



Take a closer look and you will see...

ARCHEOLOGY IN HAWAI'I VOLCANOES NATIONAL PARK!



Discover how archeologists uncover
ancient stories of people from the past.

What Is Archeology?

It's learning about ancient people by studying the cultural landscapes and artifacts they left behind.

Archeologists ask lots of questions, search for clues, dig in the dirt, and solve mysteries!

They want to know:



How people lived

What they ate

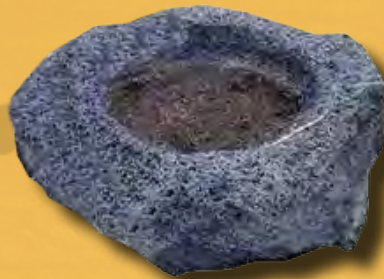
Where they lived

lived

What they

liked to do

What they valued



Why is Archeology important?

It sheds light on how people lived. It helps us understand how and why human behavior has changed over time from nomadic cultures to farming communities, and understand events like the collapse of a civilization and the emergence of a new society. It teaches us how to protect and preserve our cultural heritage. It also shows us that people all over the world are more alike than they are different. It leads us into the past.



What Archeology Is Not

It's not about digging for dinosaurs !

Many people have the wrong idea about what archeology is and what it's not. The scientists who study dinosaurs are called Paleontologists. They study fossils to learn about prehistoric times, long before humans. Archeologists are interested in people from the past.

Just for fun:

Can you guess why there were no dinosaurs in Hawai'i ? (answer in back)



It's not about taking the artifacts that we find and hiding them forever

Archeologists must take notes, take photographs, and make maps so that we can recreate how objects are associated or related to one another. The placement of items can tell us what an item may have been used for, not just what the item is. Leaving all artifacts where we find them can be a really important step in understanding the whole picture.

It's not just looking for pretty or valuable objects

Common items like a piece of a dish, a stone or shell tool, or even a tin can tell a lot about a person or group.

It's not just digging

Although fun, that's actually a small part of the process. We spend much of our time in the lab analyzing artifacts. Analyzing is looking at something to figure out what it is or how it was used.

It's definitely not about treasure hunting, buying, selling, or putting a price on artifacts

Archeologists are interested in the cultural value and importance of artifacts and what they tell us about people of the past.

This ancient Hawaiian loot is going to the highest bidder. Hahahaha.



How DO archeologists study people from the past?

They don't start digging just any place they think may have artifacts! Digging is only one part of the job!

Conduct Research



Get permission to study that site



Study artifacts & ecofacts in the lab



Share findings and piece together stories from the past



Choose a site



Collect data through GPS, mapping & photography

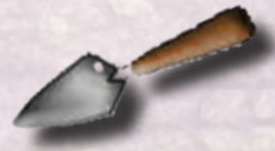


Even more research

They Get Dirty

Archeological digs occur at different kinds of sites

(Sometimes they look for small surface scatter like pottery or lithics, and other times excavations are at large sites such as the pyramids in Egypt).



Sometimes archeologists find artifacts right on top of the ground like this *pāpamū* board used for playing a game called *kōnane*.



Excavation of a hearth at Kealakomo



Screening soil to search for small artifacts and ecofacts



Other times, sites are under the ground (subsurface), and archeologists have to look for clues to know where to dig for them.



Archeologists measuring the depth of their excavation



An excavation in Kahuku in Hawai'i Volcanoes National Park

Where in the World do Archeologists Work ?



Everywhere humans have ever been!

Archeologists study many thousands of different places and cultures! Because there are so many amazing places in the world where people have lived, some archeologists choose to focus on one time period, location, or culture to study.

What would you choose?
Where would you explore?

So grab your field notebook, magnifying glass, brush, and funny hat and set off to explore cultural treasures and legendary places like these.



Macchu Picchu Village,
high in the Andes of Peru



Rapa Nui, Chile



The Sphinx of
ancient Egypt



Ballycabery
Castle, Ireland



A 200 year old sunken whaling ship in the
waters of the Northwestern Hawaiian Islands



The sacred Kiva ruins in Grand
Canyon National Park

Cool Artifacts

from Hawai'i Volcanoes National Park

Things that people left behind.



A salt-drying stone



Parts of old Hawaiian tools before metal was available



This glass bottle carried *something* for people long ago

A recreated stone adze for chopping or cutting



A fish hook and woven line



A horse shoe from a bygone era



Archeologists study ancient places to learn about past cultures

A culture is a shared way of life (behaviors, traditions, beliefs, values) of a group of people.

Every group of people has culture—from what we eat, holiday traditions to language, religion, art and music; these are all part of culture. The *makahiki* festival, for example, was celebrated from mid-October to mid-February with sport games, religious activities and war was *kapu* (forbidden). What other cultural traditions did Hawaiians have? Talk to your parents about cultural traditions practiced in your family.

In ancient times, the Pacific Ocean was the final frontier for Polynesians.

If you were to boldly go where no man has gone before... take a voyage on your starship or canoe... what would you bring with you while exploring strange new worlds? Hawaiians thought this out carefully when they packed their canoes to seek out a new life. They brought several plants they would need for food, clothing, medicine, and building materials. *Kalo* (taro) was the primary staple food of Hawaii and is well documented in the creation story (*Kumulipo*) of the Hawaiian people. After the *kalo* was steamed it would be pounded with water into *poi*, a starchy pudding considered to be the Hawaiian staff of life. Additional canoe plants such as *kukui* were used for candle light, food, medicine, dyes, and fishing. Other plants like *niu* or coconut palm, *wauke* (Indian mulberry) for kapa cloth, *kō* (sugar cane), *ipu* (gourds), *‘awa*, *mai‘a* (banana), and *‘olena* (turmeric) are just a few of the two dozen canoe plants brought by Hawaiian voyagers.



Hawaiians pounding poi, 1890
Hildreth Hitchcock Walker
Collection, Lyman Museum



A voyaging canoe etched in
stone is now a petroglyph.



Hawaiian Family Group, 1896 - Hildreth Hitchcock Walker Collection, Lyman Museum

Archeology at Hawai'i Volcanoes National Park



Rock art at Pu'u Loa petroglyph field

Translated to mean “Hill of Long Life”, Pu'u Loa is located near the coast, along Chain of Crater's Road. This unique coastal rock canvas has over 22,000 petroglyphs! These carved images include ancient sailing canoes, anthropomorphic images (human figures), *honu* (turtles) and historic block letters. The Hawaiian people did not have a written language prior to western contact. Observing these English alphabetical petroglyphs amongst precontact images tells us Hawaiians were still actively using the Pu'u Loa petroglyph field post European contact (1778), and they were learning and practicing a new language. The most abundant petroglyphs found here are cupules (small round indentations). These cupules were used for depositing the umbilical cord (*piko*) of a new born baby. The cord falls off the baby approximately a week after being born. These *piko* would be placed in the petroglyph cupules to ensure the child a long life. The petroglyphs at Pu'u Loa can't be older than the lava flow they are pecked in which dates to AD1200-1450. Pu'u Loa is the largest petroglyph field in the archipelago (group of islands) of Hawai'i.

Human figures carved into the rock.



This letter “K” is a petroglyph too.



Lost and found — fossilized footprints in the Ka'ū Desert

In 1919, Mauna Iki began to erupt. While investigating it, volcanologist Ruy H. Finch discovered footprints preserved in the Ka'ū Desert ash. Where did these footprints come from? Archeologists unraveled the story. In 1790, a series of violent ash eruptions created the perfect carpet of thick ash for Hawaiian warriors and other travelers passing through to leave their footprints. Within a short period of time the ash dried and hardened, leaving the footprint impressions behind. They have been preserved ever since. Not only did the archeologists discover footprints but also well-established trail systems from the district of Puna to Ka'ū, ancient basalt quarries, and temporary habitation sites for overnight travelers.

Ancient footprints in the Ka'ū Desert



Places Where People Lived

at Hawai'i Volcanoes National Park

Hawaiians from 1,000 years ago to ranchers from the 20th century left traces of their legacies here. They built, lived in, worked at, or used the land in some way.

Archeologists reveal what Life on a Lava Landscape was like at Kealakomowaena

Located in the ahupua'a of Kealakomo, this seemingly barren landscape was a thriving agricultural field. Today, several thousand features, primarily mounds for growing sweet potato (*'uala*) can still be found. Other crops grown were breadfruit (*'ulu*), sugar cane (*kō*), ti leaf, and dry land taro (*kalo*). Additional sites that were once used by families living here were found including *kauhale* (groups of houses), water cisterns, animal enclosures, terraces, petroglyphs, boundary walls and caves used for water collection. These small communities stayed connected through extensive trail systems that ran from *mauka* to *makai* (mountains to the sea). Radiocarbon dates of AD 1437-1634 at Kealakomowaena put this site on the map as one of the earliest human habitations in Hawai'i Volcanoes National Park.



Agricultural mound, and c-shape structure found at Kealakomo



Adze



1866 Volcano House



Present day - 1877 Volcano House Art Center



An old gate from the previous ranching days in Kahuku

Archeologists Ask Lots of Questions About Evidence They Discover



They ask questions such as:

What is it? What is it made or built from? _____

Who made or built it? _____

How was it used? _____

Why is it in this location? _____

Do we use anything like it today? _____

How old is it? _____

CHALLENGE YOURSELF



Observe the rusty artifact on the left. It was found in the Kealakomo settlement in the coastal area of Hawai'i Volcanoes National Park along a well-traveled foot trail. The trail was an important route linking Ka`ū and Puna until the early 1900s.

1. Use the photo and the information you now know to answer the questions above.
2. Now use your imagination to tell a short story about this artifact.

An Archeobotanist's Artifacts

Could living plants be considered artifacts ?

Since 1983 the volcanic eruptions from Pu'u O'o vent have continuously fountained and flowed, destroyed homes, and created new land. During 2003, encroaching lava caused a large wildland fire. Hawai'i Volcanoes National Park firefighters were tasked with battling this blaze. During their helicopter survey, a large patch of *kalo* (taro) and other cultural plants were observed to still be growing in a pristine *māla'ai* (garden) in a *kauhale* (village) that was abandoned long ago. Keeping just ahead of the lava flow, firefighters collected samples of *kalo* and *mai'a* (banana) from this site. Through interviews with *kupuna* (Hawaiian elders) it was revealed that the *kalo* found there was a special Chinese variety in which the corm of the plant was used for *palu* (fish bait) and the leaves were of superior quality for eating. They also explained this particular *kalo* was used exclusively by Hawaiians from the districts of Puna and Ka'ū. The families that lived along the coast often maintained *māla'ai* (taro gardens) on the upper slopes of Kīlauea. The depth of soil and increased rainfall provided abundant agricultural resources that could be traded or supplement coastal food resources. Well established trails linked *mauka* (upslope) and *makai* (oceanward) *kauhale* which allowed families to work seasonally in the *māla'ai* when it was time to plant their gardens and return when it was time to harvest. Ultimately, this site was permanently sealed by lava. Fortunately, the park was able to document them and identify the species before they were covered by lava.

When analyzing a site, archeologists study microscopic botanical evidence such as pollens and phytoliths (see below). Living plants are part of the cultural landscape; a fingerprint left behind to tell the story of those who lived there in the past.

So what's a phytolith? "Phytolith" comes from the Greek *phyto* (plant) and *lithos* (stone). "Plant stones." Plants drink up water that contains silica (a mineral) and then transform it into a phytolith deposit within the plant. As the plant decomposes, the phytoliths are left behind for archeobotanists to study.

Archeobotany is the analysis and interpretation of plant remains found at archaeological sites .



NPS Firefighter Greg Herbst takes samples of this *kalo* before it is forever buried in an encroaching lava flow.

Huli Hele

(search here, there, and everywhere)



...for artifacts discovered by archeologists in the ancient *kauhale* (settlement) of Kealakomo in Hawai'i Volcanoes National Park. **CIRCLE** each hidden artifact you find !

Hearth

House platform

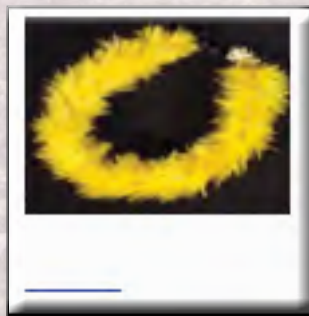
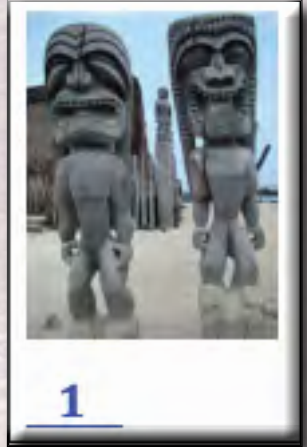
	Ko'i (stone adze)
	Button
	Kukui nuts
	Petroglyph
	Glass bottle
	Horseshoe
	Coral
	Fishbone
	'Opihi shell
	'Ulumaika
	Charcoal fragment
	Fish hook
	Ceramic cup
	Kōnane board

0 2 4
meters

Nā Mea Makamae (cultural treasures)

What would these ancient Hawaiian artifacts most likely have been used for? **MATCH** the number with the photo.

1. Carved to honor the god *Kū* – example
2. Carry water in this *ipu wai*
3. Pound taro to make *poi*
4. Roll one to play *‘ulumāika*
5. Carve a bone, catch a fish with a *makau*
6. This limpet tastes delicious and the shell is a great scraping tool
7. Chisel a canoe with this *ko‘i*
8. Serve food in this *‘umeke*
9. Adorn a royal head or neck with this *lei hulu*
10. This *pōhaku* was used to dry *pa‘akai* (salt)

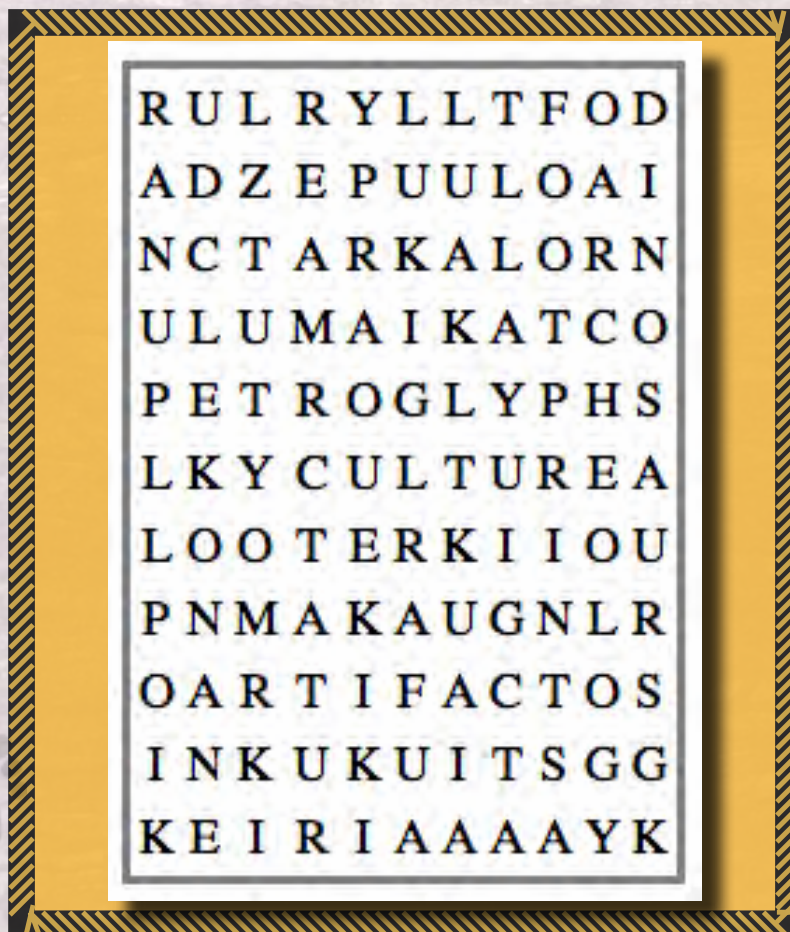


Huli Hua 'Olelo (word search)



USE the clues to help you **FIND** the words below.

- 1) _____ is the scientific study of people from the past and the things they left behind.
- 2) _____ describes a shared way of life, behavior, traditions, beliefs, and values of a group of people.
- 3) What might an archeologist find on top of or under the ground?
- 4) Ancient Hawaiians used this rock tool to cut and carve wood.
- 5) Similar to checkers, this game was played by ancient Hawaiians.
- 6) This archeological site, _____ numbers over 22,000 _____ and is the largest field of its kind in the Hawaiian archipelago.
- 7) After a series of explosive ash eruptions from Kilauea, these ancient _____ were left in the ash by Hawaiian travelers passing through the Ka'ū Desert.
- 8) If archeologists study people of the past, what do paleontologists study?
- 9) These carved wooden statues can be found at Hawaiian heiau (place of worship, shrine).
- 10) This game of rolling disks is often played during the season of *Makahiki*.
- 11) Made from bone and sometimes wood, this tool is essential in procuring food from the ocean.
- 12) If rice is the staple food for China, corn the staple food for 1st Nation people (Native Americans) what is the staple food for native Hawaiians? _____ or _____.
- 13) This canoe plant brought by Polynesian voyagers was used for candle light, food, dye, fishing, and medicine. The tree is a symbol of enlightenment.
- 14) Someone who steals and sells artifacts is called a _____ .



Answers, Glossary, and More

Why no dinosaurs in Hawai'i?

The Hawaiian Islands are about 30 million years old. Dinosaurs lived long before that, like, 65 million years ago!

Na mea makamae answers

Photos starting from the top, then left to right = 1, 7, 5, 3, 6, 9, 10, 4, 8, 2

Huli hua 'olelo answers

artifact - culture - archeology - kalo
konane - adze - petroglyphs - looter
puuloa - footprints - dinosaurs
kii - ulumaika - makau - poi - kukui

Glossary

Ahupua'a - Land division, usually extending from the upland to the sea

`Awa - Kava, a medicinal & ceremonial drink

Basalt - Fine grain igneous rock

Ecofacts - Remains of plants & animals that were eaten by a given community (pollen, seeds, shells, & bones)

Ipu - Gourd, for carrying water, food or hula implements

Kapa - Cloth made from wauke or māmaki bark

Kū - Ancient god of war

Lei hulu - Feather lei

Lithics - Collection of stone tools, working debris (rock rubbish), remnants of stone tool working

Looter - A person who steals and robs from an archeology site

Niu - Coconut; used for drink, food, woven mats, roof thatching, & household utensils

`Olena - Tumeric, used as spice, dye & medicine

Pōhaku - Rock, stone

Quarry - A place to gather or collect dense stone for lithic tool making

Ruins - Human-made structures that have fallen into disrepair or have been destroyed

`Umeke - Bowl, calabash

Go to these links for more archeology fun!

- www.nps.gov/havo/forkids/familyfun.htm and go to "Written In Stone" to discover secrets about Hawaiian petroglyphs!
- www.nps.gov/havo/historyculture/archeology.htm will lead you on a fun adventure to fossilized footprints in the video called "Footprints in the Lava". Then find out more about these footprints to the past at www.nps.gov/havo/historyculture/footprints.htm. Be sure to click on the brochure link too!
- www.nps.gov/archeology/PUBLIC/kids/index.htm is a cool website just for kids to learn more about archeology in national parks.
- <http://ahahui.me/na-wahi-pana-respecting-hawaiian-sacred-sites/> - download Wahi Pana brochure

If you like getting dirty, traveling to interesting places, love learning about past peoples and cultures, solving mysteries, and working with others to protect the pieces of the past, then archeology is for you!



Take the Pledge !

Always leave artifacts and other objects where I find them

Treat cultural places with respect

Learn more about archeology and history in national parks

Share what I learn with family and friends



My Life is in Ruins !



Mahalo to:
Hawai'i Pacific Parks Association
Lyman Museum
UMCES-IAN

**This booklet was prepared by the staff of Cultural Resources Management
at Hawai'i Volcanoes National Park, and designed by the NPS Pacific Island
Network Inventory & Monitoring Program**

