



Indigenous Science Network

Promoting First Nations' science, teaching & education since 1998 | Supporting culturally competent science teachers for all

RESOURCES

These websites contain information about Indigenous science and how it can be better understood and utilised by all.

AUSTRALIA



The **CSIRO** is an Australian Government agency responsible for scientific research. They have an impressive section set aside for Indigenous science.

csiro.au/en/research/indigenous-science



Australian
National
University

The **Australian National University** presents Indigenous knowledge in science education.

livingknowledge.anu.edu.au/index.htm



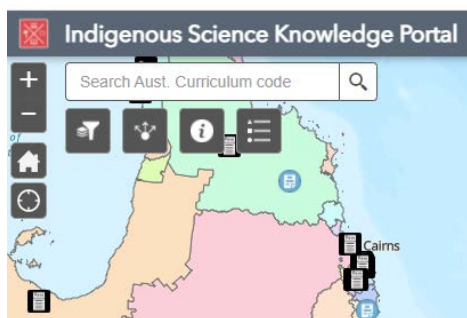
Australian Government

Bureau of Meteorology

The Australian Government **Bureau of Meteorology** includes Indigenous weather knowledge

bom.gov.au/iwk

acds.edu.au/teaching-learning/indigenous-science



Indigenous Science Knowledge Hub is an online geodatabase (by Samuel Brayshaw) that allows for the precise plotting of location and science curriculum outcomes for localised Indigenous science knowledge. For further details on how to use this resource, please contact Sam directly at sam@erthscout.com.au

erthscout.maps.arcgis.com/apps/webappviewer/index.html?id=ee764a580c214100ba1e31c6aba03037



Australian Indigenous Astronomy focuses on four primary areas: Indigenous community engagement to generate interest among students and community members in astronomy and space science; research and education programs for students studying Indigenous Astronomical Knowledge; scholarships for Indigenous students at all tertiary levels to pursue studies and degree programs in astrophysics, space science, and Indigenous astronomy and meetings and workshops for educators and Indigenous community members to share ideas and develop scholarship in Indigenous astronomy.

aboriginalastronomy.com.au



The **City of Sydney** Council website features an item on western science and Aboriginal People.

sydneybarani.com.au/sites/western-science-and-aboriginal-people



The **University of Melbourne** presents Indigenous Knowledge Resources for the Australian School Curricula Project.

indigenousknowledge.unimelb.edu.au/curriculum



INDIGI LAB applies an Indigenous human rights-based approach to sustaining and retaining Indigenous careers in STEM starting with protecting and maintaining Traditional Knowledges in STEM.

indigilab.com.au/focus-areas



INDIGI LAB hosts an **Indigenous STEM Professionals** site which includes a list of Australian Indigenous scientists who form a group to share experiences and represent their interests.

indigilab.com.au/stem-professionals

careerswithstem.com.au/profile-category/indigenous-people-in-stem

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research.acer.edu.au/ISN



Indigenous Girls' STEM Academy is funded by the National Indigenous Australians Agency (NIAA) as a national investment in high-achieving Aboriginal and Torres Strait Islander women and girls who aspire to pursue education and careers in STEM professions. The Academy will foster a generation of Aboriginal and Torres Strait Islander female leaders in STEM.

niaa.gov.au/indigenous-affairs/education/indigenous-girls-stem-academy



The **National Indigenous Science Education Program** (NISEP) is an Australian initiative that uses science, technology, engineering and mathematics (STEM) to place Indigenous secondary students in leadership roles at school, community and university-based events so they gain the confidence, motivation and aspiration to finish school and pursue pathways to tertiary education and employment.

nisep.org.au



Wingar is a leading Aboriginal education company that develops and delivers programs and resources to support schools and teachers in the classroom, as well as organisations wanting to increase cultural competency in the workplace.

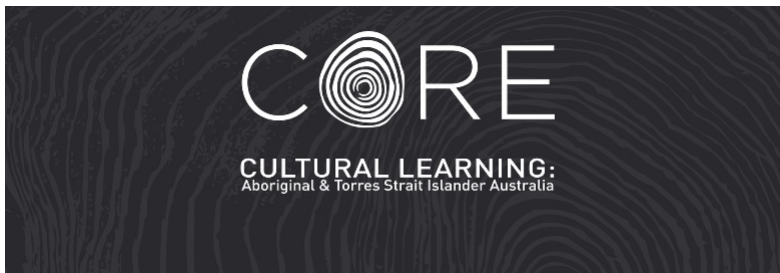
wingaru.com.au



**stronger smarter
institute**

The **Stronger Smarter Institute** recognises the opportunity to build on the strong foundations that Aboriginal and Torres Strait Islander students demonstrate in STEM classroom spaces. They have responded by creating the Stronger Smarter Institute **Indigenous Knowledges in Science, Technology, Engineering and Mathematics (SSiSTEMIK)** Pathways.

strongersmarter.com.au/ssistemik-pathways



CORE: Cultural Learning: Aboriginal and Torres Strait Islander Australia has been developed by the Australian Institute for Aboriginal and Torres Strait Islander Studies (AIATSIS) in partnership with the Department of the Prime Minister and Cabinet and the Department of Social Services. It builds on years of research and involvement in cultural competence initiatives and is informed by research collaboration with the University of Sydney's National Centre for Cultural Competency.

aiatsis.gov.au/about/what-we-do/core-cultural-learning

THE WORLD



Indigenous Climate Action (ICA) is an Indigenous-led organisation guided by a diverse group of Indigenous knowledge keepers, water protectors and land defenders from communities and regions across the country. We believe that Indigenous Peoples' rights and knowledge systems are critical to developing solutions to the climate crisis and achieving climate justice.

indigenousclimateaction.com



Keepers of the Water are First Nations, Métis, Inuit, environmental groups, concerned citizens, and local communities working together for the protection of Water, air, land, and all living things within the Arctic Ocean Drainage Basin.

keepersofthewater.ca



American Indian Science and Engineering Society (AISES) supports 230 affiliated pre-college schools, 196 chartered college and university chapters, 3 tribal chapters, and 18 professional chapters in the U.S. and Canada. It promotes the highest standards of education and professional excellence to widen the STEM workforce and grow sector support. They highlight the geographic, economic, and social aspects of STEM education and careers.

aises.org



The **University of British Columbia** seeks to catalyse a conversation about science, with specific application to understanding Indigenous history and the environment via both empirical evidence and critical social theory. Their focus includes the Indigenous past, its material and historical manifestations, the environmental context within which it occurred, and the study of this past.

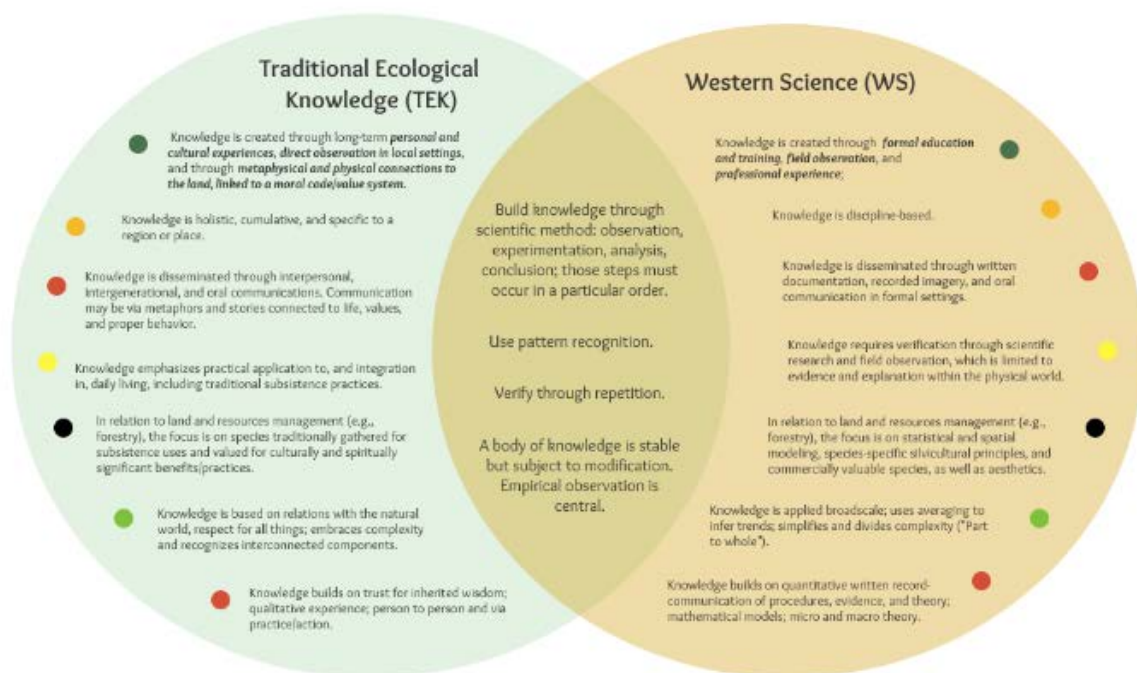
indigenousscience.ubc.ca/about-us



Worldwide Indigenous Science Network (WISN) aims to “create places for ethical collaboration between the two ways of knowing—Indigenous and Western—not only for the survival of the knowledge systems, but for life itself.” - Dr. Apela Colorado

wisn.org

Comparing Traditional Ecological Knowledge and Western Science



Venn Diagram comparing Traditional Ecological Knowledge (TEK) and Western Science (WS) developed by University of Minnesota – Great Lakes.

Traditional Ecological Knowledge & Western Science/Scientific Ecological Knowledges have become popular concepts within the natural and social sciences, often used as a way to compare the ecological knowledges held by Indigenous peoples that have been passed down from generation to generation, to the ecological knowledges offered by scientific studies, whose findings are created through western methods of research. Indigenous scholars have adamantly rejected this simplistic dichotomy, positing multiple areas of overlap between the two forms of knowledge.

greatlakesstek.umn.edu/tek-indigenous-knowledge/tek-western-science



TEACHING RESOURCES

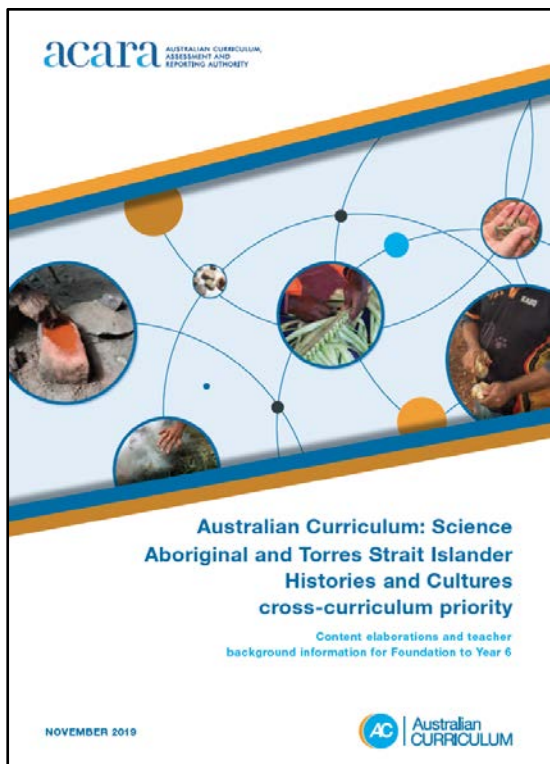
These websites contain links to literature and curriculum support materials that support culturally sensitive approaches to teaching understanding and uses of Indigenous science.

AUSTRALIA

Indigenous science elaborations for teaching the Australian Science curriculum (2018)

The Australian Curriculum Assessment and Reporting Authority (ACARA) has elaborations to support teachers to incorporate Aboriginal and Torres Strait Islander Histories and Cultures into teaching the Australian Curriculum: Science for Foundation to Year 10.

- [ACARA Media Release on Science Elaborations](#)
- [F-10 Australian Curriculum: Science Elaborations for the Aboriginal and Torres Strait Islander Cross-curriculum priority](#)
- [Australian Curriculum: Science Aboriginal and Torres Strait Islander Histories and Cultures cross-curriculum priority. Content elaborations and teacher background for Years 7-10](#)



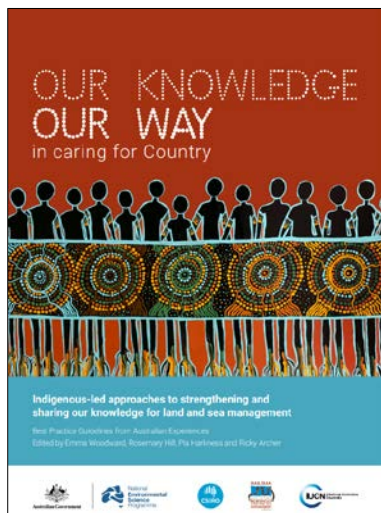
ACARA Illustrations of practice

australiancurriculum.edu.au/resources/aboriginal-and-torres-strait-islander-histories-and-cultures/illustrations-of-practice

Queensland Curriculum and Assessment Authority Aboriginal and Torres Strait Islander perspectives

qcaa.qld.edu.au/about/k-12-policies/aboriginal-torres-strait-islander-perspectives

Northern Australia Environmental Research Portal



Our Knowledge Our Way in caring for Country presents Indigenous-led approaches to strengthening and sharing our knowledge for land and sea management

nespnorthern.edu.au/wp-content/uploads/2020/11/Our-Knowledge-Our-Way-Guidelines.pdf



Indigenous science partnerships in northern Australia provides examples of science activities and research projects that involve strong Indigenous partnerships.

nespnorthern.edu.au/wp-content/uploads/2018/10/Hub-Indigenous-science-partnerships.pdf

Aboriginal Seasonal Calendars



A set of seasonal calendars showcasing traditional ecological knowledge produced by TRaCK and NERP in partnerships with Indigenous language groups, Traditional Owners and other organisations.

- [Gulumoerrgin-Larrakia](#)
- [Ngan-gi](#)
- [Kunwinjku](#)
- [Walmajarri](#)
- [Gooniyandi](#)
- [Ngurrungurrudjba-Yellow Water](#)
- [MalakMalak-and-Matngala-plant-knowledge-calendar](#)
- [Nyikina](#)
- [Seasonal connections poster](#)



The **Koori Curriculum** is an Aboriginal early childhood consultancy based on the Central Coast, NSW. Consultants at the Koori Curriculum facilitate a range of professional development programs and workshops for educators that help guide the inclusion of Aboriginal perspectives in early childhood curriculums.

kooricurriculum.com



DeadlyScience provides STEM books and early reading material to remote schools in Australia. They have shipped over 16,000 books, 500 telescopes, and other STEM resources to over a hundred schools, with more to come.

deadlyscience.org.au/about-us

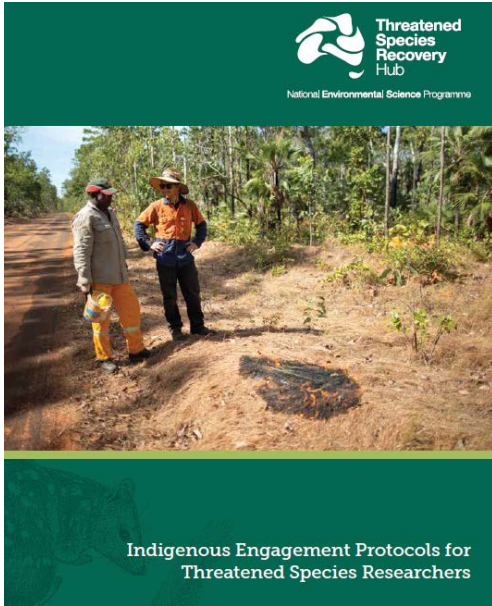


South Australian Science Teachers' Association Journal – Indigenous Science issue

The Australian curriculum has charged us as science educators to recognise, explore and celebrate Indigenous science practices with all our students. The benefits from this are obvious for both Indigenous and non-Indigenous students alike - we stand to make a more informed, cohesive and truthful Australia.

The aim of this edition of the Journal is to bring together some of the key resources and key thinkers in this area so we can move forward with confidence and with the joy of discovery.

indd.adobe.com/view/78697e1f-b411-4d6a-9b2e-8666dbd16500

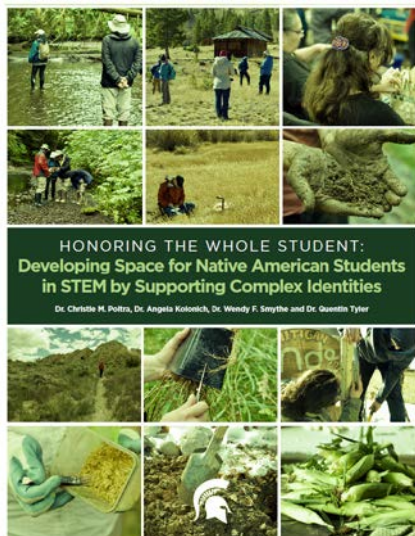


Indigenous Engagement Protocols: Forging respectful, meaningful partnerships for research impact

Bradley Moggridge, the Threatened Species Recovery Hub's Indigenous Liaison Officer (and ISN member), brought his authoritative voice to the creation of a set of protocols for hub researchers seeking to collaborate with Indigenous partners.

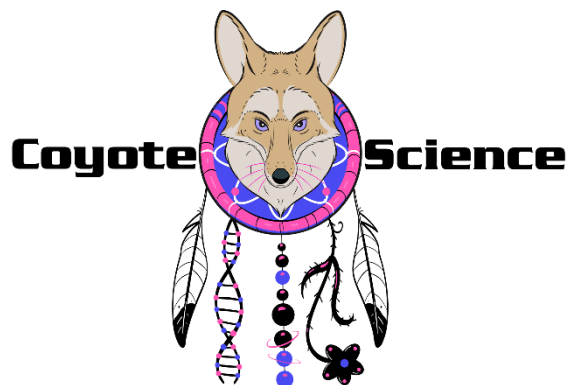
nespthreatenedspecies.edu.au/media/kwfpdxwk/tsr-hub-indig-protocols-report_v6.pdf

THE WORLD



Honoring the whole student: Developing Space for Native American Students in STEM by Supporting Complex Identities by Dr. Christie M. Poitra, Dr. Angela Kolonich, Dr. Wendy F. Smythe and Dr. Quentin Tyle is published by The Native American Institute at Michigan State University, and licensed under a [Creative Commons Attribution NonCommercial ShareAlike licence](https://creativecommons.org/licenses/by-nc-sa/4.0/).

https://www.dropbox.com/s/3jkjyfbk571kq38/Honoring_the_Whole_Student_workbook.v2_lh0429.pdf?dl=0



Coyote Science takes viewers on a culturally rich adventure into the fun and wonder of Indigenous science. Youth and educators will love this colourful, exciting show that brings our beautiful and complex universe alive. Our young scientists are encouraged to ask questions, to make their own observations, to unravel How? and Why? Their natural curiosity is sparked as they learn from a dazzling variety of sources — Indigenous scientists and knowledge holders, animated stories, experiments, music, and Indigenous Science Questers.

coyotescience.com



Alaska Native Knowledge Network: Resources for compiling and exchanging information related to Alaska Native knowledge systems and ways of knowing. (NOTE: This is one of the original Indigenous Science websites on the net and although not updated since 2011, still has great value)

ankn.uaf.edu/index.html



The STEM + Culture Chronicle is an online resource containing articles that look at all aspects of culture in STEM. Produced by SACNAS, an inclusive organization dedicated to fostering the success of Chicanos/Hispanics and Native Americans, from college students to professionals, in attaining advanced degrees, careers, and positions of leadership in STEM.

medium.com/stem-and-culture-chronicle



Indigeneity is a Native-led Program within Bioneers that promotes Indigenous approaches to solve the earth's most pressing environmental and social issues. We produce the Indigenous Forum, original media, educational curricula and catalytic initiatives to support the leadership and rights of First Peoples, while weaving networks, partnerships and alliances among Native and non-Native allies.

bioneers.org/indigeneity-program

Indigenous Science Network Resources April 2022

research.acer.edu.au/ISN

VIDEOS

[Rethinking our Science: Blackfoot Meta-Physics waiting in the wings](#)

Dr. Little Bear compares the historical foundations of scientific thought from European and Indigenous perspectives, identifying paradigm differences that have become contemporary challenges to collaboration in resource management (20 May 2020).

['Imiloa: Sharing Hawai'i's legacy of exploration](#)

Ka'iu Kimura spoke about the importance of place and of growing up in a Native Hawaiian family with close ties to places of familial connections on Hawai'i Island. She discusses the creation of the 'Imiloa Astronomy Center on the University of Hawai'i campus in Hilo, and how it was built on a foundation of collaboration between culture, science and community amidst tensions over the further development of astronomy in Hawai'i (18 June 2020).

[The Fortress, the River and the Garden – a new metaphor for symbiosis between Indigenous and scientific knowledges](#)

Dr. Kimmerer is the author of Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants. She continues her work as SUNY Distinguished Teaching Professor at SUNY College of Environmental Science and Forestry (20 August 2020).

[Native Astronomy Through Native Eyes](#)

Dr. Gregory Cajete, PhD is Professor Emeritus and former Director of the Native American Studies program at the University of New Mexico. He is a renowned author and artist from Santa Clara Pueblo, New Mexico. He has pioneered reconciling Indigenous perspectives in science with a western academic setting. His focus is on teaching culturally based science, with its emphasis on health and wellness (10 September 2020).

[He Lani Ko Luna, A Sky Above – In losing sight of the land you discover the stars](#)

Pwo navigator Chad Kālepa Baybayan spoke about the resurgence of Oceanic Wayfinding, the indigenous art of non-instrument navigation and orientation at sea, voyaging on board double-hulled deep-sea canoes and modern-day efforts to recapture the spirit of traditional expeditions of exploration (15 October 2020).

[David Unaipon: Australia's Da Vinci](#)

A presentation that explains the importance of his shearing tool invention to the Australian wool industry.

[Native and Western Science: Possibilities in a Dynamic Collaboration](#)

Leroy Little Bear, a member of the Blood Tribe of the Blackfoot Confederacy (Canada), speaks about science through the lens of Native American culture and teachings. He outlines several tenets of this lens and discusses how we might use them to overcome obstacles reached in the scientific community. These tenets are constant flux, renewal, and place. He also discusses the tendency for a focus on interconnectedness and the larger picture in Native culture versus the focus on individualism and the individual parts in Western culture and the part this plays in studying science (10 May 2011).

Indigenous Science Network Resources April 2022

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[Indigenous Knowledge and Western Science: Dr. Gregory Cajete Talk](#)

Dr. Gregory Cajete, Director of Native American Studies at the University of New Mexico, explains how Indigenous physicists not only observe the world, but participate in it with all his or her sensual being because everything in native thought is “alive” with energy. Cajete was speaking to an attentive audience at The Banff Centre as part of the Indigenous Knowledge and Western Science: Contrasts and Similarities event (15 Jan 2015).

[Indigenous Knowledge and Western Science: Dr. Leroy Little Bear Talk](#)

Indigenous academic Leroy Little Bear compares the foundational base of Blackfoot knowledge to quantum physics to an attentive audience at The Banff Centre as part of the Indigenous Knowledge and Western Science: Contrasts and Similarities event (14 Jan 2015).

[The case to recognise Indigenous knowledge as science | Albert Wiggan | TEDxSydney](#)

In this passionate talk, Albert Wiggan calls for better recognition from the scientific community arguing that Indigenous knowledge is science and that's what we should call it. Albert Wiggan is a Bardi-Kija-Nyul Nyul man from the beautiful waters of Boddergron (Cygnet Bay) on the Dampier Peninsula, who is passionate about culture, country and Indigenous science (16 July 2019).

[Indigenous Knowledge and Western Science: Rob Cardinal Talk](#)

Astronomer Rob Cardinal outlines how the idea of everything being inter-related is becoming more of a discussion in western science recently (albeit quietly), but has been talked about for millennia in Indigenous thought. Cardinal, a research associate at the University of Calgary and Executive Director of The First Light Institute, was speaking to an attentive audience at The Banff Centre as part of the Indigenous Knowledge and Western Science: Contrasts and Similarities event (15 Jan 2015).

[Firehawks: Nature's Arsonists](#)

In this episode of the SciShow, host Stefan Chin discusses a 2017 project to collect Indigenous ecological knowledge about native wildlife and birds in Australia (October 2019).

[Indigenous Knowledge and Western science: collaboration, relationship and climate solutions](#)

An online learning series from the Global Council for Science and the Environment (GCSE) and the Land Peace Foundation (January 2021).

Science, History, and Colonialism



Polynesian Ancestral Knowledge Webinar Series

A series of 19 videos about Polynesian ancestral knowledge from the Hawai'i inuiākea School of Hawaiian Knowledge established in 2007.

manoa.hawaii.edu/hshk/kamakakuokalani/gladys-brandt-chair