Rationale

Why use these culturally responsive materials in your science class?

- Students who are unable to connect with standards centered science education in a meaningful way shown improved outcomes after using these materials (look for our report in Fall 2009 at www.cds.hawaii.edu/kahana)
- These supplemental materials are Hawai‘i DOE approved
- The fields of science are actively recruiting and offering support to students in STEM – science, technology, engineering and math (see More Resources for college and scholarship information) … green jobs are increasing
- These resources help us create more local born scientists, activists, advocates and people who know how to “live pono” with our land and each other so we can protect what we love here in Hawai‘i
- Hawai‘i is actively becoming a sustainability model for the nation, and even globally – if we educate high school students to take part in this, all cultures will benefit from the wisdom we share

Is there a “secret recipe” to make this work?
Perhaps. We believe any DOE high school science course can be tweaked with a place based approach, some culturally responsive supplemental materials and engaging activities, so that almost all students in Hawai‘i see the relevance of science in their lives and to their future goals, whatever those are.

Here’s the “recipe” we suggest teachers try in every unit…

1. Blend 1 part each: host culture (Hawaiian) values & purpose
2. Add culturally responsive cool activity &/or talk story
3. Combine modern science learning activities to address the Standards with historical Hawaiian science content to address NHEC pathways (enables students to “walk in both worlds”)
4. Garnish with 1 supported science-related career exploration
5. Top off with sense of kuleana (responsibility) to & malama (caring) for Hawaii’s ‘āina and kanaka (place & people)

Serves all high school science teachers & students in Hawai‘i!
How can teachers do this? Data collected on student outcomes during the making of this curriculum leads us to believe a place-based, caring approach can work for most learners, if teachers remember:

- learning can only happen when we link new knowledge to what we already know – let students teach you about the community they live in and their families' cultures, and link all classroom learning to these places and people, past and present (this only takes a minute most times!)
- ensuring learners’ have emotional connections and reactions to your lessons means the content you are trying to teach will likely be more memorable, meaningful and relevant to students
- including more opportunities for, and guidance with, social interactions and cooperative learning among student peers and with class guests and visitors can increase learning … this is why it’s vital to interact with lots of folks in your own community
- helping students to experience a minimum 75% rate of success as they learn new things will encourage them to strive (less will discourage them and may lead to apathy) … so think “te na” – be responsive to when students are and are not ready to move forward and forget the “stopwatch” demands to learn faster and faster

What are the best materials to use? We made them for you!

The 10 units found in Part II of this curriculum are sequenced for any teacher who can do all of them, but materials can be used in any order. Still, it’s best to begin the year with the introductory local videos, adapted readings and Hawaiian culture-based activities in Unit 1 – A'o Hawai'i (Teaching & Learning), then follow up with steps 1 and 2 of Unit 2 - Nā 'Oihana (Careers). The rest of the Careers unit can be explored any time.

Unit 3 – Nā Lapa'au & Mea'ai (Healers & Food Science) is offered next to help you get to know your students and their families on a more personal level, and help them see how their health effects their learning and overall well being. Units 4 to 9 can be done in any order midway in the course and easily build on one another with tech options, assessments, labs & field trips. Use the unit “Menus” to sequence lessons to suit your needs and use the blank unit template to integrate your own material.

To end the year and help students synthesize learning be sure to include parts of Unit 10 – Ka 'Aha Mua (Future Resource Management).
A Couple Caveats

While we have done our best to edit carefully and correct any errors in these materials, you may find unintended mistakes. Also note, parts of the digital (online and disk) materials cannot always be written correctly using Hawaiian punctuation. If ever computer systems allow us to make these corrections, they will be done to the online curriculum. Meanwhile, please accept our apologies and let us know of needed edits so that we can update the files on the curriculum Web site at www.cds.hawaii.edu/kahana.

This Web site will remain active indefinitely, and we also encourage you to send us your materials if you choose to adapt anything using the Word versions of our documents. Just email lisa.m.galloway@gmail.com so that other teachers can benefit from what you share. Mahalo for the effort!

Teaching “Through” not just “About” Hawaiian Culture

We struggled for quite some time with the knowledge that long term project based inquiry learning is truly the most culturally responsive for Hawaiian students, but to achieve such an approach is very difficult in most state science classes at this time. Because we want our materials to serve more teachers and reach more students, we created and organized these resources to allow the shift to culture based education make teachers’ jobs easier, given what realistically can be done in the current school system. Thus, we ask you to consider these ways to use this curriculum:

1. the BEST WAY is project-based (do over 1 term, semester, year-long or spanning several years) … this has been done successfully in Environmental Science, Marine Science, Food Science, Aquascience & Agriculture classes, and at Charter Schools
2. a GOOD WAY is to do units with mini-projects based on the kāhuna masters science disciplines highlight in each unit of this curriculum … this can succeed in most high school science courses at any high school in Hawai‘i, and most students and teachers have enjoyed this approach
3. a GOOD START is to use lessons, activities & mini-projects to supplement traditional courses … this can succeed – especially if the start and end of course activities are used (see Rationale) – in traditional science courses such as physics, biology, chemistry and interdisciplinary sciences

Does it all seem like too much? Pace yourself as you explore new alternatives, and contact us for a little kokua! You are not alone! 😊