**Hawaiian Values:**
- 'OLU’OLU – has a positive attitude of people & tasks
- KELA – strives for excellence in classroom endeavors

**Science Content Standards:**
- Domain I, Strand I – Science as Inquiry
- Domain II, Strand 1 – Mālama i ka ‘Āina
- Domain II, Strand 2 – Unity & Diversity, Biological Evolution

<table>
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<th>Learning Styles:</th>
<th>Unit: I. Ahupua’a</th>
<th>Term: 1</th>
<th>Week: 4</th>
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<tbody>
<tr>
<td>Left Brain</td>
<td>Lesson Topic:</td>
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<tr>
<td>Auditory</td>
<td>CLASSIFYING LI MU &amp; SIMPLE SEA LIFE (2)</td>
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<tr>
<td>Visual</td>
<td>Content:</td>
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<td></td>
<td>How Scientists &amp; Hawaiians Name Limu</td>
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**Date:** M Tu W Th F  
**Time:**  
(90 minutes)

**Objectives:**
1. Students will review different types of limu
2. Students will learn the binomial classifications of plants in Western and Hawaiian science.

**Assessment/Performance Indicators:**
- Informal: Reading effort & listens to analyze system of classification
- Formal: records & organizes limu data on cards accurately

**Points:**
- Exceeds Expectations: 10 pts
- Meets Expectations: 5 pts
- Needs Improvement: 5 pts

**Time:**
- 15 min.
- 20-25 min.
- 10 min.

**Procedures to Teach Strategies, Skills, Content:**
- SSR: Seaweeds
- Continue/complete Limu flashcards activity
- Lecture: students copy notes as teacher discusses binomial classification of plants in Western & Hawaiian science (see lecture notes)
- Students add Western Science names to their limu index cards

**Materials:**
- (see this folder for students handouts and teacher notes)
- For teacher: copies of SSR, “Seaweeds”; lecture notes for Limu classification
LESSON 7 - TEACHER LECTURE on CLASSIFICATION OF LIMU (SEAWEED)

• **Binomial** means two-part (bi-) names (-nomial).

• In western & Hawaiian science, there are two names for limu algae:

  **Western** (a.k.a. Latin & Greek):
  - **genus** is the capitalized 1\textsuperscript{st} name & ...
  - **species** is the 2\textsuperscript{nd} name
  
  (additional names give more history of the species, like who found it, sponsored the discovery, where it was found, etc.)

  *e.g.* *Codium edule Silva* (codia = head; edule = edible; credited to Silva)

  **Hawaiian**:
  - **limu** is the 1\textsuperscript{st} name (sometimes just the 1\textsuperscript{st} syllable: ʽi) and it refers to many plants growing in or around water (wai & kai) & ...
  - the 2\textsuperscript{nd} name describes its color, taste or appearance (sometimes where it was found or its cultural value is given 2\textsuperscript{nd})

  *e.g.* *Limu līpe'epē'e* (limu & lī = plant near water; pe'e = to hide)

• **Common Hawaiian seaweeds are:**

<table>
<thead>
<tr>
<th>Western Name</th>
<th>Hawaiian Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ulva fasciata</em></td>
<td>Limu pālahalahaha, pāpaphapaha, pakaiea</td>
</tr>
<tr>
<td><em>Codium edule, C. reediae</em></td>
<td>Limu wāwae'iōle, 'a'la, 'a'ala'ula</td>
</tr>
<tr>
<td><em>Dictyopteris plagiogramma,</em></td>
<td>Limu I'īpoa</td>
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<tr>
<td><em>D. australis</em></td>
<td></td>
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<tr>
<td><em>Sargassum echinocarpum</em></td>
<td>Limu kala</td>
</tr>
<tr>
<td><em>Asparagopsis taxiformis</em></td>
<td>Limu kohu, koko, I'īpa'akai</td>
</tr>
</tbody>
</table>

• An Analogy for this system of naming things is found in cars:

  Toyota   Corolla

  **genus**  **species**

The "genus" name (Toyota) gives us an instant "group" recognition so we know how they are alike --and the "species" name (Corolla) gives us a clue as to how this particular "species" is different than others within that “genus”.

Science in Hawaiʻi: Nā Hana Ma Ka Ahupuaʻa – A Culturally Responsive Curriculum Project 2