ART OF THE PACIFIC ISLANDS

A Resource for Students and Educators

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ACKNOWLEDGEMENTS

It is with great pleasure that the Bowers Museum presents this Resource Guide for Students and Educators with our goal to provide worldwide virtual access to the themes and artifacts that are found in the museum's eight permanent exhibitions.

This guide is dedicated to Ed and Gayle Roski. Without their sponsorship of 12 expeditions to the Pacific, our *Spirits and Headhunters: Art of the Pacific Islands* exhibition would not be possible. May their love of exploration and discovery go on to inspire all of the educators who read this guide.

There are a number of people deserving of special thanks who contributed to this extraordinary project. First, and most importantly, I would like to thank Victoria Gerard, Bowers' Vice President of Programs and Collections, for her amazing leadership; and the entire education and collections team, particularly Laura Belani, Mark Bustamante, Sasha Deming, Carmen Hernandez and Diane Navarro, for their important collaboration. Thank you to Pamela M. Pease, Ph.D., the Content Editor and Designer, for her vision in creating this guide. I am also grateful to the Bowers Museum Board of Governors and Staff for their continued hard work and support of our mission to enrich lives through the world's finest arts and cultures.

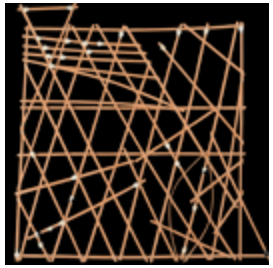
Please enjoy this interesting and enriching compendium with our compliments.

Peter C. Keller, Ph.D.
President
Bowers Museum

Cover Art

Fire Dance, Baining culture, East New Britain
Papua New Guinea, Melanesia
Photograph courtesy of the Roski-Keller-Martin expeditions

ART OF THE PACIFIC ISLANDS



Canoes, Solomon Islands
Photograph courtesy of the Roski-Keller-Martin expeditions

Oceania

The vast Pacific Basin is home to thousands of islands scattered throughout a region commonly known as **Oceania**. It is called that because it is the ocean that links these islands together.

Definitions of Oceania vary. Some scholars include Australia as part of Oceania. Others do not, given its size and its status as one of seven continents. In this guide, we define Oceania as consisting of three cultural zones: **Melanesia, Micronesia** and **Polynesia**. Each zone has distinct boundaries, environmental features and ecosystems—including wetlands, deserts, coral reefs and rain forests. Their cultures are also unique. What connects them is their strong relationship with their environment; and for those whose lives depend on the sea, their special understanding of ocean navigation.

Indigenous peoples of Oceania traveled thousands of miles following clues from the natural environment. They found their way by observing the sun, seasonal wind patterns, birds' migratory paths, ocean swells, and the position of stars in the evening sky. As explorers ventured farther out into the ocean, their navigation skills made it possible for them to reach more remote destinations, allowing their influence to spread between islands.

It is generally believed that peopling the Pacific Islands took place in two great waves. Nearly 60,000 years ago, during the Ice Age, people traveling from Southeast Asia moved into New Guinea, then eventually went on to populate the island continent of Australia. Because the sea level during the Ice Age was lower than it is today, people were able to travel using a combination of walking over natural **land bridges** that existed between continents, and sailing on simple rafts. Once the ice began to melt, the ocean level rose, submerging portions of land. This made exploration more difficult, and the first wave of Pacific migration came to an end around 25,000 BCE.

Much later, approximately 4,000 years ago, a second wave of people from Southeast Asia arrived in New Guinea, settling along its north coast. Over generations and centuries, migrations continued. The discovery of a distinct type of pottery produced by the **Lapita people** of Melanesia provided a way for archaeologists to trace migratory patterns as voyagers ventured from the northeast coast of New Guinea further out into the Pacific. Dating their artifacts—and studying subtle variations in the evolving style of Lapita pottery—helped scientists construct a timeline that established Lapita people as the common ancestors of Pacific Islanders from Melanesia, Micronesia and Polynesia.

One of the greatest stories of human migration is that of **wayfinding**—the ability for the peoples of the Pacific region to successfully travel great distances across the ocean from island to island, often thousands of miles apart. Until very recently, modern navigators could only guess how ancient cultures accomplished this truly amazing feat. It was often dismissed as mere luck. However, recent discoveries and a resurgence of ancient techniques of wayfinding by modern-day Polynesians have shown that the skills used were quite advanced.

Decades of knowledge and practice allowed **outriggers** and double-hulled **canoes** filled with people, food, plants, animals and the desire for discovery to travel further out into the ocean, often for months at a time. By the onset of European contact and colonization in the 16th to 18th centuries, the period of Pacific Islanders' exploration and migration was over.

A story as mysterious as that of the Pacific Islands sparks curiosity. Some questions you may wonder about appear below. As you continue to learn, add more of your own questions and ideas to this list:

- **How did Pacific Islanders navigate without maps or instruments?**
- **In what ways are the three Pacific Island cultural regions of Melanesia, Micronesia and Polynesia alike? How are they different?**
- **What artifacts and traditions are unique to Pacific Island cultures?**
- **What was the impact of European visitors to the islands?**
- **What is the relationship today between the three regions?**
- **What is the relationship today between Pacific Islanders and other cultures?**

"In what sense can a land that is already INHABITED be DISCOVERED?"

—Christina Thompson, author
Sea People: The Puzzle of Polynesia

MODULE ONE TIMELINE: PACIFIC MIGRATION

With new archaeological discoveries, the story of what we know continues to evolve.

~60,000-25,000 BCE — FIRST WAVE

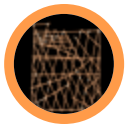
*South East Asians from Indonesia were the first settlers of **New Guinea** and **Australia**. Low Ice-Age sea levels enabled them to travel by a combination of walking over existing land bridges and sailing on simple rafts.*

1500-200 BCE — SECOND WAVE

***Lapita people** settled in the Bismarck Archipelago of Melanesia. Expert **potters**, sailors and traders, they are believed to be the common ancestors of **Melanesian, Micronesian, Polynesian** and **Māori** cultures.*

~1000 BCE — MICRONESIA

*Ancient mariners in the **Marshall Islands** of **Micronesia** made and studied three-dimensional **stick charts** to understand the wave patterns voyagers were likely to encounter on the open seas.*



700-1000 CE — EAST POLYNESIA

*West Polynesians sailed east to settle the islands of **East Polynesia.** This area includes **French Polynesia,** comprised of more than 100 South Pacific islands such as the volcanic **Marquesas Islands, Tahiti** and the **Society Islands**, as well as the **Gambier Islands.***

800-1200 CE — RAPA NUI

*To honor their chiefs and ancestors, Polynesian settlers built more than 800 giant stone statues known as **Moai** on the isolated island of Rapa Nui. Weighing up to 86 tons, no one knows for sure how they were able to be moved and positioned upright.*

1519 CE — EUROPEAN EXPLORATION

*In 1519, Portuguese navigator **Ferdinand Magellan** (sailing for Spain) circumnavigated the earth, making him the first European explorer to reach the Pacific Ocean from the Atlantic Ocean.*

1722-1774 CE — EASTER ISLAND

*Within 50 years of **Jacob Roggeveen**'s 1722 "discovery" of Rapa Nui (which he named "Easter Island") its ecosystem collapsed from the effects of deforestation. Many Moai statues were toppled.*

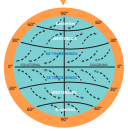
1947-1970s CE — VOYAGING

*In 1947, as part of the **Experimental Voyaging Movement**, Norwegian adventurer **Thor Heyerdahl** sailed 5000 miles across the Pacific Ocean in the handmade raft **Kon-Tiki** to try to prove his theory of Polynesian migration.*

~2000 BCE — OUTRIGGER CANOES

*Development of stable **double-hulled outrigger canoes** made it possible to sail shallow boats in rough waters on the open seas without fear of capsizing.*

Sailors gained experience navigating by closely observing the clouds, wind, sun and stars.



1100-800 BCE — MELANESIA

*Lapita navigators explored **Melanesia** in stages, venturing as far as the Solomon Islands. They sailed against prevailing **trade winds**, then waited six months to head home until the trade winds reversed, knowing they would be able to return following the same route in both directions.*

900-800 BCE — WEST POLYNESIA

*Artifacts, bones and fossils suggest to archaeologists and anthropologists that early settlers migrated from Melanesia and Micronesia to **Fiji, Samoa, and Tonga** in West Polynesia between ~900 and 800 BCE .*

400-1200 CE — HAWAII

*Hawaiian Islands were inhabited as early as 400 CE by Polynesians from the Marquesas Islands. Different **social systems** evolved on various Pacific Islands. On densely-populated islands like Tahiti and the **Hawaiian Islands,** Chiefs had great power. More equal societies existed on smaller, thinly-populated islands.*

1300 CE — NEW ZEALAND

*Polynesians reached **New Zealand,** around 1300 CE. They called it Aotearoa or Land of the Long White Cloud. The settlers (**Māori**) adapted to the cooler climate. They hunted giant flightless birds, called **moa**.*

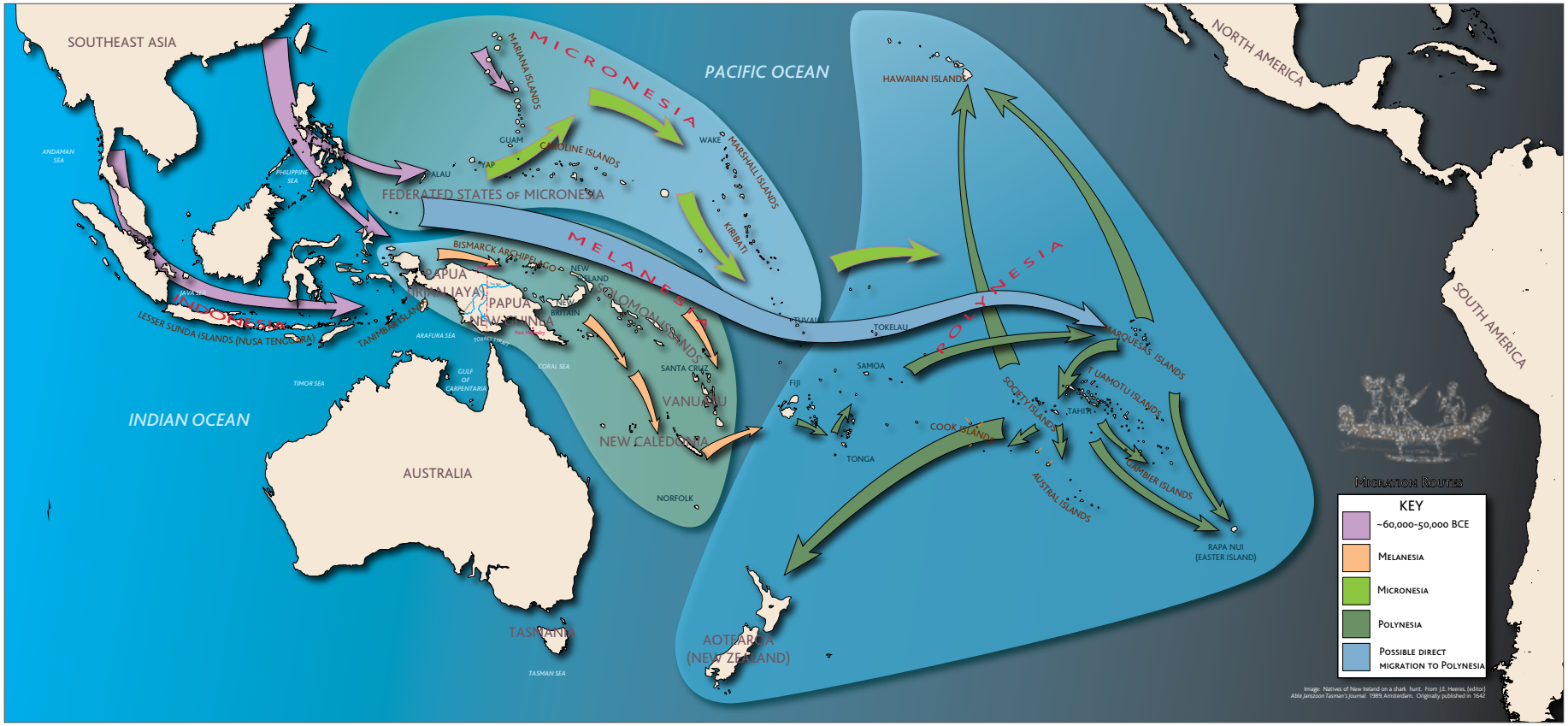
1642 CE — TASMANIA

*Dutch explorer **Abel Tasman** "discovers" New Zealand, where his boats were attacked by Māori war canoes. The island of Tasmania, home to the endangered "Tasmanian devil" was named after Abel Tasman.*

1769 CE — THE ENDEAVOUR

*English navigator **Captain James Cook** mapped the east coast of Australia, New Zealand and the Hawaiian Islands. On his first of three voyages, in the South Pacific, guided by **Tupaia**, a Polynesian translator and genius in the ancient secrets of Polynesian wayfinding, he was able to reach and record more than 100 islands previously unknown to European explorers.*

MODULE ONE MAP: PACIFIC MIGRATION



Routes of Pacific Migration

The map pictured above traces the sequence of Pacific Migration:

❶ Beginning in about 60,000 BCE, people from Southeast Asia and Indonesia dispersed to the western islands of Micronesia, the island of New Guinea and the Bismarck Archipelago in northwest Melanesia. Low Ice-Age sea levels enabled them to travel by a combination of walking over existing land bridges and sailing on bamboo rafts.

❷ By about 10,000 BCE, the ice that covered much of the earth's surface began to melt, causing sea levels to rise and submerging previously-existing land bridges. This made continued exploration nearly impossible,

given the boat-building technology at that time. Thousands of years later—aided by the construction of stable, double-hulled outrigger canoes as well as generations of experience navigating by observing the clouds, sun and stars—a second wave of Pacific migration occurred between 1500 and 200 BCE. In this wave, the Lapita peoples ventured forth from the Bismarck Archipelago in Melanesia in a southeastern direction, exploring as far east as the Solomon Islands.

The study of artifacts, bones and fossils suggest that ancient mariners used two navigation strategies:

1) They sailed toward destinations that were visible from the island where they began their journey; and
2) Their goal on these early voyages was to **search and return**. They followed prevailing easterly trade winds on their outbound journey in the spring; then waited six months until the trade winds shifted to a northwestern direction before beginning their homeward journey. They essentially followed the same route in both directions, increasing the chances that they would find their way back home rather than becoming lost on the open seas.

Islands settled in the second wave included Fiji, Samoa and Tonga in **West Polynesia**. It is believed that some adventurers may have made the journey directly from Indonesia to West Polynesia rather than starting from either a Melanesian or Micronesian island.

❸ More than 1000 years after settling West Polynesia, explorers set out for **East Polynesia**. This region includes French Polynesia, an area comprised of more than one hundred South Pacific islands, such as the volcanic Marquesas Islands, the Society Islands and the Gambier Islands. The distances between the islands were much greater than during the second wave of migration. Navigators would not have been able to see their distant destination when they began their journey. The more remote shores of Hawaii, Rapa Nui and New Zealand were reached between 400 and 1300 CE. This second wave of Pacific migration was **intentional** rather than merely exploratory. Explorers set out with enough people, animals and plants to establish settlements on the islands they reached. Their efforts were not driven by overcrowding or a shortage of resources, but may have been inspired by curiosity or the desire to discover new lands.

❹ The first Europeans to explore the Pacific did so in the sixteenth century. By this time, the era of Polynesian migration and settlement was over. In 1519, **Ferdinand Magellan** was the first explorer to circumnavigate the globe. He was followed by Dutch explorers Abel Tasman who "discovered" New Zealand in the 17th century and by Jacob Roggeveen who reached Rapa Nui on Easter Sunday in 1722, which he renamed "Easter Island."

Perhaps the most well-known of the European explorers was English **Captain James Cook** in the late 18th century. Cook was accompanied on his first voyage in search of Terra Australis by a Polynesian translator and navigator named **Tupaia.** Tupaia's extensive knowledge of wayfinding allowed Cook to document many islands that were previously unknown to European explorers.

Having barely survived treacherous voyages in the vast Pacific, European explorers were shocked to find islands that had long been inhabited by Polynesian peoples. Many theories were proposed in an attempt to explain how these cultures developed. Although no written records existed prior to the arrival of Europeans, archaeologists, anthropologists and linguistics experts continue to learn more about the ancient Polynesians from archaeological discoveries, DNA records, radiocarbon dating of artifacts, bones and fossils, and experimental or computer-simulated voyaging—as well as the stories passed down from ancient cultures to their descendants.

Sunset near New Hanover, Melanesia
Photograph courtesy of the Roski-Keller-Martin expeditions

Bird of Paradise (*Cenderawasih*), Papua
Photograph by Richarderari

Three Regions

The Pacific Islands consist of three geographic regions: Melanesia, Micronesia and Polynesia. Located in the vast Pacific Ocean, the total land area of the islands is small relative to the ten million square miles of water that both separates and connects them.

Melanesia

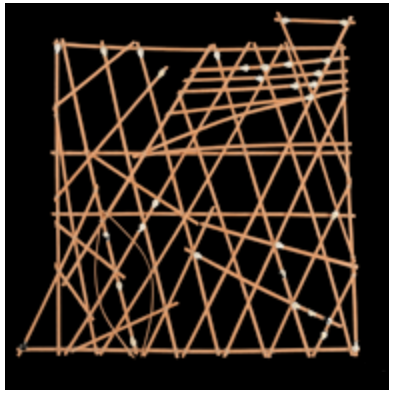
From the Greek *melas* (dark) and *nēsos* (islands), the name Melanesia originated when Europeans first encountered the dark-skinned people living on these islands. This geographic region includes New Guinea, the Bismarck Archipelago, the Solomon Islands, and Vanuatu, as well as the French overseas community of New Caledonia. New Guinea, Melanesia's largest island, is divided into two parts. The western half, known as Papua, is part of Indonesia. The eastern part is the independent state of Papua New Guinea. Near the eastern edge of the region of Melanesia is Fiji. Although ethnically Melanesian, the Indigenous people of Fiji have a social and political structure closer to that of Polynesia, which is where they are classified in this guide.

Of the three regions, Melanesia has the highest total land area—386,000 square miles. New Guinea is considered a continental island, which means it was once part of a continent before sea level changes and the movement of **tectonic plates** in the earth's crust made it into a separate **landform** surrounded by water. Several Melanesian islands are part of the **Ring of Fire**, with central mountain peaks created by volcanic eruptions.

Every aspect of life in Melanesia is more vibrant and varied than in other areas of the Pacific because the environment itself is much more **diverse**. Ecosystems on New Guinea range from mangrove forests growing in swampy coastal waters to lowland rainforests and tall mountain highlands in the interior. Because its rugged terrain is difficult to cross, people, animals and plants evolved in **isolation**. This fostered the development of exotic plant and animal species and a variety of distinct cultures and languages among its human populations. Some remote Melanesian villages developed without any influence at all from the outside world.

Melanesian ancestors belonged to the **Austronesian** language family, which is widely dispersed throughout the islands of Southeast Asia and the Pacific. Eight hundred different languages are spoken in Melanesia.

Atoll, Caroline Islands, Micronesia
Ulithi Atoll encompasses 40 islets that surround a lagoon
Photograph by U.S. Geological Survey



Navigational Chart (*Rebbelib*)
20th century
Kuijlen Island, Marshall Islands
Micronesia
Palm leaf midribs, fiber and cowrie shells
20.25 x 21.625 x .625 in.
Bowers Museum 97.132.1
Gift of Jesse W. Curtis

Micronesia

The name Micronesia means “small islands.” This region of more than 2,000 islands is located east of the Philippines and west of Hawaii. It includes, from west to east, Palau, Guam, the Caroline Islands, the Northern Mariana Islands, the Federated States of Micronesia, the Marshall Islands, Nauru and Kiribati. The region also comprises islands known as “Micronesian outliers” which have cultural connections beyond their geographic locations. Most Micronesian islands are small, and many are grouped in clusters or **archipelagos**.

Islands can be grouped into categories based on their geographic features. There are **continental islands**, **high volcanic islands**, and **low islands** or **coral atolls**. Micronesia consists of both high volcanic islands and low coral atolls. Its climate is tropical, with high humidity and little seasonal variation in temperature.

The natural environment of Micronesia offers few natural resources. Along with devastating rainstorms, challenging environmental conditions force people to focus on sustaining life rather than developing strong cultural practices. Fishing is the primary source of food. Farmers also raise pigs and chickens, and cultivate crops such as yams and tropical fruits to satisfy the needs of their families and local communities. Most of the food they produce is consumed by people living on the islands. There is little left over for trade.

Without large supplies of wood and stone, Micronesians use coral and clam shells instead as materials for building and art-making. The primary mineral found on Micronesian islands is phosphate, a source of trade that enables Micronesian people to obtain some of the things they need.

Cultural artifacts in Micronesia are created primarily to be used. Emphasis is placed on simplicity of form. The richness of Micronesia’s culture is seen in artifacts related to its peoples’ deep connection with the ocean.

Black sand beach, Tahiti
Photograph by Fred

Polynesia

The name Polynesia means “many islands.” The Pacific Islands of Polynesia are made up of more than 1,000 islands scattered over the central and southern Pacific Ocean, forming what is known as the **Polynesian Triangle**. It has the lowest ratio of land to water (1%) compared to any of the three Pacific regions.
The total land area is 118,000 square miles (of which New Zealand accounts for nearly 90%). The total ocean area of the Polynesian Triangle covers 10,000,000 (ten million) square miles. The Triangle is anchored by the Hawaiian Islands in the north, Rapa Nui (Easter Island) in the east, and New Zealand in the southwest.

Moai, Rapa Nui, Polynesia
Photograph courtesy of the
Roski-Keller-Martin expeditions

Geographically, Polynesia can be divided into two primary sub-regions. The area we call **West Polynesia** includes Fiji, Samoa and Tonga. The area known as **East Polynesia** consists of Hawaii, the Cook Islands, and French Polynesia. This French territory comprises five archipelagos: the Austral Islands, the Gambier Islands, the Marquesas Islands, the Tuamotu Archipelago and the Society Islands, of which the island of Tahiti is the largest and most well-known.

The physical environment of the Polynesian Triangle was not favorable to human habitation when it was first settled. The farther east explorers traveled during the second wave of Pacific migration, they found fewer and fewer varieties of plants and animals. Later, when future voyagers traveled great distances out to sea with the intent of establishing homelands, they stocked their outriggers not only with enough people to start a colony, but also with pigs, chickens and many species of plants that would be needed to sustain life.

Located south of the equator, the Polynesian climate is tropical all year round. There is a dry season from May to October and a hot, rainy season from November to April. Coconut palms, vines and shrubs grow near the oceans, and mangroves thrive in salty marshlands. Dense tropical jungles and fruit trees grow farther inland. Polynesia’s reefs shelter many kinds of coral, fish and seafood including lobsters, shrimps, snails, eels, octopuses, and turtles. Larger fish, whales, dolphins and sharks swim in deeper waters.

MODULE ONE: PACIFIC MIGRATION

MELANESIA

- **Melanesia**: Named by European navigators, from the Greek *melas* (dark) and *nēsos* (islands), Melanesia means "islands of dark-skinned people."
- **Migration**: Melanesia was part of the first wave of Pacific Migration from Southeast Asia, occurring between ~60,000-25,000 BCE
- **Total land area**: 386,000 square miles
- **Islands**: The region includes New Guinea, (whose western half is part of Indonesia and eastern half is an independent state), Fiji, Vanuatu, the Solomon Islands and the French territory of New Caledonia.

- **Environment**: Rugged terrain, jungles, tundra
- **Climate**: Tropical; humid from November-April
- **Natural resources**: Oil, minerals, timber
- **Plants**: Mangrove and breadfruit trees
- **Animals**: Birds of paradise; more than 100 species of reptiles such as geckos and skinks

- **Economy**: Traditional: Farming (sugar cane, yams), pottery, woodcarving
  Today: Farming, logging, mining, tourism
- **Current population**: ~11,000,000
- **Languages**: 800 distinct languages spoken
- **Spirituality**: Christianity; plus Ancestor worship is the inspiration for nearly all Melanesian artforms

MICRONESIA

- **Micronesia**: from the Greek *mikros* (small) and *nēsos* (islands), means "small islands."
- **Migration**: Micronesia was part of the second wave of Pacific Migration which took place between ~1500 and 200 BCE
- **Total land area**: 1,000 square miles
- **Islands**: The region comprises more than 2500 islands: the Federated States of Micronesia, Guam (US), Kiribati, the Marshall Islands, Nauru, the Northern Mariana Islands (US) and Palau. Its strategic location made it a destination for military bases during World War II.

- **Environment**: Coral atolls, lagoons, rainforests
- **Climate**: Warm; typhoons from June-December
- **Natural resources**: Seabed minerals
- **Plants**: Coconut palms, ferns, pepper plants
- **Animals**: Giant clams, fish, porpoises, octopuses and turtles

- **Economy**: Traditional: Subsistence farmng and fishing; phosphate trade
  Today: selling fishing rights; phosphate mining
- **Current population**: ~550,000
- **Languages**: English and Indigenous languages
- **Spirituality**: Christianity; plus Indigenous beliefs of Animism (all things have supernatural powers)

POLYNESIA

- **Polynesia**: from the Greek *polys* (many) and *nēsos* (islands), means "many islands."
- **Migration**: West Polynesia (Tonga and Samoa) was reached by Indigenous explorers between ~900-800 BCE. East Polynesia and New Zealand were reached between ~700-1300 CE.
- **Total land area**: 118,000 square miles
- **Islands**: The Polynesian Triangle spans 10 million square miles of ocean, anchored by Hawaii in the north, Rapa Nui to the east and New Zealand to the southwest. The center is home to the islands of French Polynesia.•

- **Environment**: Volcanic islands; atolls, barrier reefs
- **Climate**: Tropical; tempered by trade winds
- **Natural resources**: Timber
- **Plants**: Orchids, coconut palms, tropical fruits, sugarcane
- **Animals**: Dolphins, sharks, oysters, fish

- **Economy**: Traditional: fishing, agriculture
  Today: Tourism, coconut products, sugarcane, fruit, pearls, construction materials
- **Current population**: ~685,000
- **Languages**: Tahitian, Samoan, Māori, Hawaiian
- **Spirituality**: Christianity; plus Indigenous beliefs of Animism (all things have supernatural powers)

MODULE ONE ACTIVITY: PACIFIC ISLAND LANDFORMS

CONTINENTAL ISLAND

Scientists say that millions of years ago, there was only one large **supercontinent.** Slow movements of the Earth's crust broke this supercontinent into several pieces that began to drift apart. Some large chunks of land split. When sea levels rose at the end of the Ice Age, these chunks became islands.

The world's second largest island, New Guinea, is a continental island. It is separated from Australia only by the shallow and narrow Torres Strait. Use the salt dough recipe on the next page to make a map representing a 3-D view of this **phenomenon**.

HIGH OR VOLCANIC ISLAND

Oceanic islands are caused by **volcanos**, an opening in the earth's crust through which **lava** —a fiery liquid formed of hot, melted rock— erupts. As lava cools, it creates a high, cone-shaped mountain peak. High oceanic islands are formed by these volcanic eruptions.

Using gray clay, build a cone-shaped volcano. Make an indentation in the top. Add orange slime to represent flowing lava. Place the volcano inside a clear container, then pour in 1.5" of water. Follow the baking soda instructions to simulate the **eruption** of hot gases that takes place.

LOW ISLAND OR ATOLL

Low islands or atolls appear when either a submerged volcano explodes and its lava builds to pierce the surface of the water, or when a visible volcano gradually sinks under the surface of the ocean, causing a ring of **coral reef islands** to form surrounding a **lagoon** where the volcano once stood.

Using clay and green foam, follow instructions on the next page to simulate how an atoll such as those found in Micronesia and Polynesia can form. Experiment to discover how an object's shape and **density** affects its tendency to sink or to float on the surface of the water.

MODULE ONE ACTIVITY: PACIFIC ISLAND LANDFORMS

CONTINENTAL ISLAND

You will need:

- **Salt Dough Recipe**
  (1 cup salt, 1 cup water, 2 cups flour)
  - Small mixing bowl
  - Measuring cup
- **Square plastic sandwich container** (6" x 6")
- Blue food coloring
- Water
- Measuring cup

Instructions:

1. Mix salt dough ingredients. On a piece of wax paper, press into a slab about 1/2" thick.
2. Using map templates, create shapes representing the continent of Australia and the island of Papua New Guinea.
3. Cut a rectangle about 2" x 1" to connect the two landforms as shown on map. The rectangle should only be half as thick (1/4") as the two landforms.
4. Arrange landforms in square plastic container as they appear on the map.
5. Add 4 drops of blue food coloring to a cup of water. Pour into square container. The Torres Strait should disappear.

HIGH OR VOLCANIC ISLAND

You will need:

- **Gray Clay**
- **Slime Recipe**
  4 oz. bottle of white school glue
  1 tablespoon saline (contact) solution
  1/2 tablespoon baking soda
- Orange food coloring
- **Volcanic Gas**
  Baking Soda
  1 tbsp. dishwashing liquid
  1/2 cup vinegar
  2 tablespoons water
- Small mixing bowl
- Small plastic water bottle
- Small cup
- Measuring cup
- Measuring spoons
- Water
- Scissors
- Tape

Instructions: Form 6" mountain from gray clay. With your thumb, make a bowl shape in the top of the mountain. Pour slime on mountain so it drips down side. Pour volcanic mixture into indentation at top of mountain.

LOW ISLAND OR ATOLL

You will need:

- **Gray clay**
- **Clear plastic cylinder container with lid**
  (6" diameter x 6" tall)
- **Foam sheet** (green)
- Ring template and Island template
- Scissors
- Glue
- **Water**
- Blue food coloring
- Measuring cup

Instructions:

1. Form a 3" tall cone of gray clay to represent a mountain. Its base should be 2" in diameter. Center this mountain inside a clear container.
2. Using ring template, cut "donut" shape from clear lid of plastic container. Ask an adult to help cut out center of the "donut".
3. Using island template, cut out 3 island shapes from green foam sheet. Glue to edges of "donut". Place inside 6" container.
4. Add 2 drops of blue food coloring to a cup of water. It should be light aqua in color. Pour into container and observe what happens!

MODULE TWO:

SECRETS OF NAVIGATION

Wayfinding by reading ocean swells
Photograph by Hans Verburg

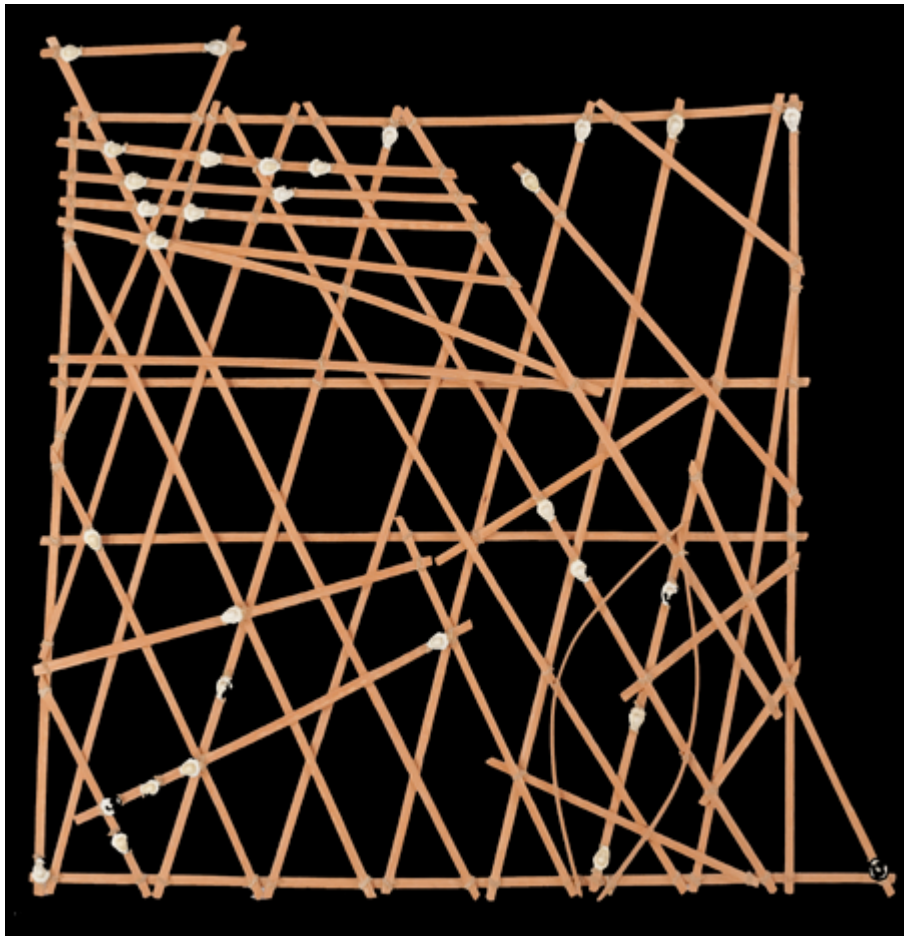
Wayfinding

The ability for peoples of the Pacific region to accurately travel vast distances across the ocean from island to island—often thousands of miles part—is called wayfinding.

Sometime between the end of the Ice Age and about 2000 BCE, Pacific Islanders developed canoes that were both fast and stable enough to sail long distances in rough waters. These boats—outriggers—had two supports of equal in length, lashed together side by side. The space between was used to store food, hunting materials and nets when embarking on long voyages. This new technology opened up a second wave of exploration that enabled navigators to reach more remote islands for the first time.

Recent discoveries suggest that the movement of humans across the Pacific was not merely one-way, moving with the trade winds. Instead, explorers traveled back and forth multiple times, often following the same ocean pathways in both directions.

By about 1500 BCE, Pacific Islanders began to settle some of the more distant islands that previous explorations had deemed habitable. Archaeological evidence indicates that voyagers traveled with enough people, food, plants and animals to establish a new home at their destination, suggesting that their migration was intentional not random. These early settlers were not forced to leave their home island because of overcrowding or natural disasters. The motivation of the travelers was most likely a strong desire to discover new horizons, and an almost spiritual connection to the destination desired.



Navigational Chart (*Rebbelib*), 20th century
Kuijlen Island, Marshall Islands, Micronesia
Palm leaf midribs, fiber and cowrie shells;
20.25 x 21.625 x .625 in.
Bowers Museum 97.132.1
Gift of Jesse W. Curtis

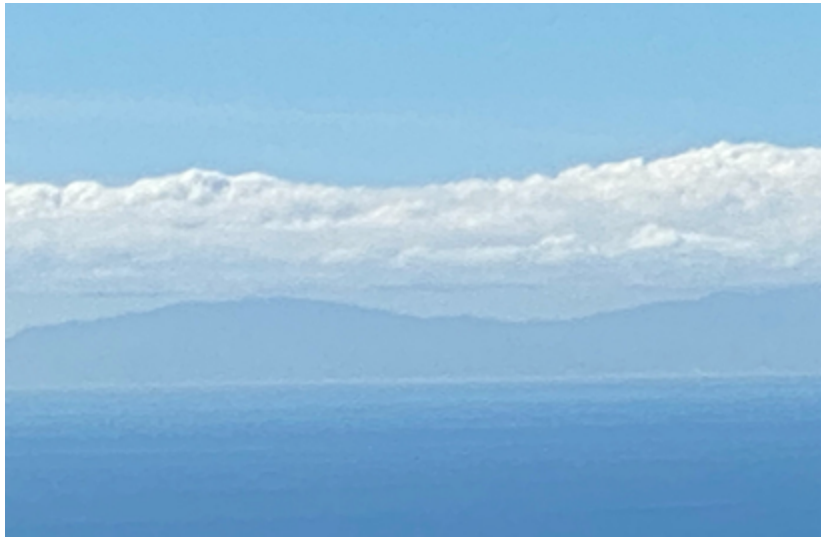
Reading the Ocean: Stick Charts

Navigators in the Pacific Islands developed strong observation skills. They watched the formation of clouds and the movement of the sun and stars across the sky. They paid close attention to migratory patterns of wildlife and birds. But perhaps the most unique tool they used to guide their voyage to distant islands was a **stick chart**.

Created by experienced explorers who had previously ventured into the open seas, stick charts provided a spatial representation or "map" of islands and wave patterns that mariners could expect to encounter. The charts were not taken on board the outrigger, but were memorized by navigators prior to starting a journey on the open seas.

Stick charts were used almost exclusively by people from the Marshall Islands of Micronesia. In Polynesia, navigators used mental devices such as songs and stories to memorize the way to reach their destination.

Each island maintained a guild of navigators who enjoyed high status in the community. In times of famine or difficulty, they would trade for aid or evacuate people to neighboring islands. Both wayfinding techniques and outrigger canoe construction methods were kept as guild secrets; but as these skills are revived, they are being shared and recorded. Traditional navigation methods are still being taught in the Polynesian outlier of Taumako in the Solomon Islands.



Wayfinding by observing cloud formations over land
Photograph courtesy of Dr. Peter Keller, Bowers Museum

Wayfinding by observing flight patterns of seabirds
Photograph by H. Turner

Wayfinding: Observing Cloud Formations

Cloud formations can predict the weather or determine how close a navigator is to land that they may not yet be able to see. Clouds form over land because of elevation and temperature differences between the land and the ocean.

What else can clouds tell us? Puffy, cumulus clouds mean "no rain in sight." High wispy cirrus clouds predict the weather will change soon. Cloud formations with flat bottoms indicate "no trade winds." Cumulonimbus clouds with dark bottoms (sometimes called "thunderheads") are the most dangerous for voyagers. They produce wind, rain, lightning, hail and tornadoes.

Wayfinding: Observing Birds' Flight Patterns

Pacific Island navigators observed that birds fly out to sea in the morning to hunt for fish, then return to land at night. Navigators seeking land sailed opposite the birds' flight path in the morning and followed the birds' path back to land at night.

Birds also follow seasonal migratory paths on the journey from their spring breeding grounds to the place where they will live in winter. The pathways they take each year—known as **flyways**—have followed predictable routes since ancient times. The East Asian-Australasian flyway includes parts of eastern Asia, Melanesia, Australia and New Zealand. It is followed by sea birds such as the long-tailed cuckoo. The Western Pacific flyway, which includes Micronesia and Polynesia, is followed by seabirds including the frigatebird and the Pacific golden plover.

Wayfinding: Celestial Navigation

Navigation relies on constant observation and memorization. Navigators must always be alert and aware of their surroundings. They must memorize where they have sailed *from* in order to know where they are now. The sun was the main guide for early navigators because they could follow its exact points as it rose and set. Once the sun had set, they would use the rising and setting points of the stars. Polynesians have names for the houses of the stars—the places where they come out of the ocean in the morning and go back into the ocean at night. If navigators can identify the stars, and if they have memorized *where* they rise and set—they can find their way using that mental model.

During daylight, or on cloudy nights when there are no stars, navigators rely upon the winds and ocean swells as their guides.

Night sky with stars and nebula
Photograph by Nienora

Wayfinding: Understanding Wind Patterns

Wind patterns can provide clues for navigators to predict what type of weather may lie ahead. Understanding which direction the wind is blowing can help mariners avoid unexpected flash storms and gale-force winds that spell trouble for both large and small ocean-going boats.

There are several types of wind patterns. **Trade winds** blow east to west just north and south of the equator. Sailors can follow the trade winds to shorten a sea journey when sailing west. **Westerlies** are prevailing winds that blow from the west to east in the middle latitudes from 30 to 60 degrees on either side of the equator. **Easterlies** blow from east to west near the north and south poles. **Doldrums** are bands of calm air at the equator. Navigators try to avoid these zones of air as they can stall the forward movement of a ship for weeks.

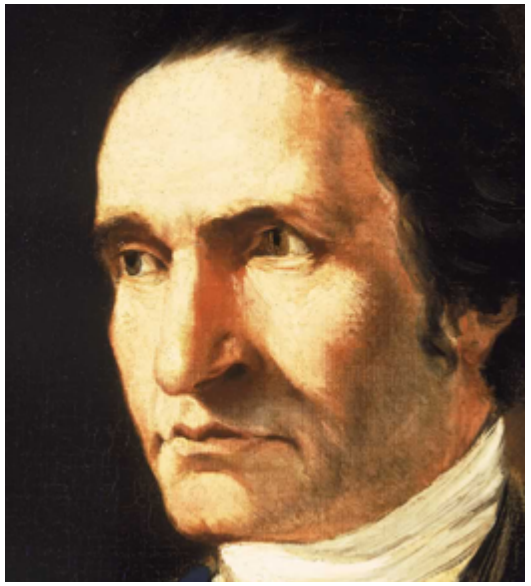
Tahitian Warrior Dugouts
Engraved by Ignazio Fumagalli (Italian, 1778-1842)
for Le Costume Ancien & Moderne (1827)
Public Domain

Detail from a map of Ortelius: Magellan's ship *Victoria*
Cartography by Ortelius, 1590
Public Domain

European Exploration and the Secrets of Polynesian Navigation

Before the arrival of European explorers in the 16th to 18th centuries, there was no written history of Pacific Island cultures. In 1519, a Spanish expedition led by Ferdinand Magellan sailed down the east coast of South America, then through the strait that now bears his name. He was the first European to see the Pacific Ocean and the first to circumnavigate the earth. Other large Spanish expeditions crossed the Pacific in the decades that followed. Spanish navigators discovered the Marshall Islands and Palau in the North Pacific, as well as the Marquesas and Solomon Islands, the Cook Islands and the Admiralty Islands in the South Pacific. The Manila Galleons established the first transpacific trade route connecting Seville, Spain with the city of Manila in the Philippines.

Between the 1590s and the 1720s, Dutch explorers were among the first Europeans to reach Tonga, Fiji, Samoa, Australia, Tasmania, New Zealand, and Easter Island. They were able to see Pacific Island cultures before they began to change under influence from the outside world. In an attempt to explain how Indigenous cultures were able to travel to and settle remote islands in the middle of an unpredictable ocean, Europeans put forth various theories. In the late 18th century, Captain James Cook, a master navigator from Great Britain, embarked on his first expedition. He would soon be introduced to some of the secrets of Polynesian navigation.



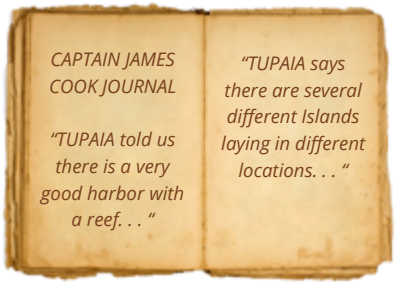
(Right)
Portrait of Captain James Cook
HMS *Endeavour*, 1775-76
Painting by William Hodges
Public Domain

Tupaia, Captain James Cook and HMS *Endeavour*

James Cook was a British explorer and mapmaker. His first voyage as Captain of HMS *Endeavour* in May 1768 was an expedition to the South Pacific. It was sponsored by the British Royal Navy and a group dedicated to scientific knowledge called the Royal Society. The expedition had three goals:

- To set up an observatory in Tahiti so Cook could watch the planet Venus cross the Sun, a rare event that happens once in 100 years. This would let Cook measure the distance from the Earth to the Sun.
- To find *Terra Australis Incognita,* an undiscovered southern land believed to exist as a balance to large landforms that existed north of the equator.
- To allow botanist Joseph Banks and artist Sydney Parkinson (who were traveling on the ship with Captain Cook) to study the natural history of unexplored Pacific Islands and collect plant samples.

Among the navigational tools they took on board the ship were a sextant, maps, and a magnifying glass. When they reached the islands, European explorers were surprised to see that the islands were already inhabited. How could Polynesians have crossed the challenging ocean in small canoes with no instruments?



Captain Cook's Navigational Tools
(Left to Right)

Sepia map with magnifying glass
Photograph by Beautiful Landscape

Sextant MHS-40
Photograph by John Stancliffe
Public Domain

Quotes from Captain James Cook
Parchment journal by Preto Portola

Tupaia's Chart of the Society Islands
1769
Pen and ink
British Library MS21593 C, Public Domain

Captain Cook was curious. He met an Indigenous Polynesian navigator and high priest named **Tupaia** and invited him to join his crew on the first voyage of the *Endeavour*. Cook described Tupaia as "a very intelligent person" who knew more about the geography and customs of the Pacific Islands than anyone else he had met. While at sea, Tupaia shared techniques used by Polynesians to navigate using only observation skills and the ability to "read" the ocean swells, wind patterns, clouds, and migration pathways of animals and birds to help guide their boat to its destination. The journals of Cook and Joseph Bank included descriptions of Tahitian society and customs believed to be based on conversations they had with Tupaia. A chart survives that depicts Tupaia's knowledge of the Pacific, created from his mental model of the islands' relative positions at sea.

While sailing on the *Endeavour* to New Zealand and Australia, Tupaia's role was critical. He was able to communicate with Māori people in a language similar to their own and resolve problems that arose between British explorers and Polynesian Islanders. Although his contribution was valued, Tupaia was not invited to join the crew when they went ashore, and his role in the success of Captain James Cook's mapping of Polynesia was not acknowledged until recently.

Tupaia's genius in the skills of wayfinding contributed greatly to the success of Captain Cook's first voyage. The chart he made mapped more than 100 islands previously unknown to Europeans. Although Tupaia hoped to join the British explorers when they sailed back to England, he died from a fever in Indonesia before Cook and his crew left on their return voyage.

MODULE TWO ACTIVITY: CREATE A STICK CHART

Wayfinding: Create a Stick Chart

Wooden stick charts were tools used by early navigators in the Pacific Islands. These explorers had no maps to guide their journey. Using their wayfinding skills, navigators identified ocean currents and trade winds while the night sky guided their way. They invented stick charts to share knowledge that would help others track their location and understand what conditions they might encounter on the way to their destination.

Navigators never carried these charts with them, but instead memorized their layout before a voyage. The shells on the stick chart represent islands. When fibers were added to the shells, they indicated the presence of currents or waves. The charts were used mostly by people in Micronesia; however, we learned of their use and complexity from modern day Polynesians.

BOWERS KIDSEUM STICK CHART PROJECT

You will need:

PAPER/ PENCIL

WOOD STICKS

GLUE

PAPER CUP

SHELLS/BEADS

RAFFIA

Create a Stick Chart:

STEP 1 Look up a map of your neighborhood online. If you do not have access to a map, try imagining your neighborhood. Are the streets straight, diagonal, or curvy? How do they connect? What landmarks help you find your way? How might you explain that to someone?

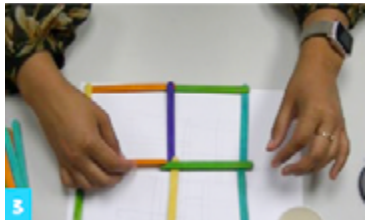
The map at right shows the neighborhood where Bowers Museum is located. You can identify streets and some nearby buildings and landmarks on this map.

NEIGHBORHOOD WHERE BOWERS MUSEUM IS LOCATED

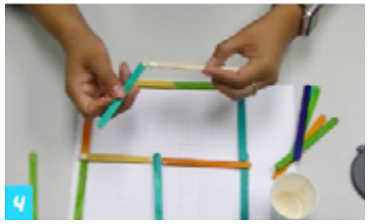
MODULE TWO ACTIVITY: BUILD A STICK CHART

FOLLOW THESE STEPS TO MAKE A STICK CHART

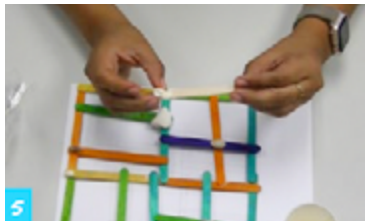
STEP 2. Take a piece of paper and a pencil. Sketch your streets using lines to represent them. To sketch places, you can draw shapes, such as circles, squares, stars, etc. For example, you could use a button to mark your home, school, or favorite place. Create a **legend** to identify what each shape represents.



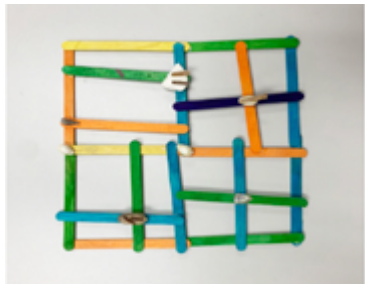
STEP 3. Begin placing your sticks in the same format as your drawn map. Be sure that there are sections where the sticks overlap as this will make it easier to glue them down.



STEP 4. After you have laid the sticks out, pour a small amount of glue into a paper cup. Use one stick for dipping and applying the glue. Taking your dipping stick, add glue to the sticks you laid out and begin gluing them together.



STEP 5. Now take your buttons, shells, beads, etc. and place them as they are in your drawn map. Go back and glue them down once you're sure of their placement. Then take raffia or dried grass, add it to your buttons, shells and beadsto differentiate between them.



YOU HAVE NOW COMPLETED YOUR NEIGHBORHOOD NAVIGATIONAL STICK CHART!

Let it dry for an hour before sharing with family for a fun walk through your neighborhood!

MODULE THREE:

LIFE ON A PACIFIC ISLAND

Children from Sepik River area
Papua New Guinea, Melanesia
Photograph courtesy of the
Roski-Keller-Martin expeditions

Family and Society

Before the arrival of Europeans, most Pacific Islanders lived in large family groups. When two people married, they would live with either the husband's parents or the wife's parents, depending on the availability of land and their family's need for the younger generation to help with farming the land.

The birth of a child was celebrated. Birth order was important in Pacific Island cultures. Young children were entrusted to the care of older brothers and sisters. Their education centered around training in special skills such as canoe-making and tattooing. Milestones such as a young boy's initiation into manhood were marked with rituals.

Combined with generational and gender ranking, each individual was placed on a prestige-ranking scale relative to other members of his household and community. It was possible, however, to rise in rank through demonstrating military skills, holding feasts or giving gifts. The chief of the village was considered "first among equals."

In Polynesia, a group's ancestry is traced back to the mythological past. **Tiki** was the first man who, according to myth, discovered the first woman Mārikoriko in a pond. A *tiki* is the Polynesian name for a type of sculpture in human form that is believed to contain a spirit.

Spirituality

Life on a Pacific Island might seem like paradise; but it was actually quite difficult. Food supplies, isolation, disease and constant battles with neighbors over land made life uncertain. In an effort to control unknown forces, Indigenous peoples struggled to find a balance between the physical and spiritual worlds.

At the end of the 18th century, missionaries arrived on the Pacific Islands to introduce the teachings of Christianity. Their impact was significant, and many Pacific Islanders converted to become Christians. However, Indigenous beliefs—such as ancestor worship, animism and the concept of ***mana*** as a supernatural force in the universe—coexist alongside Christianity with little contradiction in the minds of Pacific Islanders.

Children paddling a canoe, Solomon Islands, Melanesia
Photograph courtesy of the Roski-Keller-Martin expeditions

Bride Price
Maprik, East Sepik Province, Papua New Guinea, Melanesia
Photograph courtesy of Leslie Martin

Bride Price

In Western societies, the marriage of two individuals is usually based on the feelings they have for each other and the compatibility and mutual benefit the individuals hope to enjoy over a lifetime together. In New Guinea, where a good relationship between neighboring villages is necessary for physical survival, marriage is viewed as a **currency** of peace.

In many parts of New Guinea, it is forbidden to marry someone within your own village. Marriages between neighboring villages are validated by payments from the groom's family to the bride's family. Elaborate negotiations take place in a tradition called **bride price**. A bride price ceremony is separate from the wedding itself. The groom's extended family contribute items of value that are carried on long poles in a procession to the bride's home where they are presented to her family. Pigs, shells, stones, and other valuables exchange hands. The purpose is for each person and both villages to feel that the marriage transaction is fair, ensuring peace between the participating families and communities. In determining bride price, big shells are laid out in the order of decreasing size. The bride's family walks down the row and decides when the price is big enough (how many shells will do.)

Currency in the Pacific Islands has traditionally taken many forms. Each culture produces and uses currencies that represent items they value. They are made from shells, stones, minerals, bark, fibers, beads and bird feathers. Bride price is commonly paid in a currency that is not used for other types of **exchange**.

Dancing and food mark the celebration. The bride price can range from token or symbolic gestures to exchanges worth many thousands of dollars. This tradition can be contrasted with *dowry*, an opposite system used in other cultures in which something of value is paid to the groom by the bride's parents.

Currency

Shell Ring (*Yua*)
20th century
Bukie or Yangoru culture
Prince Alexander Mountains
East Sepik Province
Papua New Guinea, Melanesia
Clam shell; 10.75 x 9.75 in.
Bowers Museum 2010.22.1
Loan courtesy of Anne and Long Shung Shih

Rings made from the shell of giant clams are traded widely throughout parts of New Guinea and nearby islands.

The inland areas of New Guinea especially value large clam shells from the coast. The notches on the outside of the *yua* ring are intentionally carved. They are a reference to the hornbill bird.

Feathered Currency Roll (*Tevau*),
19th to 20th century
Santa Cruz Island, Solomon Islands
Melanesia
Feather, bark, shell, fiber, resin and bead
6 x 15.625 x 16.75 in.
Bowers Museum 2001.74.14
Gift of Mr. William Moran

Rolls of feathered bands from the Solomon Islands are among the most beautiful and interesting of the world's currencies. Called *tevau*, they are made of feathers from the scarlet honeyeater and Pacific pigeon. A single roll takes between 500 and 600 hours to produce, utilizing the feathers of over 300 birds. *Tevau* are used as bride price, and also as currency used to buy pigs, canoes, taro root and labor.

Stone Currency (*Rai*)
possibly 18th to early 19th century
Yap culture; Yap Island
Caroline Islands, Federated States of Micronesia
Crystalline limestone
20.5 x 18.75 x 2 in.
Bowers Museum 2014.13.1
Donated in honor of Robert W. Bowne and Justine Bowne Lewis

Rai are made from a type of calcite. For Yapese people to create and use *rai,* the chief of the neighboring island of Palau has to grant permission to use the quarries. In return, men are expected to perform menial labor, such as building roads, gathering firewood, carrying water and acting as soothsayers or doctors.

Shell Ring Currency (*Tabu*)
20th century
Tolai culture
East New Britain Province
Papua New Guinea. Melanesia
Shell and rattan
31.25 x 33.75 x 4.24 in.
Bowers Museum 2008.9.1
Loan courtesy of Anne and Long Shung Shih

Large *tabu* shell currency derives its value from the effort that goes into making it. The value increases as the shell currency changes hands in ceremonies and rituals over the course of many years. When the shells deteriorate, the ring is buried beneath the family house. *Tabu* is believed to contain sacred power and energy.

Architecture

Thatched Roof Houses / Melanesia

People of the Pacific Islands typically live in villages. Their wooden houses are often built on raised platforms. Depending on the natural resources of the local environment, these platforms can be made from stone pillars, gravel or coral rock. The pillars are useful in places that experience frequent flooding. Houses are typically constructed with steep thatched roofs to protect the house against heavy rainstorms and overhanging eaves to direct storm water away from the house.

(Above right)
Thatched-roof house on Sepik River, Melanesia
(Below right)
Village of thatched-roof houses, Melanesia
Photographs courtesy of the Roski-Keller-Martin expeditions

People living in the Highlands near the Sepik River in northeast New Guinea have a tradition of architectural carving. In that society, men and women live in separate dwellings, and most villages also have ceremonial houses. The entrances to these structures are often decorated with oblong door boards with a large hole in the bottom through which people enter and exit.

Doorboard (*Amitung*), 20th century
Telefol people; Telefomin village
Upper Sepik River region
Papua New Guinea, Melanesia
Wood and paint 109 x 33.5 x 1.125 in
Bowers Museum 2009.5.12
Bowers Museum General Acquisition Fund Purchase
Photograph courtesy of Michael Hamson Oceanic Art

(Left)
Men's House, Melanesia
Photograph courtesy of the Roski-Keller-Martin expeditions

(Right)
Story Board, 20th century
Asmat people; Coastal Region, Papua Province, Indonesia, Melanesia
Wood, raffia, pigment and seeds
14.625 x 48 x 12.5 in.
Bowers Museum L2010.4.19
Loan courtesy of Gayle and Edward P. Roski

Men's House

Life in the Pacific Islands was a constant effort to appease the forces of both good and evil spirits. Many villages had a Spirit House or "men's house" where symbolic artifacts were kept. Rites of initiation took place there, allowing young boys to enter manhood as warriors.

The above story board depicts the construction of a men's house in Melanesia. A story board is a wood carving that often features village scenes, rituals or encounters with wild animals or spirits.

Nan Madol stone city, The Federated States of Micronesia
Photograph by kurakurakurarin 1991

Orongo Ceremonial Village, Rapa Nui National Park, Easter Island, Chile
Photograph by Gary Yim

Stone Ruins / Micronesia

Nan Madol is an archaeological site located next to the eastern shore of Pohnpei Island in The Federated States of Micronesia. Now in ruins, the abandoned city was once a group of small man-made islands linked by canals. Nan Madol was a marvel of engineering. Because of its construction, it appeared to float on the water. The name Nan Madol means “in the space between things.”

Th Nan Madol political and spiritual complex existed for 500 years, from 1200 and 1700. It served as a religious center, an urban marketplace, a royal fortress and the center of government for the island. Nan Madol has been named a UNESCO World Heritage Site.

Ceremonial Village / Polynesia

On the southeastern tip of the Polynesian Triangle is the isolated island of Rapa Nui. Sitting on the edge of a large volcanic crater are a group of round, grass-covered stone structures known as Orongo Village. On one side, a cliff drops down to the sea. On the other, a grassy slope leads to a freshwater marsh inside the crater.

Between the 18th and mid-19th centuries, Orongo was the center of a birdman cult. The cult held an annual race to see who could find the first tern’s egg of the season and bring it back unharmed from the tiny island of Motu Nui. The race was dangerous. Egg hunters often fell from the steep cliff or were killed by sharks.

Food from the Sea: An Abundance of Sea Life

Pacific Islanders are shaped by their strong relationship to the sea. Their ocean surroundings have trained them to become master navigators and shipbuilders. The sea also influences other aspects of their culture, such as their family life, dwellings, clothing and food.

The Pacific Ocean is home to many varieties of fish and seafood. Polynesians troll coastal waters for shellfish, crustaceans, mahi-mahi and turtles. Armed with lines and nets, they search lagoons for parrotfish, stingrays and octopus hiding among the rocks and coral reefs.

On the high seas, fishermen catch tuna, marlin and swordfish. Working together, they spear large sea mammals such as porpoises, whales and sharks in the deep water, then drive them toward the shore where they are trapped in nets.

Mortar with Human Face
Ethnographic
Enga Province, Papua New Guinea, Melanesia
Stone; 7.5 x 14 in.
Bowers Museum 2003.49.1
Gift of Anne and Long Shung Shih

Octopus Hook; 20th century
Hawaii, Polynesia
Shell, stone, wood and fiber
8.5 x 4 x 3 in.
Bowers Museum 95.2.2
Gift of Mrs. Elaine Irell

Fish Hook *(Makau)*, 19th century
Hawaii, Polynesia
Bone 2.375 x 1.375 x .25 in.
Bowers Museum 2014.31.1
Gift of Mr. and Mrs. Mark and Carolyn Blackburn

Fish Lure *(Pa),* 19th century
Tongan Culture; Tonga, Polynesia
Sperm whale tooth, marine turtle, bivalve mollusk shell and braided straw
Bowers Museum 2018.9.2

Blowfish
Fiji, Polynesia
The blowfish is one of hundreds of fish species in the waters of the Pacific Islands. Some cultures consider blowfish a delicacy; others fear it as deadly.
Photograph courtesy of the Roski-Keller-Martin expeditions

Food from the Land: Cultivating Yams

Plants such as taro, bread fruit, coconuts, bananas, yams and sweet potatoes are crops grown by Pacific Islanders.

Yams (*Dioscorea alata*) originated in Southeast Asia and Africa. They were brought by voyagers to the Western Pacific and as far east as Hawaii. For many years, it was believed that sweet potatoes (*Ipomoea batatas*) were brought to the Pacific by European explorers. However, scientists who analyzed the DNA of more than 1200 sweet potato varieties have proven that the root crop actually reached Polynesia from South America 400 years before the arrival of European explorers in the Pacific Islands.

In the East Sepik Province of New Guinea, a man's status is judged by his ability to grow ceremonial yams. A sacred festival is held to celebrate the largest yams grown each year. Some weigh as much as 100 pounds and grow to five feet long!

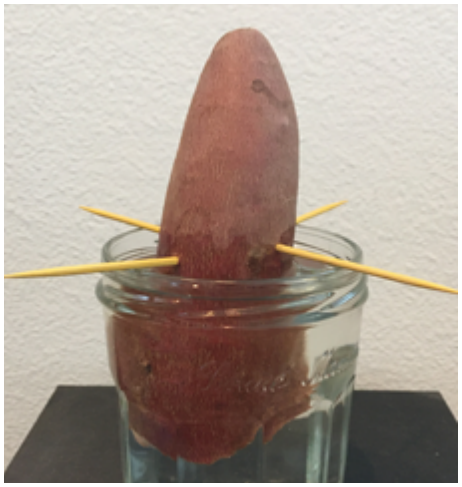
Costumed yam mask dancers act as **mediators** between the realms of the dead and the living. Although their yam masks suggest a human face, they actually depict animal spirits. Their appearance in the village marks the beginning of a ritual period of initiation and the annual yam festival.

Yam Mask Dance Costume, 20th century
Abelam culture; Maprik area, Prince Alexander Mountains
East Sepik Province, Papua New Guinea, Melanesia
Raffia, fiber, cassowary feather, paint, shell and boar's tusk; 66.875 x 26 x 15.5 in.
Bowers Museum 2002.68.9
Gift of Anne and Long Shung Shih

MODULE THREE SCIENCE ACTIVITY: CULTIVATING YAMS

Sweet Potato

Yam



Place in jar of water balanced by toothpicks

What is the difference between a yam and a sweet potato?

Most people think that long, red-skinned sweet potatoes are yams, but they really are just one of many varieties of sweet potatoes.

Yams have dark, bark-like skin and dry starchy flesh that is white, yellow, pink or purple. Some yams are the size of regular potatoes; other yams can grow to over 5 feet and weigh over 100 lbs.

Sweet potatoes have moist flesh. Their skin is smooth and they taste sweeter. They appear more slender than a regular potato, and their flesh is typically orange in color.

You will need:

SWEET POTATO/ YAM

WATER

CLEAR JAR

4 TOOTHPICKS

KNIFE

SUNLIGHT

Growing Yams and Sweet Potatoes

How do you **cultivate** a yam or sweet potato? Have a contest to explore what growing conditions work best.

1. Select a yam or sweet potato. A long, thin yam or sweet potato works better for this experiment than a short round one.
2. Ask an adult to cut your yam or sweet potato in half as shown.
3. Fill a clear container with water. The opening should be wide enough to fit the yam or sweet potato inside.
4. Insert 4 toothpicks in the middle of your yam or sweet potato. These toothpicks will hold your yam upright with the cut edge resting in the water and the uncut top exposed to air and sunlight. There should be enough room in the jar for water to circulate beneath the bottom of the yam. This is where thin white roots will grow.
5. Check the water level each day to make sure the bottom of the yam is still submerged. If not, add water.
6. In the jar, hair-like roots will begin to grow in the water from the bottom edge of the yam or sweet potato. Vines with green leaves will begin to sprout from the top that is open to the air.
7. Make notes of the changes you observe taking place.
8. In about a month, sprouts will be ready to be removed and planted in the ground to cultivate a new plant!

MODULE FOUR:

ART AND ADORNMENT

Lapita Pottery

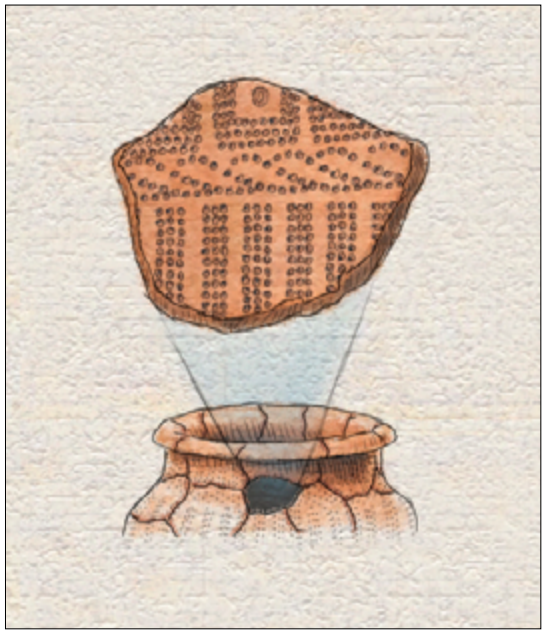
In the mid-2nd millennium BCE, a distinctive culture appeared in the Bismarck Archipelago, a chain of islands that form a great arch from New Britain to the Admiralty Islands of Melanesia. Characteristic of the Lapita culture is the making of pottery distinguished by fine patterns and motifs pressed into the clay.

Lapita pottery was first found on the Pacific island of New Caledonia. Between about 1300 and 900 BCE, Lapita culture spread 3500 miles further to the east from the Bismarck Archipelago, reaching as far as Tonga, Samoa and Fiji.

Pottery-making eventually died out in most of Polynesia due to the scarcity of clay on the islands. It is believed the Lapita people then spread eastward into the Marquesas, the Society Islands, the Hawaiian Islands, and Easter Island, then south to New Zealand.

Lapita pottery was shaped by hand. It is known for geometric designs stamped into the wet terracotta clay before it was fired. In addition to symbols and patterns, archaeologists have found fragments of Lapita artifacts showing faces and figures. Many of these artifacts were simple bowls for serving food. Larger pieces were probably used for storage.

The Lapita system of design elements and motifs changed over time as people moved across the Pacific. This provides evidence of where and when Lapita cultures migrated over hundreds of years. Scientists believe the Lapita originated in Taiwan and the northern Phillipines. Lapita people are believed to be the common ancestors of the Polynesians, Micronesians, and Austronesian-speaking Melanesians.



Lapita Pottery Illustration
Photograph courtesy of Science Source

Lapita Pottery Potsherd from Fiji
Discovered and excavated by Roselyn Kumar, 2007
Photograph by Patrick Nunn

Themes in the Arts of the Pacific Islands

Pacific Islanders have a rich and varied cultural history in the arts. The items they make have strong connections to the sea and to their daily lives.

Several themes can be seen in their artifacts:

- A reverence toward their ancestors
- The desire to incur divine favor or avoid divine punishment
- The encouragement of fertility
- A useful relationship to practical challenges Pacific Islanders face

The materials most used in Pacific Island artifacts are those that are readily available in their environment. In Melanesia, they use clay from the earth, wood from tree ferns and palm trees, and fibers from tropical plants. Large statues are carved to honor ancestors. These figures are often erected near the men's house in conjunction with celebrations that mark an individual's elevation to a new status among the living and spirit worlds. Moving up in grade is achieved by completing tasks, both political and religious, that become more rigorous the higher one ascends. The large heads of these statues symbolize the ancestor's spiritual power, or *mana.*

Other artifacts from the Pacific Islands include Malagan carvings, *bis* poles, funerary figures, masks, and items of personal adornment. Perhaps the most mysterious artifacts are the stone sculptures of Easter Island.

Grade Statue, 20th century
Ambryn Island, Vanuatu, Melanesia
Tree fern root, ochre and paint; 84 in.
Bowers Museum 81.100.1
Gift of Mr. and Mrs. Harry Franklin

Malagan Carvings

Fish Spirits

Sculpture is the predominant art form in New Ireland, whose people have a long tradition of carving from memory. Early New Ireland sculptures represent characteristics of the dead and are used in their memorial rites. The sculptures are destroyed or sold to collectors after they serve their purpose as ceremonial items. The tradition of Malagan carving has changed little from the past. Carvings of animals are elaborated with human symbols that reflect the link between the people of New Ireland, creation, and the spiritual world to which they eventually pass on. This fleshless fish spirit is said to always be found swimming alone, its vicious fangs exposed and its eyes full of evil intent.

Carving of a Fish Spirit, 20th century
Ben Sisia (1931-) Malagan artist, Libba Village
Kavieng, New Ireland Province, Papua New Guinea, Melanesia
Wood, natural pigments and shell; 15 x 40.625 x 6.75 in.
Bowers Museum 2006.7.1a,b
Jordan Community Trust Purchase

Tatanua Masks

To many Pacific Islanders, the *tatanua* is the most important of a person's three souls. It resides in the head, and engages in both spiritual and practical aspects of daily life. *Tatanua* masks are worn by ceremonial dancers during Malagan funeral rituals. Those from New Ireland are highly decorative, portraying elaborate forms often tied to themes of ancestry or hunting. The masks are normally carved from lime wood, decorated with sugar cane fibers and wool or other animal hair, then painted using chalk and natural dyes. Those with a high headdress are created using a cane framework covered in bark. The mask is sometimes left bare of hair on one side. This asymmetrical hair design mimics how a man shaves his head when he is in mourning.

Mask (*Tatanua*), 20th century
New Ireland Province, Papua New Guinea, Melanesia
Wood, paint, cane, fiber and operculum
Bowers Museum L.2010.4.7
Loan courtesy of Gayle and Edward P. Roski

Bis Poles

The Asmat, an ethnic culture in the Papua Province of New Guinea, have one of the most vibrant woodcarving traditions in the Pacific. Their art consists mostly of elaborate wood carvings designed to honor ancestors. One of the most interesting examples are ***bis* poles**, towering openwork sculptures that feature several ancestral figures with a winglike projection that represents the source of life.

To the Asmat culture, death is never an accident. Instead, it is perceived as the act of an enemy—either through sorcery or headhunting expeditions. These actions create an imbalance that must be corrected by avenging the death.

Bis poles are built for funeral ceremonies, which are often a series of feasts. The poles reach as high as 20 feet in the air. They are constructed in front of the spirit house, or men's house, and recreate a battle scene.

Bis poles are kept until a reciprocal headhunt is carried out to restore the social balance. The Asmat abandon the poles in the sago palm groves where their supernatural power is believed to nourish the trees, which are the primary source of food for the Asmat people.

Asmat people erecting a *bis* pole; mid-20th century
Papua Province (Irian Jaya), Indonesia
Wood, paint, fiber; 18 ft. x 39 in. x 63 in.
Photograph courtesy of the Roski-Keller-Martin expeditions

(Above and right)
Moai, 10th-18th century
Basalt or volcanic rock. Height13 to 33 ft. tall; weight 14 to 86 tons
Rapa Nui (Easter Island)
Photographs courtesy of the Roski-Keller-Martin expeditions

The Mysterious Art of Easter Island

Easter Island (known as Rapa Nui to its inhabitants) is one of the most isolated inhabited islands in the world. It lies in the southeastern Pacific Ocean, about 2200 miles west of Chile (of which it is a special territory), 4300 miles northeast of New Zealand, 4500 miles southeast of Hawaii and about 2200 miles southwest of the Marquesas Islands.

Rapa Nui was named Easter Island by Dutch explorer Jacob Roggeveen who “discovered” it in 1722. The island is famous for more than 800 giant stone statues of human figures known as **moai** that were carved between 1000 and 1800 CE. Why they were carved and how island settlers were able to transport and erect them throughout the island remains a mystery. Some believe all trees on the island were chopped down to transport them, leaving no wood for the boats that are essential to island life. Deforestation and disease led to the collapse of the entire ecosystem of Rapa Nui by 1860. In 1995, Rapa Nui was named a World Heritage Site by UNESCO (United Nations Education, Science and Cultural Organization).

Necklace *(Wäsekaseka)*
18th-19th century
Fiji, Polynesia
Sperm whale teeth and fiber
13 x 12.75 x 1.625 in.
Bowers Museum 2004.37.1
Don and Barbara Greek Fund Purchase

Art to Wear

Although Polynesian languages do not have a word for art, an object has meaning if accompanied by a chant, history or spoken geneaology. Items of adornment are highly valued because of their sacred qualities or the rarity of the materials used to make them. This necklace crafted out of the teeth of a sperm whale is both a valuable and powerful form of property in Fijian culture. When a necklace such as this one is presented and accepted between two men, the two parties are spiritually bound to one another.

Necklace *(Lei Niho Palaoa)*,
early 19th century
Hawaiian culture; Kailua-Kona,
Hawaii, United States
Polynesia
Hair, fiber and walrus ivory
11.25 x 7.875 x 2.5 in.
Bowers Museum Purchase 2018.5.1

Lei niho palaoa were among the most prestigious objects worn by Hawaii's chiefly and priestly classes. Translating to "whale tooth necklace," the earliest examples date as far back as the 9th century, and were made of shell or coral.

Pectoral Ornament *(Pakol)*
19th to early 20th century
Mendi culture; Mendi Valley,
Southern Highlands Province,
Papua New Guinea, Melanesia
Shell, fiber, pigment and paint
21 x 8 x 3 in.
Bowers Museum Purchase 2015.19.1

Worn as part of a man's ceremonial attire, *pakol* are considered to be the most important adornment items for the Mendi and neighboring Enga peoples. It is common to find *pakol* decorated with geometric designs, but very rare to find examples decorated with abstract figures.

Children at festival
Papua New Guinea, Melanesia
Photograph courtesy of the Roski-Keller-Martin expeditions

Personal adornment plays an important role in establishing an individual's status within Pacific Island society.
Photograph courtesy of the Roski-Keller-Martin expeditions

Personal Adornment

The adornment of the body has been a part of human societies throughout history. To the cultures of the Pacific, and specifically New Guinea, adornment plays a very special role by helping place the person in their social, tribal and wealth status. In fact, the concept of prestige or social status is the key to understanding the cultures of New Guinea.

Some ornamentation is worn every day. Materials used include shell, bone, teeth, seeds, wood, stone, feathers and fur and plant fibers. Adornment plays an important role in setting one's status within the community during festivals, marriage or death rituals. Ornamentation may include elaborate displays of bird of paradise feathers, thick layers of coconut oil or ochre (a natural golden brown earth substance made of iron oxide mixed with clay and sand) that is spread on the body. Prized possessions of rare stones and large shells passed down over hundreds of generations are prominently displayed.

Tattoo

Pacific Islanders use tattoo art (***tatau***) to express personal identity. For more than 2000 years, the custom has provided adornment that lasts for life.
The process of getting an intricate tattoo can take a day or more, and can be quite painful. In some cultures, it is considered a rite of passage. Certain Pacific islands developed unique designs, so it is possible to identify not only a person's rank but also their origin from their style of tattoo.

Most of what we know about the ancient art of *tatau* has been passed down through legends, songs, and ritual ceremonies.

Young person with Māori tattoos
Photograph by Yves Picq

The Art of Adornment

Pacific Islanders have a tradition of personal adornment that goes back centuries. Graphic symbols have meaning for Polynesian and Māori cultures as displaying a person's *mana*.

- Spirals represent growth, change and the cycle of life.
- Circles with radiating lines signify the sun and stars that guide navigators as they sail on the open sea.
- Curved lines suggest waves.
- Triangle patterns can suggest volcanos or whales' teeth.
- Straight, parallel lines represent challenge. They also serve as outlines for other symbols.

Make a wristband or armband of your own, with a symbol that has meaning for you.

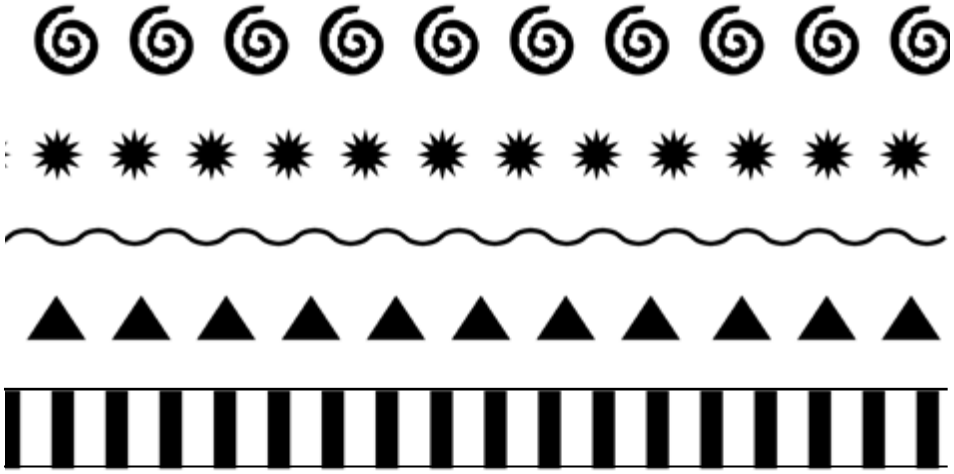
Wrap a 1" white or solid color silicone bracelet around a jar or other cylinder to make it easier to add your design. Practice the symbols you wish to use on scrap paper, then draw on the band using fine or medium-point sharpie pens.

You will need:

WHITE SILIICONE BRACELET

BLACK SHARPIE PEN

SYMBOL TEMPLATE LINK



MODULE FIVE:

FEASTS AND DANCES

Feasts

At the heart of every social gathering in New Guinea is the pig feast, a way of bringing together a village or larger community. These gatherings may mark a **payback** ritual to settle a debt, the passing of an elder, or a celebration of marriage.

Pigs are status symbols, thought to be spiritually connected to owners who believe the pigs' souls will accompany them to the afterlife. On the day of a feast, a host provides as many pigs as he can afford. The pigs are prepared and roasted in a rock pit. As the crowd awaits the feast, the rhythmic sound of drums fill the air. Various cultural groups celebrate their unique talents by sharing musical and dance performances in events known as **sing-sings**.

(Left)
Pig Killing Club, 19th century
Fanla culture; Fanla village
North Ambryn Island
Vanuatu, Melanesia
Wood and pigment
22 x 11.5 x 3 in.
Bowers Museum Purchase 2016.1.2

(Center)
Pig being carried to the site of a feast
Photograph courtesy of the Roski-Keller-Martin expeditions

(Right)
Pig feast
Photograph courtesy of the Roski-Keller-Martin expeditions

Feast Bowl, late 19th century
Matankol culture; Lou Island, Admiralty Islands
Manus Province, Bismarck Archipelago, Papua New Guinea, Melanesia
Wood and parinarium nut paste; 23.75 x 54 x 41 in.
Bowers Museum Purchase 2018.1.1

Of the many types of wooden bowls from the Admiralty Islands, no single design is more admired than that of the large feast bowl with decorative spiral handles. These bowls measure up to six feet from handle to handle.

In the 19th century, when most of these bowls were made, the small island of Lou just southeast of the Admiralty chain's largest island of Manus was the only producer of bowls of such size and quality. Indigenous trees growing up to 90 feet tall were cut down, and sections were cut from their broad spans to create these massive bowls from a single piece of wood. The sections would be hollowed out by lighting a low-heat fire in the center and having it burn a perfectly spherical bowl. The intricate designs decorating these bowls may have been carved with shell knives or an obsidian blade.

Apart from sheer size, the craftsmanship of the bowl's handles is among its most interesting aspects. Handles are the only part of the bowl not carved from the same piece of wood. The inspiration for their distinctive spiral shape has been the subject of debate among ethnographers, who have suggested animal forms such as the tail of the cuscus, tusks of the pig, or shell of the sea snail. Openwork geometric shapes line the outermost loop of the spiral.

Once they have been scaled up to the point that it takes two people to carry them, their functionality changes from daily use to communal feasts. The incredible volume of food they can contain make them inefficient for less than a village to share. Such bowls are brought out for events including festivals, initiation ceremonies and funerals.

Photograph courtesy of the Roski-Keller-Martin expeditions

Where Masks Still Dance

Throughout Melanesia, symbolic masks continue to be at the center of Indigenous culture and spiritual belief systems. Life for isolated villages and Indigenous communities is a constant balance between the physical world of the day-to-day and their unseen and mostly symbolic relationship to the spirit world.

For shamans and spiritual leaders of the community, the way to connect and begin to control the world around them is through the masks and the dances that take place. Mask dances are the visible manifestation of the unseen and unknown world beyond daily struggles. By dancing into being a spirit, mortal man has a chance to control his destiny and talk to the gods, thereby increasing his chances of survival.

Fire Dance, East New Britain, Papua New Guinea
Photograph courtesy of the Roski-Keller-Martin expeditions

Baining Fire Dance

One of the more spectacular displays of ritual and dance in New Guinea takes place in the mountains of the Gazelle Peninsula on the island of New Britain. As the sun sets and darkness falls, large fires with deep coals have been burning for hours in preparation. The secret society of men within the Tolai have been preparing elaborate masks of painted white bark cloth, bamboo, and limbs of green tropical trees shaped as ghoulish figures created from the spiritual forest. As darkness lingers the masks appear from the forest and race through the fire, kicking up embers. The celebration will go on for hours, ebbing only as the fire dies and the sun appears on the horizon. Fire dance ceremonies celebrate the birth of new children; the commencement of harvests, and remembering the dead. The Baining Fire Dance is also a coming-of-age ceremony as young men enter adulthood. Historically a male event, women and children are traditionally forbidden to take part or even watch it.

Fire Dance Masks

Although these masks look cumbersome, they are in fact very lightweight. Baining masks represent forest leaves and real as well as imaginary animals. Many are made for the noted fire dance in which dancers walk through fire, kicking up sparks of burning embers.

Baining people are among the original inhabitants of Papua New Guinea. They got their name from the Baining mountains where they settled. They create unusual and dramatic art forms such as fire dance ceremonies to celebrate the birth of new children, the harvest season and to honor their ancestors.

Wearers of these masks are believed to become connected to the mask's spirit force. Covered by a mask and costume, the performer sheds his previous identity and assumes a new one. In collaboration with the mask's "spirit," the wearer performs dances—often to music. The mask "comes to life" through these actions and movements. At times, wearers may undergo a change as if in a trance, seeming to become psychologically one with the characters they represent.

What happens to masks after they are danced?

Made from cane reeds, bark cloth and other materials that disintegrate easily, the masks of the fire dance are constructed over months and danced only for a few minutes before they are, in most cases, left to decompose in the forest.

Baining Fire Dance Masks *(Kavat)*, 20th century
Baining culture; Gazelle Peninsula, East New Britain Province
Papua New Guinea, Melanesia.
Bark cloth, bamboo cane, paint, raffia
Fire Dance Masks were collected on behalf of the Bowers Museum
by the Roski-Keller-Martin expeditions

Other Celebrations and Rituals

Duk Duk Mask
These sacred duk duk masks are made in East New Britain. They are danced once a year, the only time that they are taken out of the sacred caves where they are kept.
Photograph courtesy of the Roski-Keller-Martin expeditions

Mudman Mask
These masks are made by the Asaro people of Papua New Guinea. The men wearing them are referred to as the Asaro Mudmen. The mud used is a reference to the environment of their traditional homelands.
Photograph courtesy of the Roski-Keller-Martin expeditions

(Above)
Hand Drum (*Kundu*), 20th century
Sepik River Region
Papua New Guinea, Melanesia
Wood, lizard skin, fiber and pigment; 23.625 x 7 x 6.5 in.
Bowers Museum F75.7.2
Purchased with funds provided by the Bowers Museum Foundation

(Left)
This multicolored mask was danced as part of a festival at the mouth of the Ramu River in Papua New Guinea.
Photograph courtesy of Roski-Keller-Martin expeditions

Dance Mask (*Lorr*), 20th century
Tolai culture; New Ireland Province
Papua New Guinea, Melanesia
Wood, paint, fiber, leaves and bamboo cane
29 x 18 x 13 in.
Bowers Museum 2011.11.6

White is the color of death in Melanesian culture. This dance mask skull (*lorr*) likely represents a ghost or other manifestation concerned with the afterlife.

Boy's Day Dance headdress *(Madask),* 20th century
Baining culture; Gazelle Peninsula
East New Britain Province
Papua New Guinea, Melanesia
Bark cloth, bamboo cane, paint, raffia and feather
97.5 x 14.25 x 14.25 in.
Bowers Museum 2009.1.5
Collected on behalf of the Bowers Museum by
the Roski-Keller-Martin expeditions

These masks, found on the southwest coast of New Ireland, New Britain's Gazelle Peninsula and the Duke of York Islands, are linked to ceremonies of death and the spirit realm.

Pottery Mask, 20th century
Boiken culture; East Sepik Province
Papua New Guinea, Melanesia
Ceramic; 7.25 in. diameter
Bowers Museum 2009.2
General Acquisitions Fund Purchase

This mask originates from a Boiken village. Only one other example with similar characteristics is known. The mask was made with a coiling technique and the nose was later applied in relief.

Charm for a Bride Price, mid-20th century
Papua New Guinea, Sepik River
Bowers Museum 77.56.3

❹ Dip newspaper strips in flour paste, then add to your inflated balloon

Create a Papier-Mâché Mask

Papier-mâché ("chewed paper" in French) is a sculpting method in which a form is constructed from strips of paper dipped in a paste made of flour and water. Masks may suggest a human face or depict animal spirits. Pacific Island dancers wear masks and participate in performances intended to connect the living and spiritual realms. These performances mark important celebrations such as the annual yam festival or welcoming young people into adulthood.

To sculpt your mask:

❶ Cut long, narrow strips of newspaper (1" wide x about 6" long). You will need about 50 strips.

❷ In a mixing bowl, combine 1 cup flour and 2 cups warm water. Stir, adding more water or flour until the mixture is the consistency of paste.

❸ Blow up a latex balloon until it is the size you want for your mask. (Note: mask forms are also available to purchase at craft stores).

❹ One by one, dip a strip of newspaper into the flour paste. Squeeze out excess paste by running the strip lengthwise between two fingers, then apply the strip to the balloon. Alternate the direction of each strip so they overlap as shown.

You Will Need:

NEWSPRINT

SCISSORS

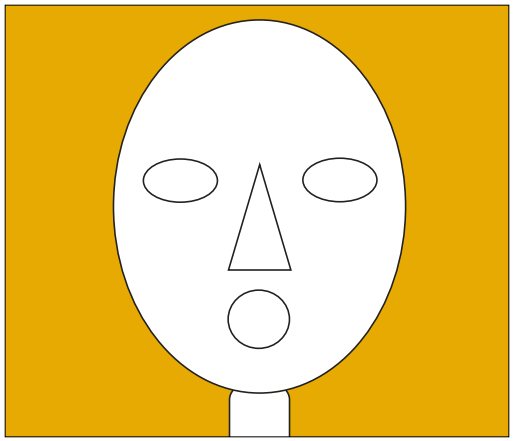
MIXING BOWL

FLOUR

WATER

BALLOON

MODULE FIVE ACTIVITY: CREATE A PAPIER-MÂCHÉ MASK



❻ Sketch ideas for the design of your mask. Measure the distance between your eyes so you will be able to see through your mask.

❼ When your balloon mold is dry, ask an adult to cut the holes marked for your eyes.

❼ Sketch your ideas for the design of your mask

Digital illustrations created by Akane 1988

❺ When your entire balloon is covered with papier-mâché strips, set it somewhere to dry.

To decorate your mask:

❻ While your mask is drying, sketch your ideas for the design of your mask.

❼ Once your balloon mold is dry, pop the balloon with a sharp object to deflate it. Draw openings for eyes on your mask. Ask an adult to cut the holes for eyes you have marked.

❽ If you want to add a nose, ears, horns, etc. you can build them with papier-mâché strips, and again let your mask dry.

❾ Paint your mask. When the paint is dry, use pipe cleaners, feathers, buttons, yarn, glitter or other materials you have around the house to decorate it as you wish.

❿ To "wear" your mask, glue a wood craft or popsicle stick to the back of the mask and hold it up to your face, making sure you can see through the holes made for your eyes.
Or, hang your finished papier-mâché mask in your room as a decoration!

PAINTS

PAINTBRUSH

(optional) FEATHERS, PIPE CLEANERS, BEADS or other decorations

GLUE

CRAFT STICK

MODULE SIX:

PAST, PRESENT AND FUTURE

Past: Spirits and Headhunters

Headhunting was practiced on the island of New Guinea as a symbol of a tribe's power over their enemies. Heads were considered the center of the soul. By capturing this "energy," a warrior would gain power and control. The individual who took the head would gain status in the community, as well as with the spirits of the forest. The practice of headhunting has been outlawed for more than 100 years.

Over-modeled Skull, 20th century
Middle Sepik River area
East Sepik Province
Papua New Guinea, Melanesia
Human skull, clay, pigment, shell, and human hair
5.875 x 5.875 x 8 in.
Bowers Museum 93.43.9

An actual human skull is both hidden and echoed by the red clay, shells, white pigment, and actual human hair that adorn it.

Wooden "Cannibal" Fork, 19th century
Fiji, Polynesia
Bowers Museum 2009.17.1

Cannibalism was practiced in certain cultural groups. It began in ancient times and continued until Christianity was introduced to the islands in the late 18th century. These forks were used only by chiefs who did not touch any type of food with their hands.

Skull Cave, East Cape
Milne Bay Province, Papua New Guinea
Photograph courtesy of the Roski-Keller-Martin expeditions

The Art of Warfare

Relationships between quarreling neighbors were part of daily life on the Pacific Islands. Conflict resulted from fights over land rights, stolen pigs, and disputes regarding women. Battles took place at an agreed-upon location and time. These clashes might go on for months, ending when somebody was hurt or killed. Once everyone agreed that a "fair" battle had taken place, and any payback had been satisfied, life would go on until another issue arose.

(Left)
A student at Ronorono Training College wearing customary fighting armor.
Rongorongo, Beru Island, Kiribati [formerly Gilbert Islands]; pre-1925
Photograph by Rev. George Hubert Eastman

(Center)
Shield (*Worrumbi*), 1950-1969
Mendi culture; Upper Mendi Valley
Southern Highlands Province,
Papua New Guinea, Melanesia
Wood, pigment and fiber rope 2014
53.875 × 15.75 × 1 in
Bowers Museum Purchase 2019.18.1

(Right)
Club (*Taiaha*); mid-19th century
Māori culture, New Zealand
Wood, fabric and paua shell
55.125 x 1.875 x 1.5 in.
Trude Jordan Fund Purchase

The *taiaha* was the chosen weapon of Māori chiefs and was a symbol of their status. Though the pointed end was effective as a weapon, it is the opposite blunt end that produced deadly results when swung at an opponent.

Ceremonial Bone Daggers *(Yina and Amia Ava)* 20th century
East Sepik Province, Papua New Guinea, Melanesia
Cassowary bone and pigment; 12.5 x 1.375 x 1.5 in.
Bowers Museum 2009.6.5
Loan courtesy of Anne and Long Shung Shih

Bone Daggers

Bone daggers are made to be placed on the upper arm or inserted into an arm band. Made of the bone of the cassowary bird, the dagger serves several different purposes, from a purely functional use for hunting and agriculture to the ceremonial role of giving status to a warrior who wears it during sing-sings or other community gatherings. Daggers can be carved with complex and intricately beautiful clan designs. Geometric symbols, figures of birds—usually parrots or hornbills—and ancestor figures add power to the dagger and its owner.

Wood Steering Paddle *(Viyoyu)*,
20th century
Trobriand Islands, Milne Bay Province
Papua New Guinea, Melanesia
Bowers Museum 2010.7.3
Jordan Community Trust Purchase

Launch of an ocean-going Kula Canoe.
Photograph by Jutta Malnic

Splash board, 20th century
Bismarck Archipelago
Wood and paint; 29.75 x 13.25 x 1 in.
Bowers Museum L.2010.4.56
Loan courtesy of Gayle and Edward P. Roski

Kula Exchange

The Kula Ring is a ceremonial gift **exchange** that takes place in the Milne Bay Province of Papua New Guinea. It is the only one of its kind in the world. The ring spans 18 island communities of the Massim archipelago, and involves thousands of islanders. Each year, participants sail hundreds of miles in canoes decorated with cowrie shells and painted front and back splash boards. They exchange Kula valuables: *bagi* red shell necklaces (traded in a clockwise circle), and *mwali* shell armbands (traded in a counter-clockwise circle).

The Kula system is built on a concept of **reciprocity**, a social norm of responding to a friendly or positive action with another friendly or positive action. Reciprocity makes it possible to build continuing relationships and exchanges.

Exchange Necklace (*Bagi*),
20th century
Milne Bay Province
Papua New Guinea, Melanesia
Spondylus shell, oyster shell, seed and fiber
81 in.
Bowers Museum 2009.6.3

Bagi or shell money is an integral part of the Kula Ring. Historically traded from island to island for the nurturing of goodwill, *bagi* is only made in two villages on Rossell Island at the extreme eastern end of Milne Bay Province.

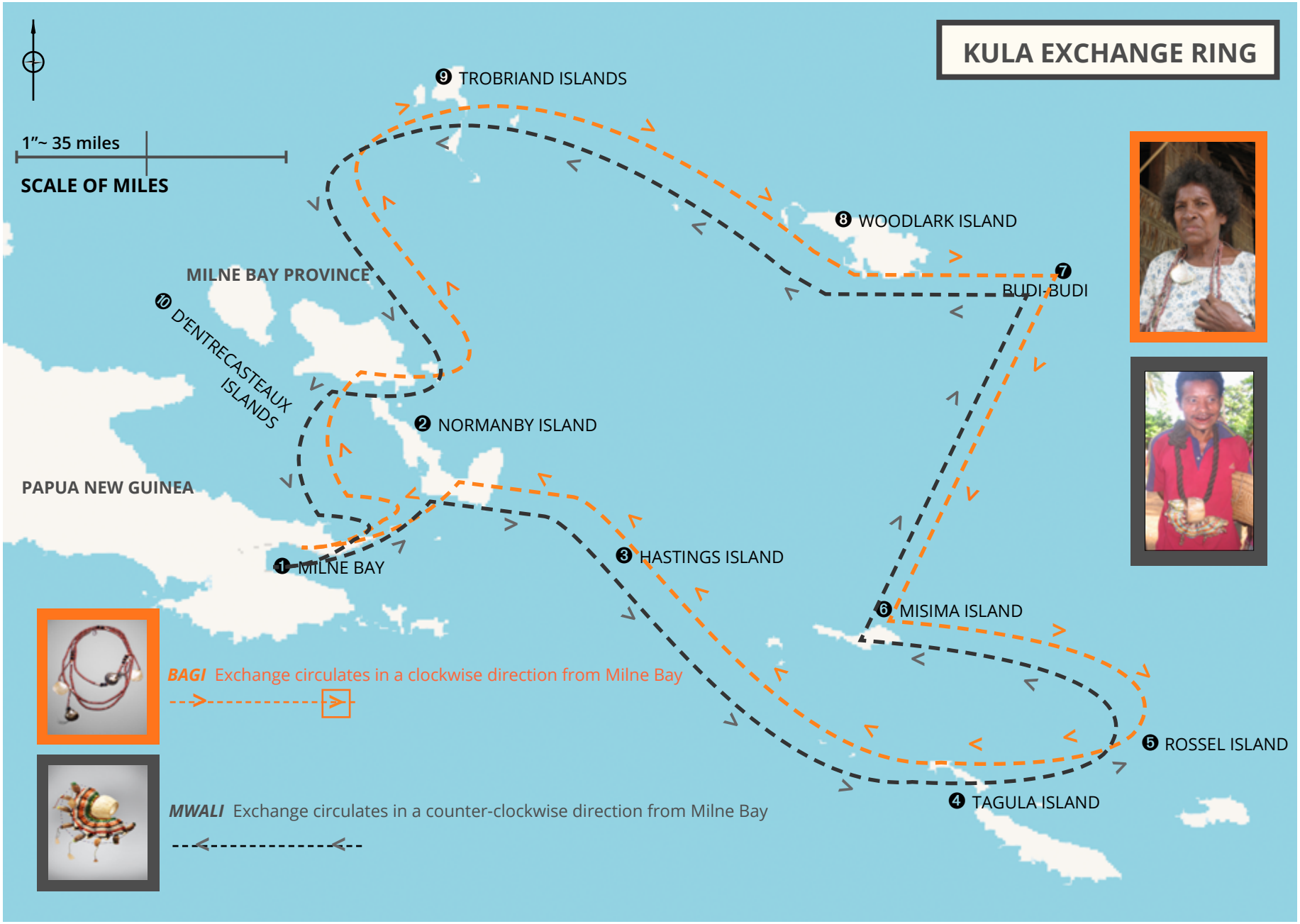
Making *Bagi*. Photograph courtesy of the Roski-Keller-Martin expeditions

Making each necklace takes several days. The white shells with narrow red rims are from a rare relative of the oyster. Pieces of this rim are broken off and ground by rubbing on a flat rock. A small hole is drilled in the center of each piece. They are then threaded onto a stiff wire and ground again until they are smooth.

Once this stage is reached the beads are threaded onto a length of plant fiber and polished with coconut oil.

Exchange Armband (*Mwali*)
19th-early 20th century
Mendi culture; Southern Highlands Province,
Papua New Guinea, Melanesia
Shell, fiber, pigment and paint; 21 x 8 x 3.5
Bowers Museum Purchase 2015.19.1

Mwali is a shell arm band, an important component of the circular Kula trade system. *Mwali* is given with the right hand and *bagi* is given with the left. The exchange takes place first between villages, and then from island to island.


KULA EXCHANGE RING
1"~ 35 miles
SCALE OF MILES
9 TROBRIAND ISLANDS
8 WOODLARK ISLAND
7 BUDI-BUDI
MILNE BAY PROVINCE
10 D'ENTRECASTEAUX ISLANDS
2 NORMANBY ISLAND
PAPUA NEW GUINEA
1 MILNE BAY
3 HASTINGS ISLAND
6 MISIMA ISLAND
5 ROSSEL ISLAND
4 TAGULA ISLAND
BAGI Exchange circulates in a clockwise direction from Milne Bay
MWALI Exchange circulates in a counter-clockwise direction from Milne Bay

MODULE SIX CAPSTONE PROJECT: THE KULA EXCHANGE RING

The Kula Exchange based on a gift-giving economy, meaning that one gives gifts with the expectation that at some point, the recipient will return the favor or pass it along to someone else. The value of a gift is in the eyes of the giver. There is no attempt to achieve an even "trade."

Classroom Kula Ring Simulation

How might you start a Kula Exchange with classmates?

❶ Organize into groups of ten, assigning each person a number in sequence from 1 to 10. Form a physical or virtual "circle" of trading partners.

❷ You will each need a piece of paper and a pen or pencil. Each participant creates something of "value." For example, students assigned an odd number (1, 3, 5, 7 or 9) create a short poem to read and give to the trading partner on their left. Students assigned an even number (2, 4, 6, 8,or 10) create a drawing to give to the person on their right, telling them something about the drawing as they do so. **Poems would always be exchanged in a clockwise direction.** And **drawings would be always be exchanged in a counter- clockwise direction** around the entire circle.

❸ Then, students who received a poem could add a line or two to it before passing it along to the person on their left; and students who received a drawing could add something to it before passing it along to the student on their right.

Group of friends sitting in a circle
Photograph by Wavebreakmedia Ltd.

What other pairs of "gift" exchanges might you and your classmates try?
Brainstorm other ideas for a Kula-style trade. Might odd-number students share their favorite song with the even-number students on their left; while even-number students pass along their favorite jokes to the odd-number-student on their right?
Or might half the students share a new dance move, while the other half tell about a tradition from their family's culture? What other ideas do you have?

Does a Kula gift exchange make you feel more connected to your classmates?

The Pacific Islands: Yesterday

This guide introduced the Pacific Islands as societies with many cultural traditions and accomplishments, most notably in the area of navigation.

In the 16th-18th centuries, European explorers encountered the Pacific Islands as they sailed on voyages in search of other lands or trade routes. European contact and colonial influences changed Pacific Island life in significant ways:

- The imposition of colonial rule introduced Western ideas
- Missionaries became a powerful influence in the late 1800s. They converted Indigenous peoples to Christian practices which replaced many cultural traditions. Some of those traditions were treasured as they had been passed down for generations, Others were violent or unfair.
- Colonialism caused Indigenous peoples to become part of the world economy. It introduced industries such as logging and mining to the islands. Contact with new technologies imposed environmental costs to the islands. In some areas these industries have operated for more than a century. In other areas, such as the highlands of New Guinea, Western influence came as late as the middle of the 20th century.
- The pattern of colonial rule was altered by the outbreak of World Wars I and II. As an outcome of World War I, certain Pacific Island territories were retained by those countries who won the war and were organized under a League of Nations mandate with the goal of helping Pacific Islanders adjust to the modern world. During World War II, the United States set up nuclear testing and storage sites on the islands, which caused environmental damage.

The Pacific Islands: Today

For strategic and economic reasons, despite United Nations support after World War II, the Pacific is not yet totally decolonized. Feelings of vulnerability prompt some Pacific Islands to retain ties with former colonial powers after gaining independence. Doing so provides island nations with certain benefits, including economic assistance, trade relationships, military protection, and assistance with foreign affairs.

Pacific Island cultures are united by common ancestors and share many of the same interests, traditions and challenges. Regionalism is growing as islands embrace a perspective of "Unity in Diversity." Things that unite them include:

- Many islands are small with limited natural resources. Large distances from major markets leads to isolation and economic uncertainty.
- The Pacific Islands are very vulnerable to the effects of natural disasters and climate change. Inhabiting ecologically fragile homelands, they value the balance between man and nature.
- The islands have a shared interest in what has been called the "Pacific Way," which focuses on the special characteristics of island nations and their shared desire to do things outside of Western thinking. The Pacific Way reflects common concern for social and economic well-being for all.
- Islands benefit from sharing common services that individual islands cannot afford on their own. A collective approach strengthens their voice on international issues. Cooperation between the islands is not intended to promote integration. Each island has their own aspirations for the future.

The Pacific Islands: Tomorrow

Two important trends give us an idea of what the future may hold for the Pacific Islands:

- **Trend 1: More people from the Pacific Islands are migrating to the United States.**

  Pacific Islanders make up less than 1 percent of the total population, in the U. S., but all 50 states have recorded growth in Native Hawaiian and Pacific Islander communities since the last U. S. Census.

  The reasons people migrate include opportunities for education and better jobs, and to escape the effects of climate change. As global warming gradually increases ocean temperatures and brings about rising sea levels, portions of some small island states have began to disappear.

  Other disruptive developments wrought by climate change include the erosion of coastal land and infrastructure, more frequent and severe cyclones, and increased rainfall and flooding in some areas, and drought in others.

  Destructive consequences for the ecosystems on which many Pacific Islanders depend for their livelihood and sustenance include damage to coral reefs, the loss of agricultural land as a result of the intrusion of salt water into groundwater, and ocean acidification, which jeopardizes the survival of many shell-building species.

- **Trend 2: Pacific Islanders increasingly value—and are returning to—traditional cultural practices.**

  Reviving cultural traditions has become a prominent theme in Pacific Island societies. They increasingly value their unique connection to the sea, and the secrets of navigation that have been passed down for thousands of years.

  Art festivals, cultural centers, and ideologies have cast the traditional cultural practices in a more positive light. Ceremonial dances, music, and oral traditions that were suppressed by the more conservative forms of Christianity are again becoming part of daily life on the Pacific Islands.

  Emphasis on traditional culture as a source of identity also finds expression in the perpetuation of historic systems of exchange. In Papua New Guinea, the kula exchange of shell armbands and necklaces continues in the Massim region. Today, it may be carried on by air travel and among politicians, professionals and public servants as well as by villagers traveling in special Kula canoes.

"It's wonderful to come to a place where you discover things that are **BEYOND YOUR IMAGINATION** . . . that allow you to **REALIZE** that **YOUR PERSPECTIVE IS ONLY ONE PERSPECTIVE** in the world."

–Chris Rainer
photographer and guest curator
Spirits & Headhunters exhibit, Bowers Museum

GLOSSARY

Ancestor: A person, typically more remote than a grandparent, from whom one is descended.

Archipelago: A chain or group of islands scattered in lakes, rivers, or the ocean.

Asmat: An ethnic group of New Guinea known for woodcarving designed to honor ancestors, especially warriors.

Atolls: A ring-shaped coral reef that surrounds a lagoon.

Austronesian: An ancient language family widely dispersed throughout the islands of SE Asia and the Pacific. Austronesian peoples live in Oceania, Southeast Asia, Micronesia, Indonesia,

Breadfruit: A flowering tree in the mulberry family, native to the South Pacific. Its fruit was a staple in the diet of Pacific Islanders.

Bride price: Money, property, or other form of wealth paid by a groom or his family to the family of the woman he will marry. This tradition is practiced in some Asian countries, the Middle East, parts of Africa and certain Pacific Island societies,such as Melanesia.

Captain James Cook: A British explorer, navigator and mapmaker, best known for his three expeditions in the Pacific.

Currency: A means of exchange for goods and services.

Density: How tightly packed the particles are in a object. If you put an object in water and floats it is less dense than the water. If an object sinks it is more dense than the water.

Diverse: Showing a great deal of variety or differences.

Doldrums: Bands of calm air at the equator that can slow the progress of ships.

East Polynesia: An area of Polynesia that consists of Hawaii, the Cook Islands, and French Polynesia.

Easterly winds: Winds that blow from east to west near the north and south poles.

Eruption: In the context of this guide, an explosion of melted rock and ash from a volcano.

Exchange: The act of giving something and receiving something in return.

Ferdinand Magellan: A Portuguese explorer who was the first to sail around the Earth.

Flyways: A flight path used by large numbers of birds while migrating between their breeding grounds and their winter habitats.

High Island: An island formed by a volcano.

Hull: The 'hull' is the portion of a boat that rides both in and on top of the water. The boat hull does not include any masts, sails, rigging or equipment. **Double-hulled canoes** had two hulls of equal length lashed side by side. The space between the hulls allowed for storage of food, hunting materials, and nets when embarking on long voyages.

Island: A body of land surrounded by water. In the Pacific Ocean, there are several types of islands:

- **Continental** islands were once connected to a continent.
- **Oceanic** islands are formed by volcanos that rise up from the ocean floor.
- **Atolls** are coral reefs that grow in a ring of an oceanic island. As a volcano sinks into the sea, the reef continues to grow.

Intentional: With purpose, rather than random or accidental.

Isolation: Being apart from other people, by wish or by circumstances.

GLOSSARY

Kula Exchange: Ceremonial gift exchanges in that promote goodwill and reciprocity among neighboring villages and islands in Papua New Guinea.

Lagoon: A pool of relatively shallow, quiet water connected to the sea but separated from it by sandbars or coral reefs.

Land bridge: A strip of land underneath water that becomes exposed when the sea level drops.

Landforms: Natural feature of the Earth's surface, such as mountains, valleys, rivers, volcanos and islands.

Lava: Hot, liquefied rock that flows from a volcano or other opening in the surface of Earth.

Leeward: Situated on or toward the side sheltered from the wind; downwind.

Legend: A visual explanation or key to the symbols used on a map, such as scale of miles or geographic features.

Low Island: An island formed from coral.

Mana: In Polynesian culture *mana* is considered to be a sacred force that exists in the universe. To have *mana* is to have influence, authority and efficacy, the power to perform n a given situation.

Māori: The Indigenous Poynesian people of New Zealand.

Mediator: Someone who helps negotiate between two fighting parties.

Melanesia: A region of Oceania in the southwestern Pacific Ocean that includes the four independent countries of Fiji, Vanuatu, the Solomon Islands, and Papua New Guinea.

Micronesia: A region of Oceania in the western Pacific Ocean that includes thousands of small islands.

Oceania: A geographic region spanning the Eastern and Western hemispheres. It includes Melanesia, Micronesia and Polynesia. Some scholars include the continent of Australia in their definition of Oceania.

Outrigger: A canoe with a structure attached to the side to keep it from turning over in the water. Outriggers made it possible for long, thin, shallow vessels such as canoes to sail safely on the open sea.

Phenomenon: A remarkable event, situation or person.

Polynesian Triangle: A region of Oceania made up of many islands scattered over the central and southern Pacific Ocean. The region is anchored by Hawaii in the north, New Zealand in the southwest, and Rapa Nui (Easter Island) in the southeast.

Prehistory: The period of time before written records.

Prevailing winds: A surface wind that blows predominantly from a certain direction. For example, coastal trees tend to bend inland because of prevailing winds from the ocean.

Ring of Fire: A horseshoe-shaped ring around the rim of the Pacific Ocean where many volcanic eruptions and earthquakes occur**.**

Search and return: A strategy used by Pacific Island explorers in which they made several voyages to distant islands to see if they were inhabitable.

Sing-Sing: Large-scale festivals celebrating a variety of cultural music and dances.

Social System: A pattern of relationships between individuals and groups based on shared values.

Southeast Asia: a region of Asia situated east of India and south of China. It consists of mainland Southeast Asia, and island Southeast Asia, with the Malay Peninsula serving as a bridge between the two.

GLOSSARY

Stick charts: Navigational aids made of wooden sticks that represented the position of islands in the Pacific.

Supercontinent: A large landmass that divided sometime in the geological past to form the present continents.

Swell: A series of waves along the interface between water and air.

Taboo: A system of rules and prohibitions regarding what is considered socially-acceptable behavior. Also known as *tapu* or *kapu*.

Taro: A starchy tropical plant that is a source of food in the Pacific.

Tatau: The Polynesian word for tattoo, which literally means "to write."' Every inch of the body, including the eyelids, tongue, palms of the hands, even the insides of the nostrils, may be inscribed. In Polynesian culture tattoos are considered symbols of beauty.

Tectonic Plates: The Earth's outer layer is made of large, moving pieces of land called plates. These plates are like a giant puzzle. When the pieces move—even though it may less than an inch per year—they bump into each other, causing things like volcanoes and earthquakes to happen.

***Tiki*:** A carved wooden or stone sculpture found in Polynesian cultures that depicts a human-like figure. Each *tiki* houses a spirit.

Trade winds: A wind blowing steadily towards the equator from the northeast in the northern hemisphere or the southeast in the southern hemisphere. The trade winds were named by the crews of sailing ships who depended on the winds during westward ocean crossings.

Tupaia: A genius navigator and high priest from the Pacific Islands whose knowledge played a key role in maps of the region made by English explorer Captain James Cook.

Volcano: A mountain that opens downward to a pool of melted rock beneath the Earth's surface. When pressure builds up, eruptions occur, shooting gases and hot, liquified rock into the air.

Voyage: A long trip, especially in a ship, to a faraway land. Voyagers are people who take a voyage, including explorers.

Wayfinding: Spatial problem solving. When a person knows where they are in an environment or building, knows their desired destination and how to get there from their present location.

West Polynesia: An area of Polynesia that consists of Fiji, Samoa and Tonga.

Westerly winds: Winds that blow from the west to the east. Winds are named after the direction from which they come, not the direction toward which they blow.

Windward: Situated on or toward the side facing the wind; upwind.

Zoomorphic: Respresenting animal forms or the spirits of animal forms.

REFERENCES AND RESOURCES

LINK TO CONTENT STANDARDS ON BOWERS MUSEUM WEBSITE

CONTENT STANDARDS

The projects and activities in this teacher and student resource guide address California Content Standards for the Arts, English Language Arts, History/Social Studies, Math, Science and Technology.
www.curriculum-standards-spirits-headhunters

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