APPENDIX

Field Sites and Additional Resources
Fishpond Field Sites

Kaua‘i

Nāwiliwili
Site: ‘Alekoko or Menehune Fishpond
Type of Pond: loko wai
Coordinator: TBA

O‘ahu

Kāneʻohe
Site: Waikalua Loko
Type of Pond: loko kuapā
Coordinator: Matt Lyum, President
Waikalua Loko Preservation Society
P.O. Box 1917
Kailua, HI 96734
(808) 282-5496
e-mail: mlcinternational@hotmail.com

Site: Mōlīʻi
Type of Pond: loko kuapā
Coordinator: Barbara Santos
Education Supervisor
Kualoa Ranch
P.O. Box 650
Kāʻaʻawa, HI 96730
(808) 237-8515 x235

Site: Paepae o Heʻeia
Type of Pond: loko kuapā
Coordinator: Mahinapoeʻoe Paishon
47-675 Mele Kula Rd.
Kāneʻohe, HI 96744
(808) 277-2313

Site: Nuʻupia Ponds
Type of Ponds: loko puʻuʻone
U.S. Dept. of the Marine Corps
Nuʻupia Ponds Wildlife Management Area
Dr. Diane Drigot, Senior Natural Resources
Management Specialist, or
Marine Corps Base Contact Official
Box 63002
MCBH Kāneʻohe, HI 96863-3002
(808) 257-8839

Moloka‘i

Site: Keawanui
Type of Pond: loko kuapā
Coordinator: Walter Ritte
HC-01 Box 471
Kaunakakai, Moloka‘i, 96748
(808) 558-0111
e-mail: rittew@hotmail.com

Site: ‘Ualapuʻe
Type of Pond: loko kuapā
Coordinator: William “Billy” Kalipi
(808) 553-3590

Maui

Site: Kōʻieʻie
Type of Pond: loko kuapā
Coordinator: Joylynn Oliveira
Hawaiian Cultural Educator
Hawaiian Islands Humpback Whale
National Marine Sanctuary
726 S. Kihei Rd.
Kihei, HI 96753
(808) 879-2818
e-mail: joylynn.oliveira@noaa.gov

A loko puʻuʻone is an isolated shore fishpond named for a puʻuʻone (a sand dune or heap of sand) that holds water in the pond.
Hawai‘i • Hilo

Keaukaha

Site: Waiuli
Type of Pond: loko wai
Coordinator: TBA

Hawai‘i • Kona

Sites: Kaloko, Aimakapā and Aiʻōpio
Type of Ponds: loko kuapā, loko puʻuone and
loko ʻume iki
Coordinator: Dominic Cardea
Interpretive Specialist
Kaloko-Honokōhau National Historical Park
73-4786 Kanalani St., #14
Kailua-Kona, HI 96740
(808) 329-6881 (ext. 209)
e-mail: dominic_cardea@nps.gov

If you are unable to reach the coordinator on
your island, please call the Pacific American
Foundation on Oʻahu for assistance.

Herb Lee, Project Director
Pacific American Foundation
33 S. King St. Room 205
Honolulu, HI 96813
(808) 533-2836
e-mail: LEE3COM@aol.com

Keep current on fishpond field sites!

www.thepaf.org
Additional Resources

General


**On the Web...**

Ahupua‘a Action Alliance. <lrcruz@hawaii.edu>  [http://www.ahupuaa.net/gislink.html](http://www.ahupuaa.net/gislink.html) (This site provides links to sites with maps and mapping tools.)


Ecotourism Hawaii: Kauai, Big Island, Oahu. <hawnadv@aloha.net> [http://www.hawaiischool-trips.com/custom.htm](http://www.hawaiischool-trips.com/custom.htm)

Historic Preservation Office. *Experimental Database Server*. (Hawai‘i Department of Land and Natural Resources) <Clifford_G_Inn@exec.state.hi.us> [http://mano.icsd.hawaii.gov/~ckomoek](http://mano.icsd.hawaii.gov/~ckomoek) (This site, which is still being developed, provides maps by island that include traditional ahupua‘a and fishponds.)


University of Hawai'i at Hilo. Kualono. <keola@leoki.uhh.hawaii.edu> http://www.oleolo.hawaii.edu/eng/ (Site contains online Hawaiian dictionary, fonts) 

University of Hawai'i at Mānoa. Pacific Regional Aquaculture Information Service for Education. (Copyright © 2003 University of Hawai'i Hamilton Library) <krisa@hawaii.edu> http://lama.kcc.hawaii.edu/praise (This department will do resource searches.) 


The Polynesian Voyaging Society. <pvs@lava.net> http://www.pvs.hawaii.org/ (Ask for copy of calendar with seasons, moon phases, tides, months, winds, stars.) 

UH Image Archive. 2002. Hawaiian Language Newspapers. <speccoll@hawaii.edu> http://libweb.hawaii.edu/hnp/newspapers.htm 


Fishing, Fishponds, Fishtraps 


Beckley, Emma Metcalf. 1883. Hawaiian Fisheries and Methods of Fishing with an Account of the Fishing Implements Used by the Natives of the Hawaiian Islands. Advertiser Steam Print. Honolulu, HI. 


DHM Planners and The Bernice Pauahi Bishop Museum. 1990. *Hawai‘i Fishpond Study: Islands of Hawai‘i, Maui, Lana‘i and Kaua‘i.* Honolulu, HI.


Fishpond ‘Ohana Restoration - Maui (ForMaui). 2001. *Ko‘ie‘ie Loko I‘a, Historical Royal Fishpond of South Maui.* (Copyright © 2001 - Cathi Ltd) <info@ForMaui.org> [http://www.formaui.org/3wave2-1](http://www.formaui.org/3wave2-1)


Prince Kūhio Hawaiian Civic Club. 2002. *Ancient Hawaiian Moon Calendar Related to Fishing & Farming.* P.O. Box 4728, Honolulu, HI 96812


**On the Web...**


Division of Aquatic Resources. 1999. Department of Land and Natural Resources, State of Hawai‘i. <dlr_aquatics@exec.state.hi> [http://www.state.hi.us/dlr/dar/fish_stats.htm](http://www.state.hi.us/dlr/dar/fish_stats.htm)


Fishpond ‘Ohana Restoration - Maui (ForMaui). 2001. Ko‘ie‘ie Loko I’a, Historical Royal Fishpond of South Maui. (Copyright © 2001 Cathi Ltd) <info@ForMaui.org> http://www.formaui.org/3wave2-1.htm


Hawai‘i Department of Health, The LET Academy and Lanikai School. 2001. Aquaculture - Lanikai Elementary School. Fishponds. <let@hawaii.rr.com> or <grow@hawaii.rr.com> http://www2.lanikai.k12.hi.us/waters/ancienthawaiian/aquaculture.htm


Hawai‘i Sea Grant. 2001. Hawaiian Fishponds Database. (University of Hawai‘i at Mānoa) <dianne@hawaii.edu> http://oceaneng.Eng.hawaii.edu/~fishpond/background.html


Lujan, Makahoa. Na Loko I'a o Hawai'i Nei. <mahakoa@niti.net> http://www.niti.net/~mahakoa/loko.html


  <dspennemannn@csu.edu.au> http://marshall.csu.edu.au/html/culture/Fishtraps.html

Weidenbach, Michael E. July 1997. Fishpond Study Reveals Ancient Hawaiian Know-How, Makai, Vol. 19, No.7. (Copyright ©1997 University of Hawai‘i at Mānoa Sea Grant College Program) <dianen@hawaii.edu> http://www.soest.hawaii.edu/SEAGRANT/Makai/july97/iumakai2.html

  <rwingarden@smiuhsd.sbceo.k12.ca.us> http://webpages.charter.net/kwingarden/erhs/aquarium/processs.htm#OrganizingData (This site has an excellent description of each step in the scientific method.)

Folklore, Legends, Music


On the Web...


Kawaharada, Dennis. 1999. Stories of Ai‘ai. (Copyright © 1999,2000 Kapi‘olani Community College) <dennisk@hawaii.edu> or <kccweb@hawaii.edu> http://apdl.kcc.hawaii.edu/~oahu/stories/kona/aiai.htm

Kawaharada, Dennis. 1999. Stories of O‘ahu. (Copyright © 1999, 2000 Kapi‘olani Community College) <dennisk@hawaii.edu> or <kccweb@hawaii.edu> http://apdl.kcc.hawaii.edu/~oahu/stories/


Hawai‘i History and Culture


Members of the 'Ōpelu Project 'Ohana. 1996. *From Then to Now, A Manual for Doing Things Hawaiian Style*. Ka'ala Farm, Inc. Wai'anae, HI.


**On the Web...**


**Nature and Natural Phenomena**


**On the Web...**

Bamfield Marine Sciences Centre. 1996. *OceanLink. Tides: What Causes Tides to Change in the Ocean?* <olink@bms.bc.ca> http://oceanlink.island.net/oinfo/tides/tides.html


Additional Resources

Department of Aquatic Resources. *Hawaiian Streams: The Mauka to Makai Connection.* (State of Hawai‘i Department of Land and Natural Resources) <randy.r.honebrink@hawaii.gov> [http://www.hawaii.gov/dlnr/dar/hawn_streams.htm](http://www.hawaii.gov/dlnr/dar/hawn_streams.htm) (Geology, Native Animals, Adaptation, Cultural Importance, Alien Species, Protection, Bibliography)


Hawaii Stream Research Center (HSRC). 1996. *Perennial Streams.* (University of Hawai‘i Center for Conservation Research and Training, the State Department of Land and Natural Resources Aquatic Resources Division and the National Tropical Botanical Garden Limahuli Gardens) <mkido@hawaii.edu> [http://www2.hawaii.edu/hsfc/home/welcome.htm](http://www2.hawaii.edu/hsfc/home/welcome.htm)


Northwest Center for Research on Women. *Rural Girls in Science – Meeting the Challenge Through a Comprehensive Approach.* (Copyright © University of Washington, Seattle, WA. Funded by the National Science Foundation Project HRD-94500053) <nwcrow@u.washington.edu> [http://depts.washington.edu/rural/RURAL/design/portfolio.html](http://depts.washington.edu/rural/RURAL/design/portfolio.html) (This site offers worksheets on the scientific method.)

Northwestern Hawaiian Islands Multi-Agency Education Project. <nwhi-questions@hawaii.edu> [http://hawaiianatolls.org](http://hawaiianatolls.org) (Maps, photographs and satellite images of atolls and various features on the islands)

Offwell Woodland and Wildlife Trust. <offwell1@aol.com> [http://www.offwell.freeonline.co.uk/biol_sampl_cont.htm](http://www.offwell.freeonline.co.uk/biol_sampl_cont.htm) (This site provides information on ecological sampling methods.)


Pacific Tsunami Museum. *Fishponds Being Filled in by Tsunami.* (Copyright © 1996-2002 Pacific Tsunami Museum, Inc.) <tsunami@tsunami.org> [http://www.tsunami.org](http://www.tsunami.org)

Pidwirny, Michael J. *Introduction to Hydrology, Ocean Tides.* (Copyright © 1996-2002 Michael J. Pidwirny) <mpidwirny@okanagan.bc.ca> [http://www.geog.ouc.bc.ca/physgeog/contents/7r.html](http://www.geog.ouc.bc.ca/physgeog/contents/7r.html)

The Magic Island Calendar. *Traditional Hawaiian Calendar.* (Copyright © 1998 Magic Island Internet Systems) <mgis@aloha.net> [http://www.magicmoku.com/calendar/traditional.htm](http://www.magicmoku.com/calendar/traditional.htm)


**Pacific Islands**


On the Web...

Adams, Tim, Paul Dalzell and Esaroma Ledua. Ocean Resources: Pacific Islands. (Secretariat of the Pacific Coastal Fisheries Programme) <cfpinfo@spc.int> http://www.sidsnet.org/pacific/spc/coastfish/Reports/ICFMAP/GEOGRAPHY/Ocean.htm


Tahiti Friendship Society. Archeology and Prehistoric Polynesia. <info@tahitinet.com> http://tahitinet.com/presense/archeology.html

United Nations System-Wide Earthwatch Coordination. (Copyright © 1998-2001 United Nations Environment Programme) <arthur.dahl @ unep.ch> http://www.unep.ch/islands/sieme1.htm (Information on traditional resource use and management on small islands in the Pacific)

Plants and Animals


On the Web...

<drch@oceansonline.com> http://www.oceansonline.com/

(Copyright © 1992-2003 Hawai‘i Biological Survey) <neale@bishopmuseum.org>  
http://hbs.bishopmuseum.org/hispp.html

Guinther, Eric B. List of Species from Aquatic Environments (Brackish and Fresh Water) in the Hawaiian Islands.  
(Copyright © 1998 AECOS, Inc.) <guinther@hawaii.rr.com>  
http://home.hawaii.rr.com/cpie/FwaterC.html

Hawai‘i Biological Survey and the Bishop Museum. 2002. Guidebook of Introduced Species of Hawai‘i.  
(Copyright © 2002 Hawaii Biological Survey, Bishop Museum)  
<defelice@bishopmuseum.org> http://www2.bishopmuseum.org/HBS/invertguide/index.htm

http://www.bigislandstyle.com/manuel/kealakehe/AgClassURLResources.html

Moanalua Gardens Foundation. 2002. <mgf@pixi.com> http://www.mgf-hawaii.com (Links to sites with information on Hawaiian geology, geography, plants and animals and humans and the environment)


The Summit Laboratory. Virtual Creatures Web site. (Copyright © 1997 Summit, Stanford University) <webmaster@summit.stanford.edu> http://summit.stanford.edu/creatures

University of Hawai‘i at Mānoa Botany Department. Hawaiian Native Plant Genera.  
(Copyright © Gerald D. Carr) <gerry@hawaii.edu> http://www.botany.hawaii.edu/faculty/carr/natives.htm

University of Hawai‘i at Mānoa Botany Department. Hawaiian Reef Algae. (Copyright © Gerald D. Carr) <gerry@hawaii.edu> http://www.botany.hawaii.edu/reefalgae/

University of Hawai‘i at Mānoa Waikīkī Aquarium. Marine Life Profile—Seaweeds or Limu.  
(Copyright © 2k Waikīkī Aquarium) <webmaster@waquarium.org> http://waquarium.otted.hawaii.edu/
Supplies & Equipment

Aquatic Eco-Systems, Inc. <aes@aquaticeco.com>  http://www.aquaticeco.com/ (Source for throw nets, aquaculture supplies and equipment)

Hach Company. <orders@hach.com>  www.hach.com/ P.O. Box 389, Loveland, CO 80539 (800) 227-4224 or (970) 669 3050. (Analytical systems and technical support for water quality testing, with solutions for lab, process, and field)

LaMotte Company. <mkt@lamotte.com>  www.lamotte.com/ P.O. Box 329, 802 Washington Avenue, Chestertown, MD 21260 (800) 344-3100. (Products for the analysis of water, soil, and air)


Videos and CD-ROM


Hawaiians. Lynne Waters, Producer.

Hawaii’s Streams. Department of Education Teleschool. 1984. 19:56 minutes


Water Runs Downhill. University of Hawai’i at Mānoa. 13 minutes.

The Website information provided in this publication was current as of April 2003. Readers are cautioned that these Websites may have changed since the time of publication.
Creating and Using Rubrics

- What is a rubric and how is it used?

Key Concept
A rubric is a guideline for making scoring decisions which may be used to recognize current knowledge and also an evaluation tool to help students achieve higher levels of success in a learning experience.

Activity at a Glance
Students practice constructing a rubric to assess a simple activity, such as clapping hands.

Time
1 class period

Vocabulary
rubric — a guideline for making scoring decisions; a document that clarifies what is expected in a learning experience, and what steps to take to reach higher levels of achievement
performance assessment — a testing method where students are expected to create an answer or product to demonstrate their knowledge and skills
assessment — a measurement of a student’s ability or skill

Materials
Provided:
• rubric template
Needed:
• chart paper (or chalkboard/whiteboard)
• markers
• pencils

Advance Preparation
• Make transparencies or make copies of the rubric template.
Background

A rubric is a guideline for making scoring decisions. It is an authentic method to evaluate student performances in various targeted activities. Rubrics allow teacher-student participation in determining the quality of student performance.

"Effective rubrics:

- Reflect the most significant elements related to success in a learning task and
- Enable students and teachers to accurately and consistently identify the level of competency or stage of development.
- Help teachers grade students' work more accurately and fairly.
- Encourage students' self-evaluation and higher expectations.
- Are shared with students prior to beginning the task so they know the characteristics of quality work.
- Provide more information than just a narrow checklist of skills or attributes"  

(Kingore, 2000).

An effective rubric is an authentic assessment tool which not only aids the teacher in determining the skills and abilities of a student, but supports and assists the student in improving upon skills that he/she already has.

In order to construct a rubric you must:

- Know what tasks will be evaluated,
- Have a clear scoring criteria, and
- Provide a clear picture of how students will be scored.

If the teacher generates the rubric, time should be allowed for students to react to it and discuss the criteria and scoring. The teacher should facilitate the discussion and make adjustments within reason and discretion. When a rubric is constructed collaboratively with the students, they are allowed to share in the development process. This creates a positive teaching/learning environment where students will feel like they are part of their own learning and assessment. They will not only recognize their current knowledge and skills but they will know how to improve upon them. Use the activity below to demonstrate the construction of a rubric and how it is used.

Teaching Suggestions

1. Select a simple task, such as clapping hands, and establish a scoring or rating scale to fit the rubric template provided.

2. Establish the criteria for assessing the hand clapping and list these on the board or chart paper. Students may come up with criteria such as "volume," "appropriateness," or "creativity."

3. Define each of the criteria and discuss them with the class.

   a. Volume = the intensity of the sound of the clap that is performed.
   b. Appropriateness = the manner of clapping related to a specific event.
   c. Creativity = how the performer expresses the clap.
4. Give each student a copy of the rubric template provided, or project it on a screen. Explain that this rubric will be used to assess how one claps after a concert performance (such as a popular singing group or band). Have students list the criteria in the left-hand column of the rubric.

5. For each criteria, ask students to come up with descriptions that would describe “kulia” (exceeds standard) to māka ukau kōle (below standard). Start with kulia and ask students what the criteria would be for an “excellent” performance that exceeds the standard for volume. Write the responses in the box under “kulia.” Proceed through the criteria and enter performance expectations for each box in the rubric.

6. Once the criteria and levels of proficiency are established, ask for ten volunteers to clap for the class.

7. Go over the ratings and the criteria and the setting (clapping after a concert performance) before each clapping performance. Ask the students who are not performing to use the rubric to rate each individual performance. Ask one or two students to record the scores and calculate an average.

8. Give certificates or prizes to the winning performance. Then introduce one of the sample rubrics provided in the units in this guide and discuss the criteria with students. Work with students to tailor the rubric to fit their needs.

Adaptations/Extensions

- Instead of clapping hands, students could throw a baseball or demonstrate laughing skills or another area of interest.
- Start with the culminating activity in Unit 1 and have students create a rubric.

References

Thousand Oaks, CA


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**I NOTICED:**

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Portfolios

A portfolio is a vehicle for engaging students in the process of self-evaluation and goal-setting. It is a collection of student work that includes pivotal, improved or best pieces as well as teacher and student (and/or parent) commentary. An effective portfolio is student-centered and encourages student responsibility, pride and accountability for learning. It includes goals for students and "allows students to polish and refine what they are learning to do well" (Kingore, 1999). It is also an alternative assessment tool. Like rubrics, it is considered an authentic assessment.

To help with the management of portfolios, include students in the process of selecting and organizing their work. Their portfolios should be the place (portfolio or binder) where students keep specific assignments and information from each unit. Portfolios should include work that is representative and a reflection of the student. The materials collected would also be helpful for the students as they complete the culminating activities in each unit. Have students include lined paper in the portfolios for student and teacher commentaries. Teachers may wish to prepare a checklist of assignments for the students with routine questions like the example below.

- Unit I Lesson 1, Map
- Unit I Lesson II, Discussion questions
- Answer these questions:
  - What have you learned in this unit?
  - Were you successful in completing the activities? Explain your answer.
  - What would you have done differently?

Try to have a conference with each student to discuss the comments and to set goals for improving or enhancing student work.

Resources


