



Teacher Packet

Talking Points



Pueblo Grande Museum and Archaeological Park
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City of Phoenix

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What's in a Name?

- During your visit, you will see and hear several different names referring to the people connected with the site of Pueblo Grande - O'Odham, Huhugam, Hohokam, ancestral O'Odham, and ancestral Sonoran Desert people
- The O'Odham (pronounced AW-aw-thum) are present-day peoples who live in south-central Arizona.
- Huhugam is a word the O'Odham use to identify deceased ancestors.
- Hohokam is the term used by archaeologists to identify the prehistoric culture that lived in south-central Arizona from A.D. 450-1450.
- Ancestral O'Odham or "the ancestors" is a term the O'Odham use to describe their ancestors. The O'Odham prefer this word over Hohokam as it acknowledges cultural continuity through time.
- Ancestral Sonoran Desert people is a broader term used to describe the many traditional peoples who share a history and lifestyle living in the Sonoran Desert. The modern-day descendants or "culturally affiliated tribes" of this group include the members of the Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, and Tohono O'Odham Nation.
- Archaeologists call the largest earthen structure of this special place a platform mound. The O'Odham refer to this place as a va'aki (pronounced as VA-ah-kee) or ceremonial house.



Interpretive Trail (2/3 mile in length)

To guide your visit, we have grouped information about the site and the ancestral Sonoran Desert people (Hohokam) into learning stations along the interpretive trail. Each learning station focuses on a theme or aspect of this special place. We recommend walking back in time and exploring the trail in the following order:

1. Garden & Desert Oasis
2. Ballcourt
3. Houses: Pithouses & Compound House
4. Canals
5. O'Odham World View
6. Platform Mound
7. O'Odham Historical Traditions
8. Petroglyphs

Be mindful and stay on the trail as you visit this special place.





Bright Ancient House

- Pueblo Grande is a special place that is sacred to living peoples. A traditional place is a location associated with the cultural practices, traditions, beliefs, and lifeways of a living culture.
- “Affiliated Tribes” are groups of living people who share a history and lifestyle. Members of the Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, and the Tohono O’Odham Nation are considered culturally affiliated with the site of Pueblo Grande.
- Archaeological investigations have uncovered information about the site’s occupation over time. The site of Pueblo Grande is linked to the organization and operation of a large canal or irrigation system.
- Archaeologists call the large earthen structure on this site a platform mound. The O’Odham refer to this place as a va’aki (pronounced as VA-ah-kee) or ceremonial house. The structure that stands before you today, at its peak was the size of a football field and about three stories tall.
- The va’aki was first built approximately 900 years ago; since its initial construction the va’aki has been expanded several times. Pueblo Grande is one of a few remaining sites containing a va’aki.
- Please be mindful and stay on the trail as you visit this special place. Leave any artifacts untouched and in place.



Garden & Desert Oasis

- The ancestral Sonoran Desert people (Hohokam) created the largest prehistoric canal network in North America using wooden and stone tools. Canals were used to bring water to villages and to irrigate agricultural fields.
- The primary food crops included corn, beans, and squash (the three sisters).
- Crops were also grown for non-edible purposes. Cotton was a prized trade item and was used to produce fiber that could be woven on a loom to create cloth. Gourds were dried out and likely turned into household items such as bowls, cups, canteens, storage vessels and musical instruments.
- They also harvested plants from the desert - such as agave (the hearts were roasted in specialized ovens called hornos); prickly pear (pads and fruit); and saguaro fruit which could be turned into a jelly or syrup to provide vitamin C.
- Mesquite and Palo Verde seed pods were collected and ground into a flour using stone tools called manos and metates and then used to create a flat bread similar to the tortillas of today.
- Desert plants also served a variety of utilitarian purposes. Saguaro ribs (the 'skeleton' of the cactus) were used as building material, while yucca leaves could be dried out to provide fiber and even be used to make sandals!
- Agave leaves could also be dried out to produce fiber for making rope (cordage), for basket making, or fishing nets. The leaves even provided a built-in needle (spine at the end of the plant) for sewing!
- Rabbits, another food source, may have been attracted to the agricultural fields. Other animals that may have been used include white tailed deer, fish, beaver and big horn sheep.



Ballcourt

- Ballcourts are oval, bowl-shaped depressions in the ground that are found at some ancestral Sonoran Desert people (Hohokam) settlements. These depressions are typically 80 to 100 feet long and 50 feet wide.
- From A.D. 750 to 1200, over 200 ballcourts were built by the ancestral Sonoran Desert people (Hohokam) in Arizona, including two at Pueblo Grande!
- Ballcourts may have been the product of cultural exchange with Mesoamerica. They have what appear to be goal posts at each end, so it is possible that stone and rubber balls may have been used in some sort of game.
- The specific function of these courts remains unknown, although they may have been used for ceremonial, social or sporting events that were accompanied by marketplace activities such as trade and feasting.
- Around A.D.1200, ballcourts stopped being used and platform mounds become a central focus of village life. The exact reason for their discontinued use is unclear. Perhaps the ceremonies that were once performed in them stopped. This suggests a change in the way the ancestral peoples viewed the world around them.



Pithouses

- These replica pithouses demonstrate how the ancestral Sonoran Desert people (Hohokam) lived throughout the archaeological sequence from A.D. 450-1450.
- Pithouses tended to occur in clusters with doorways opening into a central courtyard. Ramadas were likely built to provide a shaded working space where daily activities like food preparation and cooking took place during the hotter summer months.
- Pithouses were constructed by digging a roughly circular pit into the ground. The pit was plastered with caliche and then a wooden framework was constructed and covered by adobe. Digging a pit into the ground would provide insulation against the heat and cold.
- When archaeologists excavate pit houses, they just find the foundations of the house, because the wooden structures do not preserve well.
- One possible feature in the pithouse floor would be a hearth. A hearth would have been used for warmth and light rather than for cooking, because they tended to be small and there was no hole in the roof for the smoke to escape.
- There are a several replica artifacts in the house, particularly pottery and tools used in pottery production. This is meant to depict a potter's house. There are also several other items including gourds, reed mats and a saguaro boot.
- This replica house is larger than those the ancestral Sonoran Desert people would have built. They were built to meet present day building codes. You will also notice that one of the replica walls has been cut away, this is an American with Disabilities Act (ADA) accessible entrance. The ancestral people would have entered their houses by crawling through a low entrance.



Compound House

- This replica compound demonstrates how the ancestral Sonoran Desert people (Hohokam) lived during the Classic period (A.D. 1150-1450).
- Adobe compound houses differ from pithouses in the following ways:
 - They were built above ground.
 - They tend to be square instead of round or oval.
 - They were constructed using coursed adobe (mud stacked in layers with stone) instead of mud and wood.
 - The room structures were surrounded by a compound wall instead of the open arrangement seen in the earlier pithouses.
- In adobe compounds, the walls defined the outdoor space more precisely than seen with the pithouses.
- Where pithouses had open, communal courtyards the adobe compounds exhibit more 'privatized' space with the use of walls. This change in architecture may reflect changes in social organization.
- They may have been places where people slept and kept their possessions; some may have served as storage areas.
- Here are some cool facts about the adobe compounds that have been discovered at the site of Pueblo Grande:
 - Pueblo Grande compounds contained up to 17 rooms each.
 - These "apartments" may have been home to as many as 35 people.
 - Most of the compounds are located north and east of the platform mound.
 - Over 20 compounds have been found, and many more probably exist in unexcavated portions of the site.



Illustration by Michael Hampshire

Canals

- The Hohokam (ancestral Sonoran Desert people) created the largest prehistoric irrigation system in North America! Most of the canals near Pueblo Grande were built from A.D. 750 to 900.
- The canals irrigated large agricultural fields and brought water to the villages.
- Canals were maintained, abandoned and rebuilt over several centuries. *Some methods used to improve the control of water along the canals included:*
 - **Weirs** – a barrier across a channel that changes the flow of water
 - **Head gates** – woven logs and brush set into the canal bank. Gates were used to control the speed and amount of water flow in a channel.
 - **Distribution canals** - narrower channels that transported water from the main canal to the fields
 - **Lateral canals** –smaller channels that released water directly in the fields
- A complex societal organization would have been needed to maintain these irrigation systems and allow the people of the valley to flourish.
- The village of Pueblo Grande is located on bedrock; the topography of the area played an important role in establishing the location of the head gates for the largest canals.
- The longest canal constructed extended 20 miles from Pueblo Grande to modern day Glendale!
- Many of the canal systems used in modern day Phoenix follow a similar course as the prehistoric canals!

O'ODHAM WORLD VIEW



Artwork by Jacob Butler

Illustration by Jacob Butler

O'Odham World View

- The raised, rectangular earthen structure that stands before you today is called a platform mound by archaeologists. The O'Odham call the largest visible structure of this village a va'aki (pronounced VA-ah-kee) or ceremonial house.
- The va'aki likely ties into the O'Odham cosmology belief system. In the illustration the sun rises in the east, the ocean is visible to the west, and the mountains to the north are the San Francisco Peaks
- The O'Odham cosmology identifies three levels of being
 - Kaacim Jeveḍ (pronounced KAA-chim Jôô-vôôḍ) - the natural world
 - Daam Kaacim (pronounced DAAM Kaa-chim) - sky above
 - Si'alig Veco,(pronounced SEE-a-lig VÔÔ-cho) - the world below
- In this world view, people and animals coexist in the natural world sandwiched between the sky and the world below.
- The orientation of Pueblo Grande's raised platform mound (va'aki) from east (Si'alig Veco) to west (Huduñig) illustrates the cyclical passage of the sun and moon.
- Pueblo Grande is one of a few sites containing a va'aki that remains.



Platform Mound (*va'aki*)

- The platform mound (*va'aki*) was tied to the organization and operation of the irrigation system. Platform mounds in the Lower Salt River Valley are situated along major canal systems roughly every three miles
- Some archaeologists believe that the religious leaders may have lived on top of the *va'aki*, suggesting they may have been more religious than secular in function. The rooms on the *va'aki* tended to be isolated or separated from each other indicating a desire for privacy as well as an aspect found in religious architecture.
- The structure that stands before you, at its peak was the size of a football field and about three stories tall.
- In the Sedentary Period (A.D. 900-1150) a small circular *va'aki* was built at the site. During the Classic Period (A.D. 1150-1450), the circular mound was expanded and remodeled into the larger rectangular form.
- The *va'aki* was built within a larger compound - a large rectangular area with high enclosed walls.
- Archaeologists found a public plaza on the eastern section and a series of rooms placed just to the west of the *va'aki*.
- Long passageways were often constructed to provide access from the public plaza to the rooms.

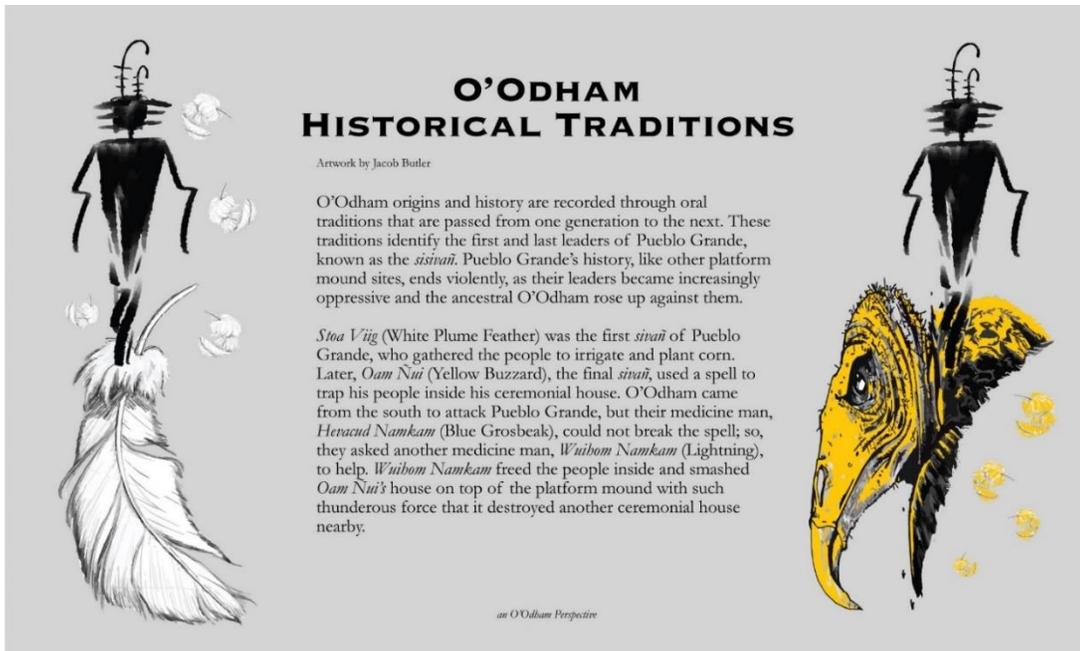
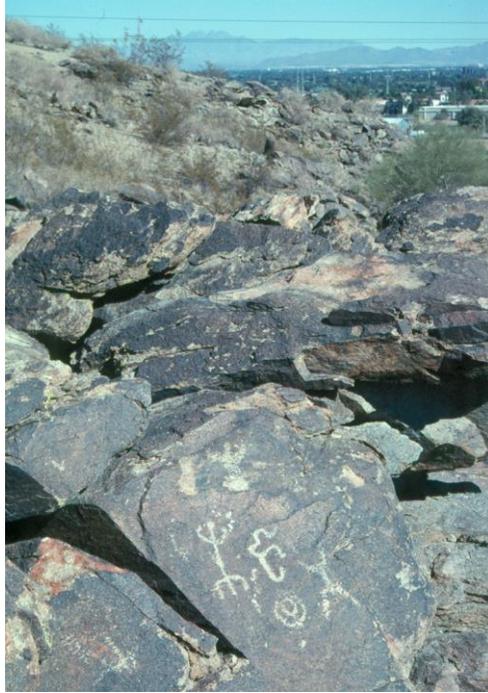


Illustration by Jacob Butler

O'Odham Historical Traditions

- The O'Odham use oral traditions to pass along information about their history. These oral traditions include the site of Pueblo Grande.
- According to their oral traditions...
 - **Stoa Viig** (pronounced STO-a VEEG, White Plume Feather) was the first *sivañ* (leader) of Pueblo Grande. He gathered the people to irrigate and plant corn.
 - **Oam Nui** (pronounced O-am NYU-ee, Yellow Buzzard), the final *sivañ*, (leader) used a spell to trap his people inside his ceremonial house (*va'aki*).
 - The ancestral O'Odham revolted against their leaders as they became increasingly oppressive.
 - **Hevacud Namkam** (pronounced HÔÔ-va-chuḍ NAM-kam, Blue Grosbeak) was a medicine man of the O'odham living south of Pueblo Grande.
 - Hevacud Namkam was not able to break the spell used by Oam Nui.
 - **Wuihom Namkam** (pronounced WEE-hom NAM-kam, Lightning) was the medicine man who freed the people trapped inside the ceremonial house on top of the platform mound (*va'aki*) at Pueblo Grande.
- Understanding this O'odham world view allows us to experience spiritual connections between the platform mound, the mountains and other universal spiritual places above, below and in all four directions

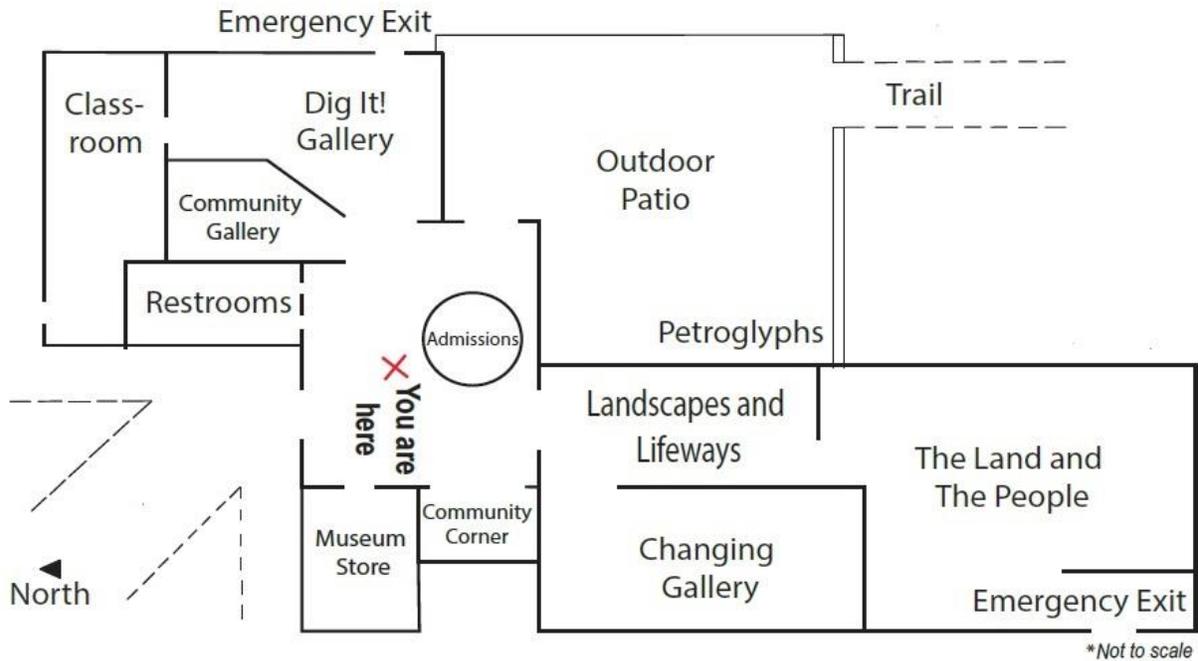


Petroglyphs

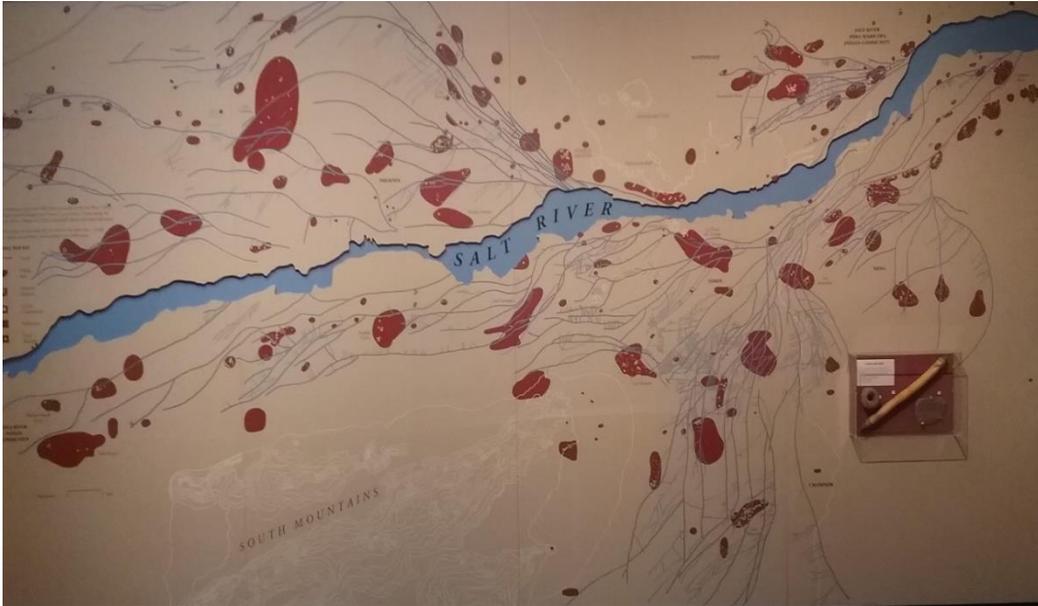
- Petroglyphs are designs on rock that communicate something about a place or location.
- Petroglyph designs are made by removing a portion of the rock's outer surface (or patina) to reveal a lighter colored area of the stone.
- The O'Odham refer to designs on rock as Hohodi 'O'ohadag (pronounced HO-ho-dee O-o-ho-duhk). 'O'ohadag are designs and hohodi means stone.
- Hohokam style petroglyphs (also known as Gila style) include images of human-like beings (anthropomorphs), animals (zoomorphs) and geometric designs. Many of these design elements can also be found in basketry and pottery.
- Petroglyphs were used by the ancestral O'Odham for an extended period, AD 700 – 1900. These designs on rock continue to be a deeply significant way of communicating feelings and information.
- Petroglyphs are prehistoric resources that must be protected against vandalism and the encroachment of urban development.
- Removing a petroglyph from its original location is disrespectful, disconnects it from the special place for which it was created, and erases traditional knowledge.

Indoor Exhibit Galleries

The indoor exhibit galleries are ideal for providing your group with both an introduction to archaeology and to the people connected to the site of Pueblo Grande. The following talking points may assist in guiding your discussions as you visit the site in small groups.



Landscapes and Lifeways Introductory Gallery



Canal Map

- Archaeologists refer to the archaeological culture who lived in this area around A.D. 450 to 1450 as the Hohokam (the ancestral Sonoran Desert people).
- On this map you can see the Salt River which flowed year-round, and you will notice red shapes representing archaeological sites like the one you are currently visiting. The thin blue lines represent canal segments archaeologists have located.
- The ancestral Sonoran Desert people (Hohokam) created the largest irrigation system in North America. Hundreds of miles of canals were constructed to provide water to their villages and to irrigate their crops.
- The village of Pueblo Grande was placed at the head gates of Canal System 2 which controlled water for many of the villages on the north side of the Salt River.
- The canals were dug by hand with stone and wooden tools, such as three-quarter grooved axes and digging sticks.
- One theory why the ancestral Sonoran Desert people stopped using and maintaining the canal system is that a massive flood destroyed the canals and forced the people to leave the area. Culturally affiliated tribes believe the ancestors didn't disappear, but rather that they dispersed into smaller communities and their descendants are still living in today's Tribal communities.



Illustration by Michael Hampshire

Platform Mound (*va'aki*) Illustration

- In this artist depiction of the site take note of the Salt River flowing and the canals carrying water to the fields. The Salt River no longer flows year-round; the Theodore Roosevelt Dam was constructed (1905-1911) preventing the river from flowing and changing the environment along the river bed.
- If we look at the sky, in the illustration, it looks like a storm, possibly a monsoon is rolling into the area. In Arizona, monsoon season typically begins in late June and early July, so the picture most likely represents a day in summer.
- Va'aki were a major building achievement of the ancestral Sonoran Desert people (Hohokam). These structures were about the size of a football field and stood approximately 3 stories tall.
- Pueblo Grande's va'aki was built out of river cobbles, caliche and chunks of granite and sandstone. This structure is one of the largest of the 50 known platform mounds (va'aki) in Arizona.
- Va'aki are found approximately every 3 miles along major prehistoric canals. Perhaps they were used as administrative sites that controlled the irrigation systems or as monuments used for ceremonial purposes.
- In this artist depiction of the va'aki, you may notice that there were rooms used for different types of activities.



Timeline

- Hohokam is a word used by archaeologists to describe the archaeological culture in the Salt River Valley from A.D. 450 through 1450.
- Ancestral O’Odham or “the ancestors” is a term the O’Odham use to describe their ancestors. The O’Odham prefer this term, over Hohokam, as it acknowledges cultural continuity through time.
- Ancestral Sonoran Desert people is a broader term used to describe the many traditional peoples who share a history and lifestyle living in the Sonoran Desert.
- Archaeologist have identified four periods in the Hohokam (ancestral Sonoran Desert people) archaeological cultural sequence – Pioneer, Colonial, Sedentary, and Classic. Each period is marked by significant changes in material culture. Material culture includes items such as tools, pottery, canals, and structures.
- The Hohokam archaeological culture as archaeologists define it was no longer present at the time that Spanish explored southern Arizona in 1540. The culturally affiliated tribes believe the ancestors are still here – they dispersed into smaller communities and their descendants are still living in today’s Tribal communities.

The Land and the People Gallery

Sonoran Desert / Desert Oasis

- The ancestral Sonoran Desert people (Hohokam) were the first farmers of the desert! They were very resourceful and used the desert environment to grow at least two or more seasons of crops.
- The ancestors also harvested plants and animals from the riparian environments found along the Salt River. They used a variety of animals including deer, bighorn sheep, turtles, squirrels, rabbits, quail, heron, toads, and fish.
- Some of the wild desert plants harvested produced seasonal fruits, buds, and pods such as the prickly pear, cholla, saguaro, and the mesquite tree.
- They also used plants for building materials and weaving. We find evidence of their use in the impressions that they leave behind!



Desert Farmers

- When looking at the tools in the exhibit case keep in mind that everything had to be handmade! The ancestral Sonoran Desert people (Hohokam) didn't work metal; they relied heavily on stone for their tools. Stone could be worked using a grinding method (axes) or it could be flaked (projectile points).
- They made pottery and stone items shaped like the animals around them (baby bird, turtle, quail, snake palette, shell frog/toad). They also used the animals as inspiration for the decorations on their pottery – flying birds, four legged animals, lizards, fish and snakes.

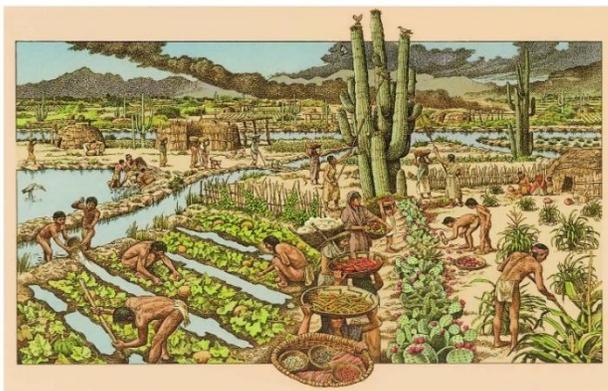
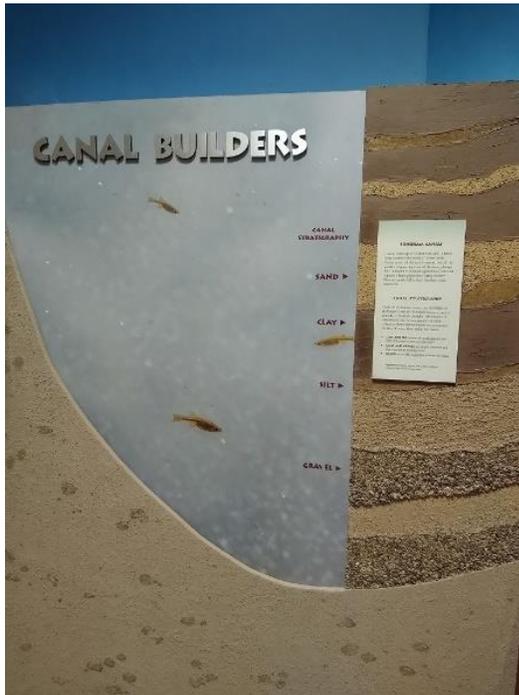


Illustration by Michael Hampshire

- Gourds, devil's claw, dried saguaro buds, beans and corn are the plants represented in this case.
- The ancestral Sonoran Desert people grew more than corn, squash and beans. In fact, they cultivated more plant species than any other prehistoric culture in America!

Canal Builders



- Canal systems were the key to the ancestral Sonoran Desert people's (Hohokam) success!
- Stone 'paving' known as rip rap, consisted of cobbles and broken stone which was used to line canal junctions and slow/control water flow and stop erosion.
- They constructed a main canal with headgates, distribution canals that transported water to fields, and lateral canals which released water directly into the fields.
- The ancestral peoples had to constantly keep an eye on the canals, clean them out from time to time. Floating debris, rocks, and even fine silt brought along with the water could potentially clog up a canal. If you didn't maintain your canals water would stop flowing to your fields.

Traditional Kitchen

- We believe the ancestral Sonoran Desert people prepared and cooked their food in outdoor fires and earthen ovens called hornos.
- One way the plant material was prepared was to grind them up to make a flour. In the display case you can see examples of a mano and metate as well as a mortar and pestle. These stone tools were used to grind the plant materials to a crumbly powder. Once ground up they could be formed into a flattened bread like a tortilla and cooked on a flattened pottery plate called a comal.





Pottery

- Hohokam pottery can generally be divided into 3 different types: plainware, redware and red-on-buff.
- Plainware pottery was the first type of Hohokam pottery made; this type of pottery was continuously made over time. This is considered the 'everyday' pottery and makes up about 90% of pottery recovered.
- Red-on buff pottery is the best-known Hohokam pottery. In its earliest form, it is gray pottery with reddish brown colored decorations; around A.D. 700 the distinctive red-on-buff color appears.
- Redware, the second most common Hohokam pottery type, gained in popularity and dominated time periods after A.D. 1150.
- Polychrome pottery containing black, white and red decorative elements also appears after A.D. 1150. This change in style may represent trade with other groups or new people moving into the area
- Hohokam pottery comes in all different shapes and sizes! The ancestral peoples didn't just make plates, bowls, jars etc. They made effigies, figurines, censurs and spindle whorls too!
- In archaeology pottery equals people. Since different cultural groups all make/ decorate pottery differently this can be very useful to archaeologists. Style/designs also change over time which can be helpful for archaeologists in developing a temporal chronology (how cultures change over time).

Arts and Artisans

- The ancestral Sonoran Desert people (Hohokam) were master craftsmen and experts at working many different types of materials including – clay, stone, bone, shell, and plant materials. They crafted items that were functional and artistic - pottery, censers, jewelry, and baskets to name a few.
- The Hohokam liked their bling! They were experts at creating stone, shell, and ceramics jewelry! Look at all the jewelry – rings, earrings, beads, pendants, necklaces, nose plugs and lip plugs.
- Imagine how long it would take to make a shell bracelet. They would take large *Glycymeris* shells, turn it over and wear down the center portion of the shell by abrading it against stone to produce a bracelet or ring from the left-over band.
- The ancestral people also created beautiful designs by acid etching the shell. To make acid etched shell you would cover the desired portion with pitch and then submerge the shell in acidic fruit juice, such as fermented saguaro juice. Over time the exposed areas of shell would be eaten away by the acid.
- The ancestors also spun their own yarn and made all of their own clothes. Back strap loom, spindle whorls, and raw cotton are items in these two display cases they were used for making fabric. Once the cotton was picked it had to be turned into yarn using special spindle whorls made of pottery and stone. Once the yarn was formed this could be woven into fabric using a loom like the replica you see here.



Petroglyphs

- Petroglyphs are designs on rock that communicate something about a place or location.
- Petroglyphs are made by removing a portion of the rock's outer surface to reveal a lighter colored area of the stone. The O'Odham refer to designs on rock as Hohodi 'O'ohaḍag (pronounced HO-ho-dee O-o-ho-ḍuhk).
- Images of human beings, animals, and geometric designs are found on Hohokam Style petroglyphs dating between A.D. 700 – 1100. These designs can also be found in basketry and pottery.



- O'ohaḍag (designs) on rock have been - and continue to be - a deeply significant way of communicating feelings and information.
- Petroglyphs can be found on many trails in the area, like at South Mountain. It is very important that we don't touch them if we see them as we have oils in our fingers that can damage them.
- Be sure to visit the petroglyph boulders on our back patio. Sadly, the petroglyphs you see here were removed from their original locations, forever erasing the traditional knowledge they once portrayed.

Trade Networks

- We know that shell, turquoise, obsidian, and minerals were all incredibly important to the ancestral Sonoran Desert people (Hohokam); however, these materials are not readily available in this area. They probably traveled long distances or traded to obtain these items.

- For shell they would walk hundreds of miles to the Gulf of Mexico or Pacific Ocean. Turquoise sources would have been from northern and western Arizona as well as California. Obsidian sources would have come from western and northern Arizona.



- The ancestral Sonoran Desert people traded with both local and distant groups. Archaeologists believe they not only traded raw materials and finished craft products, but also exchanged ideas.

City Architecture/Ballcourts

- The ancestral Sonoran Desert people constructed structures used by the community; these structures were created for specialized uses and are commonly referred to as public architecture. The platform mound and ballcourt are two such structures found at Pueblo Grande.
- The activities associated with public architecture and the meaning of the activities is what provides a deeper significance to the structures.
- Va'aki were one of the major building achievements of the ancestral Sonoran Desert people; archaeologists believe there were over 50 va'aki in the Salt River Valley alone.
- Ballcourts are oval, bowl-shaped depressions that vary in size. They were constructed and used from about A.D. 750 until 1200 and may have served to promote market activities or exchanges.

Changing Exhibit Gallery

Seeing the Invisible: Landscape Archaeology in Phoenix



This exhibit is a successful collaboration between the City of Phoenix (Pueblo Grande Museum) and Arizona State University Center for Archaeology and Society.

- Landscape: the visible features of an area or region and how those features interact
- Archaeology: the study of the materials used and made by past peoples
- Landscape Archaeology: the study of ways in which people and places interact through time
- "Archaeologists look for connections across time to tell the story of the places in a landscape."
- The story of a landscape and how it is used by people (past and present) is dynamic or always changing.
- This exhibit explores how archeologist use non-destructive technologies to re-examine the landscape and petroglyphs of Deer Valley Petroglyph Preserve.

Record and Understand



- Technologies help show archaeologists how a landscape has changed over time.
- Three nondestructive technologies used by archaeologists to examine the landscape at Deer Valley Petroglyph Preserve are – geographic information systems (GIS), reflective transformation imaging (RTI), and drones.
- Geographic information systems (GIS) is a way of making digital maps. Digital maps help archaeologists track changes and look at the relationships of landscape features over time.
- Reflective transformation imaging (RTI) uses a series of digital photographs to compare light and shadows to examine fine details about the texture of a surface.
- Drones are used to take photographs of a physical location from the air.

Landscape Archaeology – Zoom In

- “The physical traces people leave behind in a landscape tell us what that landscape means to them.”
- People of the past used petroglyphs (designs on rocks) to identify the Deer Valley Petroglyph Preserve area as a special place.
- Petroglyph designs are made by removing a portion of the rock’s outer surface (or patina) to reveal a lighter colored area of the stone.
- Over time many of the petroglyphs at the Preserve have become hard to see; researchers use non-destructive technologies (such as RTI) to help them see the petroglyphs.



Landscape Archaeology – Zoom Out



- “The locations of petroglyphs can tell us which parts of the landscape were meaningful to people in the past.”
- GIS helps researchers identify the relationships between petroglyphs and other features within the landscape.

Living with the Land

- “In order to protect an ancient landscape, archaeologists try to understand how it was and is connected to the wider world.”
- Water is one thing that connects people (past and present). The Ancestral Sonoran Desert People constructed a network of canals that brought water to their villages and crops. Today Phoenix residents still rely on canals to move water.
- Aerial photographs taken by drones show how people have changed the landscape of the Deer Valley Petroglyph Preserve.



Community Gallery When Rez Dogs Howl



In this exhibit artist Thomas “Breeze” Marcus shares some of his artwork that is inspired by the natural and built worlds that surround him – past and present.

Art helps us look at the world around us.

Art helps us look at familiar things or places in a different way.

Breeze uses color, layers, symbols, and connections in his art.

- What do you see?
- What colors and shapes do you see?
- What pictures or symbols are used?
- Does this art remind you of anything?
- How does this art connect to our desert?
- What design/motif is repeated in all of the pieces?

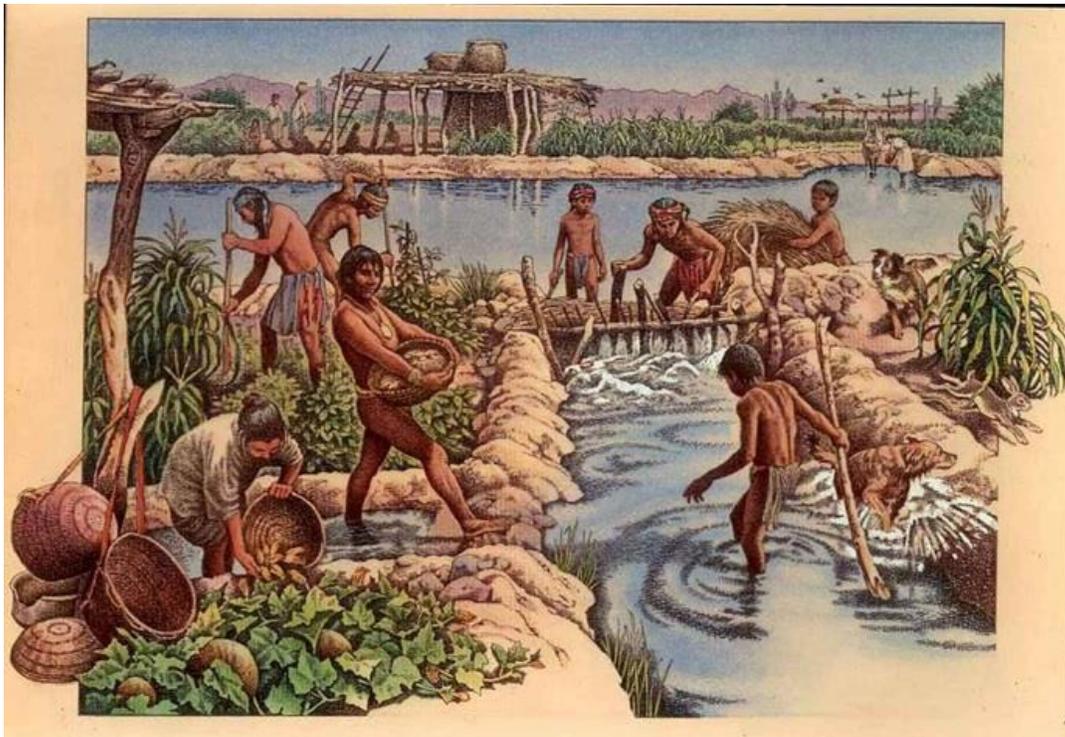
Art sometimes uses materials or items in unexpected ways. Are there any unexpected pieces used in the art in this gallery? Why do you think these items were used?



Portal Loop Trail (1/2 a mile)

To guide your visit along this new trail, we have grouped information into learning stations. Each learning station focuses on a topic related to water, the environment and the Sonoran Desert. Water plays a life sustaining role, especially in a desert environment. Canals are an important example of how people, past and present, have adapted to their environment.

1. Prehistoric Canals
2. Historic Canals
3. Site Neighbors
4. Saguaro Circle



Artist's rendition by Michael Hampshire depicting agricultural fields.

Prehistoric Canals

- Using their hands along with wooden and stone tools the ancestral Sonoran Desert people (Hohokam) built and maintained the largest prehistoric canal system in the New World.
- Canals were used to bring water to the villages and to irrigate thousands of acres of agricultural fields.
- The location of the Pueblo Grande village, on the north side of the Salt River, was ideal for constructing canals. The bedrock outcropping between Papago Buttes and Hayden Butte directed the water flow up making it easier to build canals in this area.
- One of the most important aspects of canal construction is determining the gradient or slope of the canal channel. If the canal is built too steeply, the water will run too fast and erode the banks. If the slope of the canal is too gentle, then silt will build up and slow the flow of water.



Grand Canal



Cross-cut canal

Historic Canals

- The Grand Canal, located within the boundaries of the Pueblo Grande site and next to the museum, was constructed in 1878 by Euro-American settlers. This canal is believed to have been positioned along the same pathway as canals constructed by the ancestral Sonoran Desert people prior to A.D. 1450.
- According to Salt River Project, “the Grand Canal is the oldest remaining pioneer canal on the north side of the Salt River.”
- From prehistoric times until present day, canal erosion and maintenance have been an ongoing issue. In 2019, the segment of the Grand Canal running next to Pueblo Grande Museum was lined with shotcrete (concrete applied to a surface using a high-pressured hose) to help reduce erosion of the canal banks.
- In 1867, Jack Swilling began the first modern irrigation company in the Salt River Valley – the Swilling Irrigation Company. The remnants of the canal excavated by this company, “Swilling Ditch,” is located nearby the site of Pueblo Grande on the south of the Grand Canal.
- The cross-cut canal, located just east of the Pueblo Grande Museum platform mound (*va’aki*), was constructed in 1888 to transport water from the Arizona Canal to the Grand Canal. This canal is now used to carry stormwater drainage to the Salt River bed.

Site Neighbors

Along this portion of the trail you will encounter three markers. Each marker contains a stylized image of a Sonoran Desert animal and a QR code with an audio recording related to the animal.

Listen to the audio recordings sung by Gila River Indian Community Elder Barney Lewis by following these steps:

1. Scan the QR code using your smart phone's camera.
2. Tap on the "lens icon" to connect the QR code to the audio recording via a URL website.
3. Turn on your phone's volume. Tap on the website link to listen to the song about the animal pictured.

Eagle

- Eagles are birds of prey whose sharp eyesight make them skilled hunters.
- They have strong feet with curved talons and eat primarily live prey.
- Bald eagles and golden eagles live in the Sonoran Desert.
- Bald eagles are commonly associated with habitats located near water sources, such as rivers and lakes.
- Golden eagles can be found in mountains, open country and in dry desert areas.



Quail



- Quail are shy birds with short legs, round bodies, and curved top knots on their heads that wave as they run.
- Gambel's Quail are found in the southwestern desert, mainly in Arizona.
- They eat primarily seeds, but have also been known to eat leaves, roots, and some insects.
- These birds are active in the cooler parts of the day – early morning and late afternoon.
- They can fly short distances but spend quite a bit of time on the ground.

Coyote

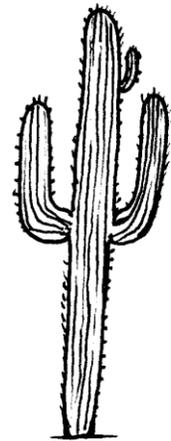
- Coyotes are small members of the dog family that used to live in the prairies and desert of the western United States and Mexico.
- Their ability to adapt well to different habitats has allowed them to expand their range. They are now found throughout the United States and Canada.
- Coyotes are omnivores and they adjust their hunting style to what foods are available.
- They have an average life span of 14 years.





Saguaro Circle

- The saguaro (pronounced Sa - WAH – ro) cactus is an indicator plant for the Sonoran Desert. If you see a saguaro you are most likely in the Sonoran Desert .
- The saguaro that you see were transplanted to create this tranquil resting spot.
- Saguaro are a slow growing cactus. The rate at which a saguaro grows depends upon the location, temperature, and the amount of rain it receives.
- The saguaro cactus is tall and heavy, but its roots are shallow and most of them are only 4 to 6 inches beneath the surface. The roots spread out from the cactus, like the spokes on a bicycle wheel, as far as the saguaro is tall! There is one tap root that extends into the ground about 3 feet.
- The saguaro cactus can soak up as many as 200 gallons of water after a rain! Having a wide root system allows the saguaro to gather desert rains quickly.
- The saguaro blossom is the state flower of Arizona
- Saguaro are the home to many animals such as the Gila woodpecker, purple martins, finches and sparrows.
- Although the saguaro is not endangered there are strict state regulations about collecting them.



Sources – For Further Reading

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