The Mystery of Rapa Nui

Lesson at a Glance
Teams of students investigate evidence from field studies, ships’ logs, and oral traditions to solve the mystery of what happened to the natural resources of Rapa Nui. Students present their findings to the class and discuss the ecological and cultural kinship Hawai‘i has with Rapa Nui. Aunty Momï’s journal helps students to reflect on ways that they can bring a sense of lōkahi (balance) into their lives and the responsibility that we have to use resources sustainably for future generations.

Focus Question
What caused the decline of natural resources and human population in Rapa Nui and what can we learn from our shared ecological and cultural kinship?

Key Concepts
- It is each generation’s responsibility to use resources sustainably so that future generations will have the fresh water, soil, fisheries and other natural resources that they need.
- Hawai‘i shares ecological and cultural kinship with other Pacific islands. We can cooperate with one another and share problems and successes for living sustainably.

Values
lōkahi (harmony, balance)
kuleana (responsibility)
hō`ihi (respect)
lokomaika‘i (good hearted)

Time
three - four class periods

Performance Standards
- Identify human activities that may create changes resulting in unbalanced ecosystems.
- Depict information and relationships by constructing diagrams, charts, and graphs.
- Produce a narrative account that creates an organizing structure and establishes the significance of events.
- Demonstrate comprehension of text by writing about theme/author’s message.
- Apply themes to own life experiences.
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Rapa Nui

Tahiti
2,500 miles

Chilean coast
2,350 miles

HANGA RO NUI
BAY

quarry

RANO RARAKI

RANO AROI

VINAPU
The Island: Locate Rapa Nui (Easter Island) on a map or globe.

Rapa Nui, like Hawai‘i, is very isolated; it is considered to be the most isolated high island ecosystem in the world. It is a tiny island, about the size of Lāna‘i, located approximately 2,400 miles off the Chilean coast.

- What is the nearest island to the northwest of Rapa Nui, 1,400 miles away?

Polynesian Settlers

Guided by their leader Hotu Matu‘a, the original Polynesian settlers arrived at Te Pito o te Henua (Rapa Nui) in approximately A.D. 400. They discovered an island with the natural resources they needed to survive. The island had forest resources for them to build their canoes, fuel their fires, and craft their huts. There were natural lakes that provided them with fresh water. There were no reefs, but the ocean provided shoreline and deep-sea fish. The human population grew to approximately 8,000 - 20,000 people by 1680. However, by 1877, only 111 people remained on the island! Today, the island is known for the moai that the people carved, mostly during the 14th and 15th centuries. These stone statues play an important role in the island’s history.

What Happened on Rapa Nui?

You learn that these majestic moai were at one time all toppled over. Some have been restored to an upright position. Most of the forest and much of the topsoil on the island is gone. All of the native land birds and sea birds are gone, and the nearshore fisheries are nearly depleted, too. People are working to restore the island to its former health. You are helping in this effort by documenting why the resources were lost and why the human population crashed. Your report will be shared with other students to prevent such losses from occurring again.

Mystery

What caused the disappearance of forests, soils and fish, and the drastic drop in human population on the isolated island of Rapa Nui?

Your Task

You have just been assigned to an investigative research team on the island of Rapa Nui. You are to investigate the mystery of Rapa Nui and write a report with your conclusions. Your team’s report should summarize each of the clues you find through:

- FIELD WORK - find the clues in the archaeological dig sites and in the pollen analysis.
- ORAL TRADITIONS - discover the connection between the huge moai and the island’s resources.
- SHIPS’ LOGS - find the secrets in the archives of old ships’ logs.

A good investigator leaves no stone unturned, so dig up as much evidence as possible! Explore other sources of information from books, articles and the Internet.
Field Work (1 of 2)

Archaeological Digs: Bones
On the first day, you arrive at an ancient house site where excavations are already in progress. You and your team carefully set to work uncovering the earth and creating a “test pit.” As you dig through three layers of sediment representing different “time periods,” you discover that embedded in each of the three layers of clay are bones. In the first layer, nearest to the surface, you discover several kinds of chicken bones. The second layer reveals remnants of rat bones and shells from sea snails. The last layer, and the deepest, reveals the remains of dolphin, seal and sea bird skeletons. You jot down your findings.

Clue: Why weren’t the same kind of bones found in each of the layers? What do the different layers of bones indicate?

Clue: Dolphins are plentiful around the island and they may have been a source of food for the islanders.* What could have caused the people to stop harvesting dolphins? You may need to find more information about the forest. See the Pollen Samples and Ships’ Logs.

Weapons
The next day you spend at the town of Vinapu. Another field survey is being done, except this time archaeologists are searching for prehistoric weapons called mata’a. You meet with the head of the excavation team and he shares his findings. The weapons that were discovered were made from a shiny, hard black rock called “obsidian.” The people of Rapa Nui used to use this rock to make tools around A.D. 1400, but by the 1800s the islanders were using obsidian for weapons instead. The production of mata’a was at its peak in the 1800s. Renowned archaeologist, William Mulloy, discovered 402 obsidian stones hidden in a cave in Vinapu. It’s an interesting find. You make several notes and return home.

Clue: Why did the people change from using obsidian material for tools, to using it for weapons? What does this tell us?

*According to some sources, the dolphin was the aumetua (family god) for some islanders and would not have been a food source for those who had this relationship with the dolphin.
Field Work (2 of 2)

Pollen Samples

The next day, you meet a friend who has been commissioned to do a pollen analysis of several samples taken from the Rano Kau crater. This crater is actually a caldera where there is a swamp with a floating mat of vegetation. You must be careful here; the swamp is dangerous. If you fell through, it would probably be fatal. You are told that one geologist already disappeared here without a trace!

You stay on the edge of the swamp where the pollen sample was taken. The sample is a long core of soil dug out of the swamp. Looking at the deepest part of the core sample is like looking back in time. The acidic soil in the swamp has preserved tiny grains of pollen dating back thousands of years. The amount of pollen at different depths in the core sample reveals what kinds of plants were present at different times.

Your friend’s results are remarkable. Her findings indicate that prior to A.D. 750, there were many hau hau, palm and toromiro trees. The islanders used hau hau trees to make rope, palm trees for canoes, and toromiro trees for firewood. But as you move up the sample to approximately A.D. 950, there are fewer tree pollen grains present. This indicates that trees are disappearing. By A.D. 1400, there are no hauhau pollen grains in the sample. There are some pollen grains for troromiro and palm, but they are declining. What a startling find! You make a few notes and thank her for inviting you.

Clues

- What were the results of the pollen analysis? What does this information suggest happened to the forest in this part of the island? Why?

- Why were forests growing prior to A.D. 750, but nearly gone after A.D. 1400 in Rano Kau? What might have happened?
Oral Traditions

Many, many years ago, the people of Rapa Nui transported huge stone statues or *moai* from one part of the island to another. You believe that there is some connection to the transportation of the *moai* and the island’s resources. It is up to you to determine how the *moai* were moved and how this related to the depletion of the island’s natural resources.

On first inspection of your island, you observe a “sea” of *moai*. There are about 800 of these huge stone statues. The largest *moai* is 300 tons and 66 feet high and lies unfinished in the quarry. The largest on an *ahu* (raised stone platform) is 40 feet high. Most are near the coast staring inland, while others lay abandoned on dirt roads. Some *moai* are partially carved in the stone quarry that provided the volcanic rock from which they were carved. What heightens your curiosity is the fact that at one time the *moai* were toppled over and many were broken at the neck. You make a few notes.

The next day, you ask permission to meet with island elders. They explain to you that many of them do not recall why or how the *moai* moved from the quarry to the *ahu*s around the coast. Some say the *moai* walked. You are skeptical of that explanation since a good number of the *moai* were found nearly 12 miles away from the quarry! The elders explain that the *moai* were a very significant part of Rapa Nui culture. The *moai* represent the ancestors and are believed to possess mana (spiritual power). The larger the *moai*, the greater the mana the clan would possess. Because of this, tribes engaged in battle, fighting over who possessed the larger and more powerful *moai*. The elders also mention that white pieces of coral were used to represent the eyes of the *moai*. But on your initial inspection of the toppled stone statues, there was no evidence of this. The elders also show you some wood carvings called *moai kavakava*. These carvings show men with beards, hooked noses, hollow cheeks, and protruding ribs. You make a few notes and graciously thank your hosts for their information.

The following day, you speak to an island elder about your research. She tells you that as a child, she learned a legend about a woman (believed to be a witch) who was denied her rightful share of lobster. In anger, the old woman caused those laboring in the quarry to stop all production of *moai*. The legend intrigues you. You know that the island people exchanged food for labor. The fisher gave to the farmer, and the farmer provided for the craftspeople. Everyone shared resources. You write a few remarks on your notepad.

**Clues**

- How would you describe the physical appearance of the *moai kavakava*? Do you think this provides any clue to what was happening to the people of Rapa Nui? Why?
- What do you think happened to the toppled over *moai* and to the white coral eyes of the *moai*? Why did it happen? What do you think was so significant about the eyes?
- What does the legend about the old woman tell you about the people during this period?
- How could the people have moved the huge stone statues from the stone quarry to the coast? Could the transportation of the *moai* have anything to do with the depletion of their forest? How?
Ships’ Logs (1 of 3)

After combing through the archives on Rapa Nui, you find the following notes from ships’ logs and an old letter from a crew person aboard the first foreign ship to visit the island in 1722. Some of them are useful clues; some are not.

- “The ship was soon invaded by a group of natives who were so bold that they took the hats and caps of the sailors from their heads and jumped with their plunder overboard.”

- Their craft were “put together with manifold small planks and light inner timbers, which they cleverly stitched together with very fine twisted threads....But as they lack the knowledge and particularly the materials for caulking and making tight the great number of seams of the canoes, these are accordingly very leaky, for which reason they are compelled to spend half the time in bailing.”

- “The stone images at first caused us to be struck with astonishment because we could not comprehend how it was possible that these people, who are devoid of heavy thick timber for making any machines, as well as strong ropes, nevertheless had been able to erect such images.”

  Dutch Admiral Jacob Roggeveen, 1722

  (see crew’s letter also, pages 68-73)

- Natives were “small, lean, timid and miserable.”

- “No nation need contend for the honour of the discovery of this island; as there can be few places which afford less convenience for shipping than it does. Here is no safe anchorage; no wood for fuel; nor any fresh water worth taking on board. Nature has been exceedingly sparing of her favours to this spot.”

- “As everything must be raised by dint of labour, it cannot be supposed the inhabitants plant much more than is sufficient for themselves; and as they are but few in number, they cannot have much to spare to supply the wants of visitant strangers.”

- “The workmanship of the ahu (religious platform) “is not inferior to the best plain piece of masonry we have in England. They use no sort of cement; yet the joints are exceedingly close, and the stones morticed and tenanted one into another, in a very artful manner.”

- “The inhabitants of this island do not seem to exceed six or seven hundred souls, and about two-thirds of those we saw were males. They either have but few females among them, or else many were restrained from making their appearance, during our stay.”

  Capt. James Cook, 1774
Ships' Logs (2 of 3)

- “I don’t know how I am to make a fire on that island, there is no wood!”
  Bailey, Katherine Routledge’s ship’s cook
  (no date)

- We saw “a platform on which were set four red statues, equidistant from one another, their summits covered with white stones.”
  French Admiral Abel Dupetit-Thouars, 1838

- “Much has been said in ancient times of the convicts in the quarries. They were tortured less than the laborers in the guano quarries. The dust and the smell could suffocate a novice. It is impossible for anyone not used to them to spend an hour at the workings.”
  M.L. Simonin, Le Tour du Monde, 1868

  NOTE: During the Peruvian slave trade, islanders were taken against their will to serve as slaves in mines for guano (bird droppings). Guano is a source of fertilizer, rich in nitrogen. Conduct some research to find out how this slave trade devastated the people of Rapa Nui.

- The natives “stop me before one of these thatched dwellings that are to be found everywhere, flattened amidst the rocks and sand, resembling the back of a beast lying down. And they invite me to enter, which I am forced to do on all fours, threading my way in like a cat through a cat flap, because the door, at ground level, and guarded by two sinister-faced divinities of granite, is a round hole, barely two feet high.”
  Pierre Loti, L’Ile de Paques, 1872

- “The bottom of the funnel (at Rano Kao) is occupied by a lake lined by rushes that serves as a watering place for livestock. Green slopes close off the horizon, making this pocket a world apart, enshrined in the island.”
  Pierre Loti, L’Ile de Paques, 1872

- “We can catch no glimpse of relations between individuals save the exterior forms and tokens of politeness...When a chief paid a visit to the chief of another tribe he was met along the road by groups of warriors, who formed an escort. On these occasions no doubt the chanters recited long genealogies, as is still done on the Tuamotus. The two chiefs advanced to meet and pressed the wings of their noses together.”
  Alfred Metraux, Easter Island, 1957
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Ships Logs (3 of 3)

- “The men who could execute such perfect work must have possessed ultra-modern tools....A small group of intelligent beings was stranded on Easter island owing to a ‘technical hitch.’ The stranded group had a great store of knowledge, very advanced weapons and a method of working stone unknown to us...Perhaps to leave the natives a lasting memory of their stay, but perhaps also as a sign to the friends who were looking for them, the strangers extracted a colossal statue from the volcanic stone. Then they made more stone giants which they set up on stone pedestals along the coast so that they were visible from afar...In the remote past there were intelligences with an advanced technology for whom the covering of vast distances in aircraft of the most varied kinds was no problem.”

Erich Von Daniken, Return to the Stars
1972

Clues

- Why were the islanders who greeted Dutch Admiral Jacob Roggeveen in 1722 having to bail out their canoes?

- What do most of the ships’ logs tell us about finding foods or other resources on Rapa Nui?

- What does Cook’s description of the islanders tell you was happening to the population?
05 April 1722

Dearest Mummy,

I am writing to assure you of my safety and good health. I know that it was poor of me to up and leave our lovely home in Amsterdam without a moment's notice, but I must hasten to profess that I longed for freedom, excitement and adventure. Admiral Jacob Roggeveen has been most gracious and has allowed me to serve as a pantry boy aboard his vessel.

We have visited several Pacific Islands on our journey, but none other stands foremost in my mind but Easter Island appropriately named by the admiral himself. It was on that Easter Sunday that we set anchor in Hanga o Honu Bay.

A group of natives greeted us in canoes made from many planks of wood. These canoes were put together with small planks and light inner timbers, which they cleverly stitched together with very fine twisted threads. Their canoes were leaky so they were compelled to spend half their time bailing.

The admiral ordered a small shore party with peaceful
intentions to light ashore and seek food supplies. The natives were most cordial and accommodated us most willingly. Yet, as we roamed the island in search of foodstuffs we were alarmed by what we perceived as a people near starvation.

All that remained in the timberland were stumps of dry, rotting wood. A fair amount of natives were transporting a felled tree by means of fine woven thread. It was most awkward for them as the thread would part as they would tug on the line. The small bushes scattered about carried the pungent scent of rodent, which we saw scampering from twig to twig devouring plant seeds.

It was evident that what little rain the heavens produced ran off the hard ground into the sea. There was no shelter from the treetops to shield the sun and wind, hence the rain ran off the parched land.

As we ventured from the timberland, we came upon a series of logs that stretched to the horizon. We maneuvered through the maze of timber and came upon a volcanic mountain, which the natives referred to as Rano Raraku. Rano is their name for
To our amazement, we discovered a tribe of natives chiseling enormous monuments from the volcanic tuft with primitive adzes. Some of these men lay chiseling in crevices no larger than a coffin. Another large group of men attempted to hoist one of the stone structures skyward. We watched in awe at this most incredible feat.

As we descended from the mountain, we noticed with surprise a sea of giant sculptures. Hundreds of statues lay scattered at the foot of the volcano. Some lay abandoned and others remained imprisoned in the volcano’s quarries.

As we neared a monumental structure, we noticed the incredible workmanship of the statues. It was the best plain piece of masonry we had ever seen. No sort of cement was used. Most of the eye sockets were empty, but a few carried white coral representing each eye. We learned that it was believed the eyes and the head of the statue carried some form of mana (power). A community of natives, it appeared, had gathered for some sort of ceremony.

On our search for food, we came upon a stone construction in what appeared to be a chicken dwelling. It was circular in
shape and made of small stones piled high and carefully fitted. Inside the structure were a series of chambers which served as resting houses for the chickens. It was common to see the chicken dwellings scattered about the island. The dwellings prevented thievery and those owning the feathered birds were perceived as wealthy. Since the master of the chicken dwelling was no where in sight, we warmed our hands on a nearby cooking fire and quickly departed circling back around the island still in search of food.

As we made our return to our ship, we noticed few thatched huts. It appeared that most of the natives resided in cave dwellings. In fact, they had built an elaborate garden system in which they grew sweet potatoes, yams, arrowroot, taro and palm lilies. Alas, the garden we came upon had been depleted and lay dry and fallow. The men and I moved on in further search of food.

When we reached the cove of Hanga o Honu, we noticed an abandoned log partially hollowed. It seemed as if the natives had attempted to create a seaworthy canoe, but never finished the task. Upon reflection, it appeared to be the only
log on the island from which a seaworthy canoe could be crafted. I remember the natives whom greeted our ship in leaky canoes.

Wading out into the sea, we witnessed several women near shore attempting to harpoon something between the rocks. But upon closer investigation, it appeared that all they had captured were a crab and two sea urchins. We made our own search of shellfish and found none. It was as desolate a place that I had seen in a year’s journey with the admiral.

We returned to our ship to report to the admiral about the meager provisions on the island. But the starkness of the land and the haunting beauty of the stone statues remained forever etched in my mind. Although we were unable to find nourishment for ourselves, it was with great regret that I departed this mysterious island. How were the people to survive with so little foodstuffs? Of what value were the great stone statues? How were they transported and erected? What had befallen the timberland? Why had the sea been depleted of its shellfish?

These questions continued to haunt me even after we had been at sea for several weeks.

I yearn, dearest mummy, to one day return to this most
intriguing place. But for now I will continue on Admiral Roggeveen’s course in search of other uncharted lands.

Please pray for my safe return. I will forever hold you in my nightly prayers. Godspeed.

Your loving son,

Stefan

Note: This letter is fictional, but the information it contains is based on fact.