings can be presented as a drawing, diagram, written paper, video public service announcement, comic strip, ect. Students also had time to brainstorm ideas & propose a way to present their findings. Today students are setting their: - indigenous plant or animal to teach about - How they will share findings on their chosen living thing - Their **WHY** for choosing this organism

Week Four Lessons:

Week 4	**Lesson 1-3: Research Day**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. GLO #1: Self-Directed Learner (The ability to be responsible for one's own learning)

	Standard #3: Knowledge Constructor ○ (D) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. --- Students will be able to observe, ask questions, collect and analyze data. Students will be able to draw and communicate reasonable conclusions that are important to all individuals.
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	Project work time- Students use 1-3 days as research time. This time is flexible and can be used independently or in small groups.

Week 4	**Presentation of Findings!**
Lesson Objective(s): *What standard(s) and understanding(s) will be developed?*	4-LS1-1 Performance Expectation: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Standard 1: Reading: CONVENTIONS AND SKILLS: Use knowledge of the conventions of language and texts to construct meaning for a range of literary and informational texts for a variety of purpose ○ Benchmark LA.4.1.2: Use print and online resources to clarify meaning and usage

	Standard 6: Oral Communication: CONVENTIONS AND SKILLS: Apply knowledge of verbal and nonverbal language to communicate effectively in various situations: interpersonal, group, and public: for a variety of purposes
Lesson Tasks, Problems, and Activities (attach resource sheets if needed): *What specific activities, investigations, problems, questions, or tasks will students be working on during the lesson?*	Students will share findings on their chosen organism Students will have a negotiated assessment. They need to create a diagram to teach others the findings on their chosen native animal. Their findings can be presented as a drawing, diagram, written paper, video public service announcement, comic strip, ect. Students can also propose a way to present their findings. Students will pick their own indigenous plant or animal to teach about. They will be creating diagrams on their chosen living thing. Students will need to show that they know the internal and external structures of their plant/animals and explain how it is able to exist in its environment. Authentic Audience: Students will share their findings with families, school faculty, and appropriate community members. Depending on circumstances; there will be different authentic audiences. If school continues the way it is; we will use PCHES productions (school video announcements) to share our new-found knowledge. If we have to continue staying in class bubbles; we will hold a gallery walk though in the cafeteria. In a indeal non-covid world, we will ask fishpond community experts to be a guest in our classroom. **I can present the journey of my learning.** **I know I got it when I can:** ● I can report on my chosen animal ● I can explain why it is important AND ● I focused on important points and carefully selected

details to say what happened and highlight what we learned.

- I spoke loud and clear

AND

- I spoke with an understandable pace.

- I have a presentation that enhances what I'm saying

AND

- I have bulleted points

Speaking Skills

Effective Skills	Ineffective Skills
Being prepared to speak and having everything you need before you speak. Speaking clearly so everyone can hear.	Not knowing what your speaking about and coming unprepared. Not speaking clearly enough for people to understand.

Listening Skills

Effective Skills	Ineffective Skills
Paying attention and listening without talking or distractions and taking notes	Not listening and talking to other people and not taking notes

"I Can" Common Core!

4th Grade Speaking & Listening

I Can Understand and Talk About What I Hear

- ❑ I can effectively participate in different types of discussions and with different people. SL.4.1
- ❑ I can build on others' ideas and express my own ideas clearly. SL.4.1
- ❑ I can come to discussions prepared to participate because I have studied appropriate materials. SL.4.1
- ❑ I can use my preparation to explore new ideas about a topic during a discussion. SL.4.1
- ❑ I can follow agreed-upon rules for discussion and carry out my assigned role. SL.4.1
- ❑ I can ask and answer questions to help me understand discussions, stay on topic and that contribute to others' ideas and remarks. SL.4.1
- ❑ I can think about what is discussed and explain any new thinking that I have. SL.4.1
- ❑ I can paraphrase text read aloud or information presented to me. SL.4.2
- ❑ I can identify the reasons a speaker gives to support his/her points. SL.4.3

I Can Share What I Know

- ❑ I can report on a topic or tell a story with correct and appropriate facts and details to support my main idea. SL.4.4
- ❑ I can speak clearly and at an understandable pace. SL.4.4
- ❑ I can create engaging audio recordings or visual displays to help me show main ideas or themes when necessary. SL.4.5
- ❑ I can figure out when to use standard formal English and when I can use informal English. SL.4.6

www.thecurriculumcorner.com

When not presenting students need to notetake & show they are *actively listening.*

Fishpond Plants	Fishpond Animals
• Kalo • 'Awa • Kukui • 'Ohi'a Lehua • Palapalai	• Ae'o Bird • Koa'e • 'Iwa • 'Ulili • O'opu

• Kupukupu • Mamaki	