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LESSON 2: THE WEST POINT LANDFORM

SUBJECTS

Social Studies, Geography, Archaeology, Earth Science, Geology

DURATION

30 to 45 minutes

CLASS SIZE

10 to 30 students

OVERVIEW

Students will learn how archaeologists studied soil samples collected from West Point to determine how the landform shifted and changed over time and how people adapted to changes in the landform.

OBJECTIVES

- To teach students about the landform on which the West Point Site is located
- To study what archaeologists and geologists learned about changes in the West Point landform over time
- To examine how the landform changed as a result of natural processes and events such as rising and falling sea levels, earthquakes, tsunamis, mudslides, and erosion
- To consider how changes in the landform affected the human settlement patterns at the site and which areas were used at different times

MATERIALS

Sediment sample, "West Point Landform Changes" graphic, copies of "West Point Landform" during four time periods to handout to students.

VOCABULARY

Berm - a terrace formed by wave action along the backshore of a beach.

Bluff - a cliff or hill with a broad, steep face.

Landform - a feature that makes up the earth's surface.

Midden - a place where material such as shell, stone, and bone was discarded or sometimes stored for later use.

Sandspit - a narrow point of land extending into a body of water.

Subsidence - a geologic term to describe a landform that has dropped to a lower level.

Tsunami - an ocean wave caused by an undersea earthquake.

BACKGROUND

The landform on which the West Point Site is located has changed dramatically throughout history. Many natural geologic and environmental processes have played a role in the changing landscape such as rising and falling sea levels, erosion, an earthquake, a tsunami, mudslides, and land subsidence. Human activity has also changed the landscape, especially during the last one hundred years. Learning about how the landscape has changed helps us to imagine how people used the site in the past and how they adapted to the changes in the landform.

The following explanation interprets the laminated graphic entitled "West Point Landform Changes" and the "West Point Landform" handouts of the four time periods that can be distributed to the students. During the earliest occupations of the site 4,000 years ago, the landform looked considerably different than it does today. The roughly triangular landform had a berm on the north shore, a bluff on the south side, and a small lagoon in between. A flat, sandy marsh existed in the middle of the landform. A fresh water creek flowed from the uplands into the marshy area. About 4,000 years ago the people at West Point occupied the stable, flat, sandy marsh area. This area was located conveniently near to where shellfish could have been harvested and was protected from wind by the berm to the north and the bluff to the south. Another area that was occupied was on a low terrace immediately above the beach. This area would have offered a good view of the Puget Sound and been protected by the trees.

From 4,000 to 2,500 years ago the landform continued to change. Sand near the lagoon shifted creating a spit to the north and narrowing the opening to the lagoon. Sea levels rose slowly and steadily. A silty marsh environment began to accumulate in the back of the lagoon. Freshwater channels flowed more freely from the uplands, through the sandy and silty marsh areas, and into the lagoon. Several major mudslides occurred moving sediments down from the southern bluffs into the marshy area below. In the south part of the site, a mudslide flowed down from the bluff onto the flat marshy area below. This mudslide covered the earlier midden, causing people to slightly shift the location of a new midden. People also occupied the low terrace at the base of the southern bluff and two areas along the northern berm.

Around 1,100 to 1,000 years ago a large earthquake occurred along the Seattle Fault. This earthquake caused a twenty-foot tsunami wave to hit the beaches at West Point. The wave deposited a thin layer of sand over most of the site. The earthquake also caused the West Point landform to sink approximately three feet below present sea level. The lagoon opened up and the marshy area was flooded. People continued to occupy areas along the northern berm.

By 500 years ago, the area between the north berm and south bluff filled in again with sediments. A silty marsh area was created and vegetation grew. Freshwater channels flowed from the uplands, meandering through the silty marsh, and draining through the northern berm into the Puget Sound. At 500 years ago there was intensive use of the northern sand berm.

During the last 100 years, the landscape of the site changed dramatically. In 1898, the Army acquired 700 acres of the Magnolia Bluff including the West Point Site to create Fort Lawton. Fort Lawton developed into a major military installation during World War II when more than one million troops passed through the post, and over 200 new buildings were built. Most of the landform was covered with layers of fill. Some of the areas around West Point were used as a landing strip. The West Point Wastewater Treatment Plant was constructed during the 1960s. In 1964, the Army declared most of Fort Lawton surplus. The surplus lands were transferred to the City of Seattle in 1972. Discovery Park was dedicated in 1973. Today most of the archaeological site remains underneath the West Point Wastewater Treatment Facility. The immediate area surrounding the facility consists of beaches, bluffs, vegetated lowlands, and vegetated uplands. The north beach is approximately $\frac{3}{4}$ mile long and the south beach is approximately $\frac{1}{4}$ mile long.

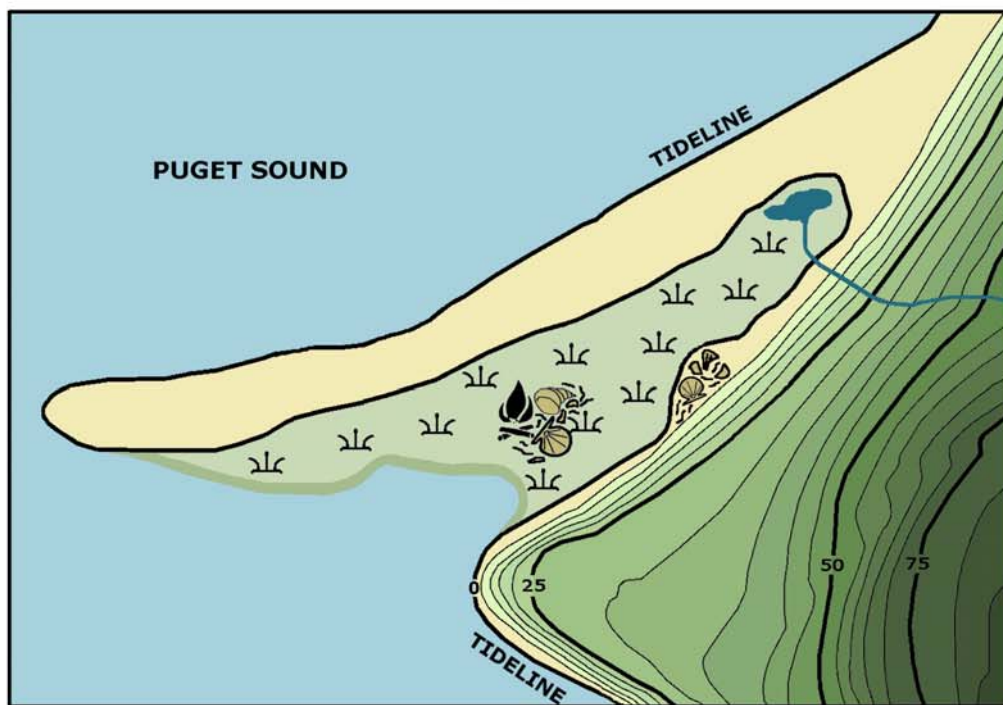
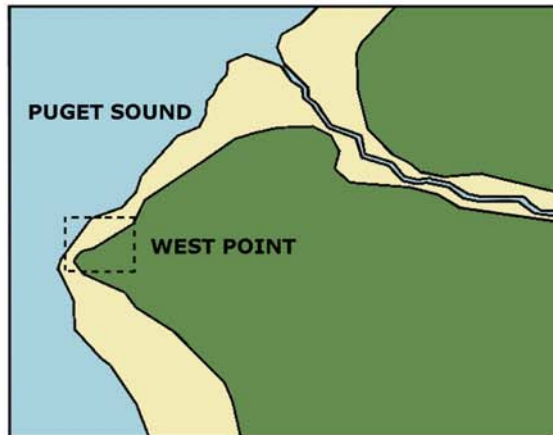
PROCEDURE

1. Display the laminated graphic "West Point Landform Changes" in front of the class.
2. Distribute the handouts of the "West Point Landform" during the four time periods.
3. Instruct the students to study the handouts beginning with the landform as shown 4,000 years B.P.
4. Discuss the different natural and cultural features illustrated in the graphic such as the Puget Sound, tideline, sandspit, sandy marsh, lagoon, stream, bluff, shell middens, and campsites.

5. Have the students identify where the shell middens and campsites are located.
6. Ask the students, "Why people might have chosen the areas on the sandy marsh and at the base of the bluff to occupy?" then discuss answers to this question.
7. Continue to review each of the subsequent graphics from 4,000 years B.P., to 2,500 years B.P, then 1,100 years B.P., and 500 years B.P.
8. For each graphic: identify the natural features illustrated; discuss the changes in the landform from one period to the next and the processes and events that caused these changes such as mudslides, rising sea levels, the earthquake, tsunami, establishment of freshwater streams, and deposition of sediment; find the areas where middens and campsites were located; and discuss why people might have chosen those areas to occupy.
9. Finally, look at the graphic of West Point in the present day. Discuss how humans have dramatically changed the landform during the last 100 years.

REFERENCES

- Larson, Lynn L. and Dennis E. Lewarch eds. The Archaeology of West Point. Seattle: Larson Anthropological/Archaeological Services, 1995.
- Rose, Penny. Discovery Park: Visitor's Brochure and Map. Seattle: Discovery Park, 1997.

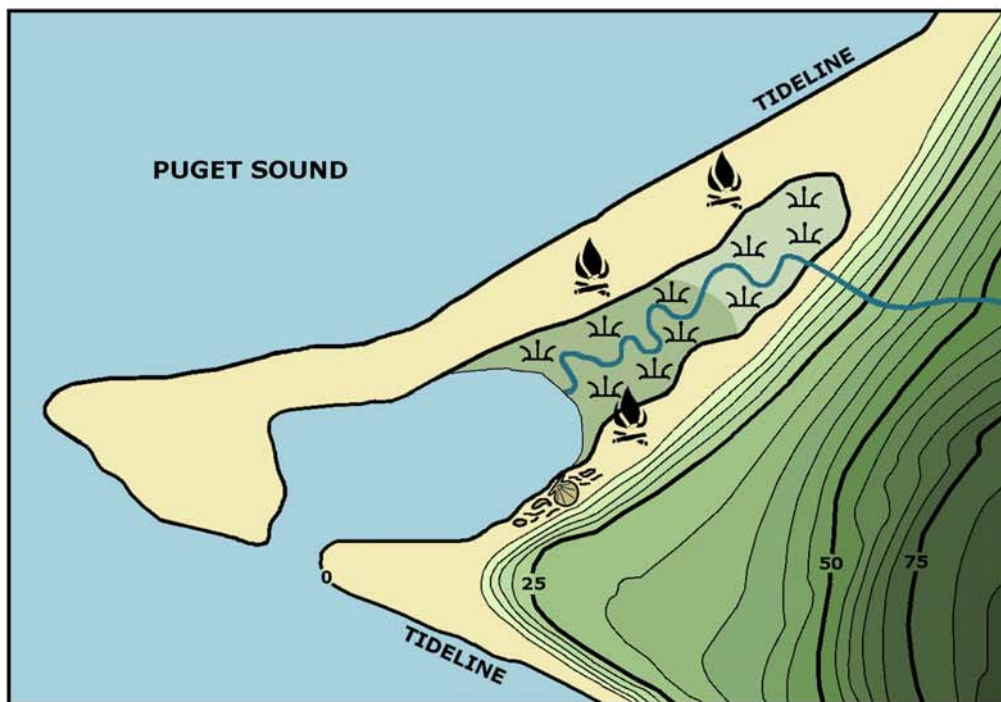


4,000 Years B.P.

KEY

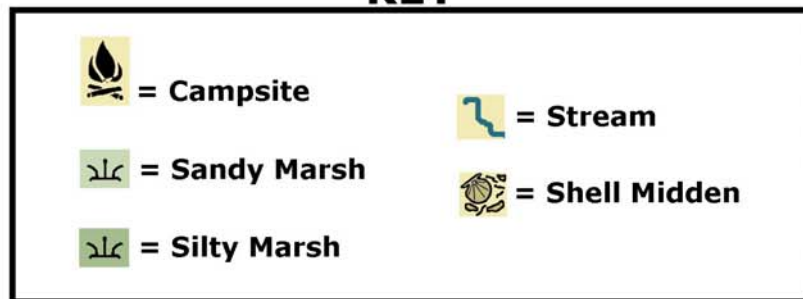
	= Campsite		= Stream
	= Sandy Marsh		= Shell Midden
	= Silty Marsh		

WEST

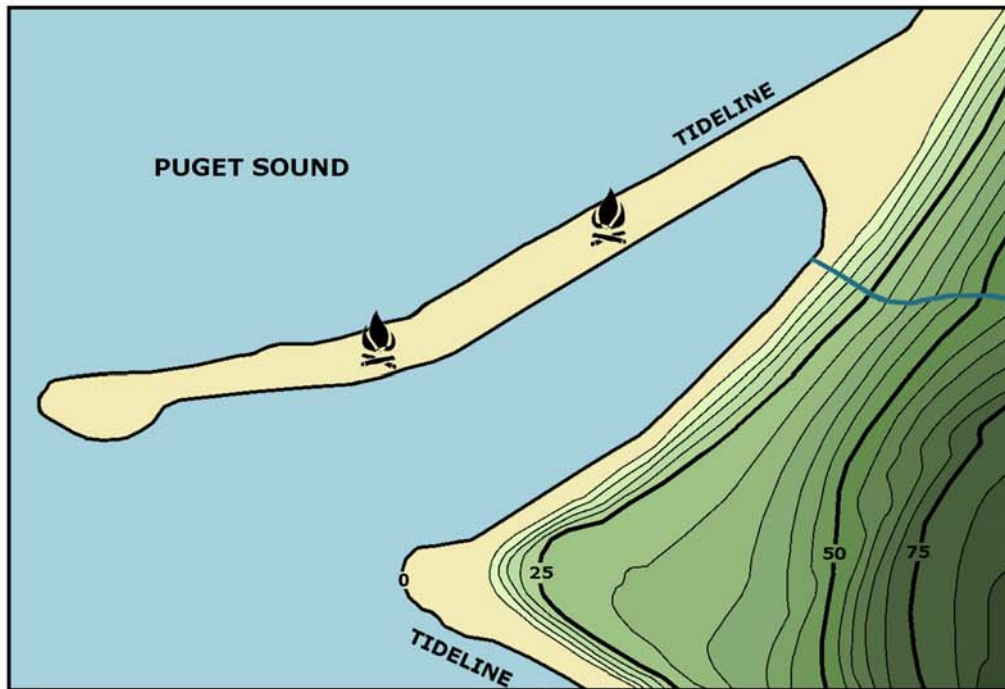


2,500 Years B.P.

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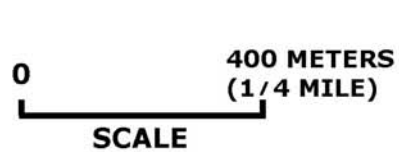


POINT



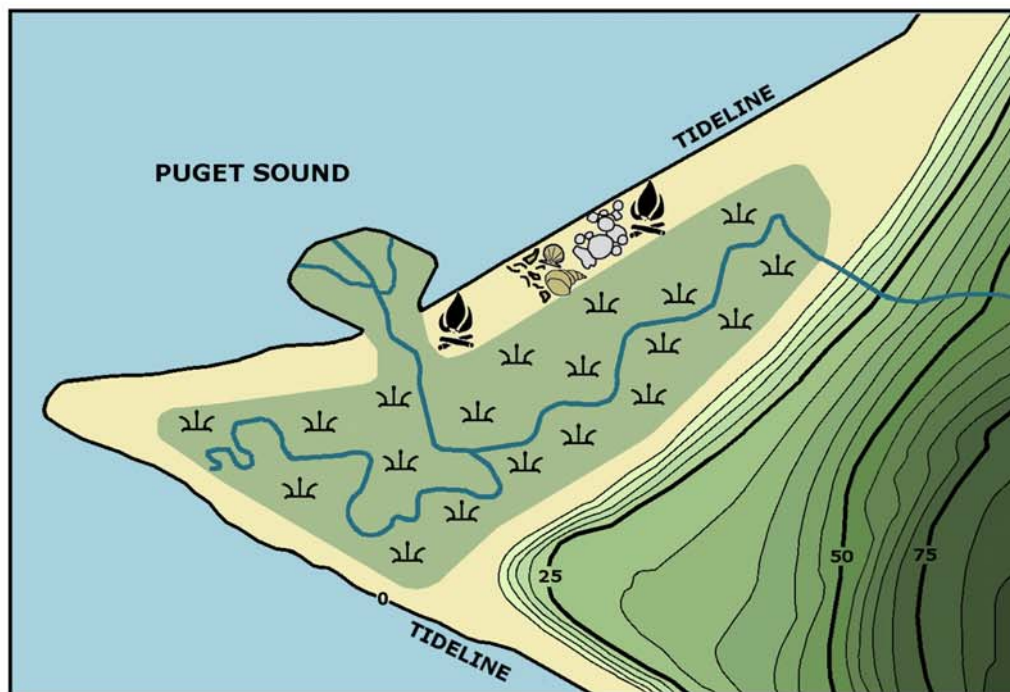
1,100 Years B.P.

KEY



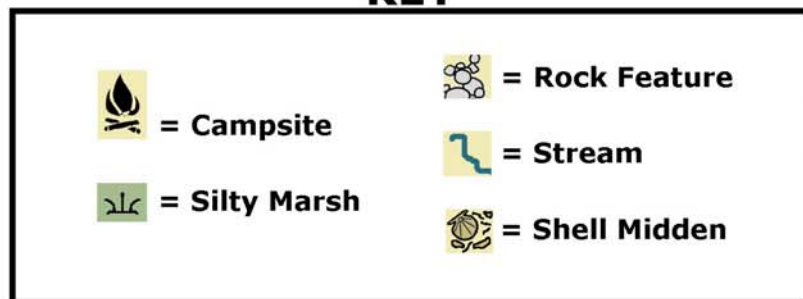
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LANDFORM

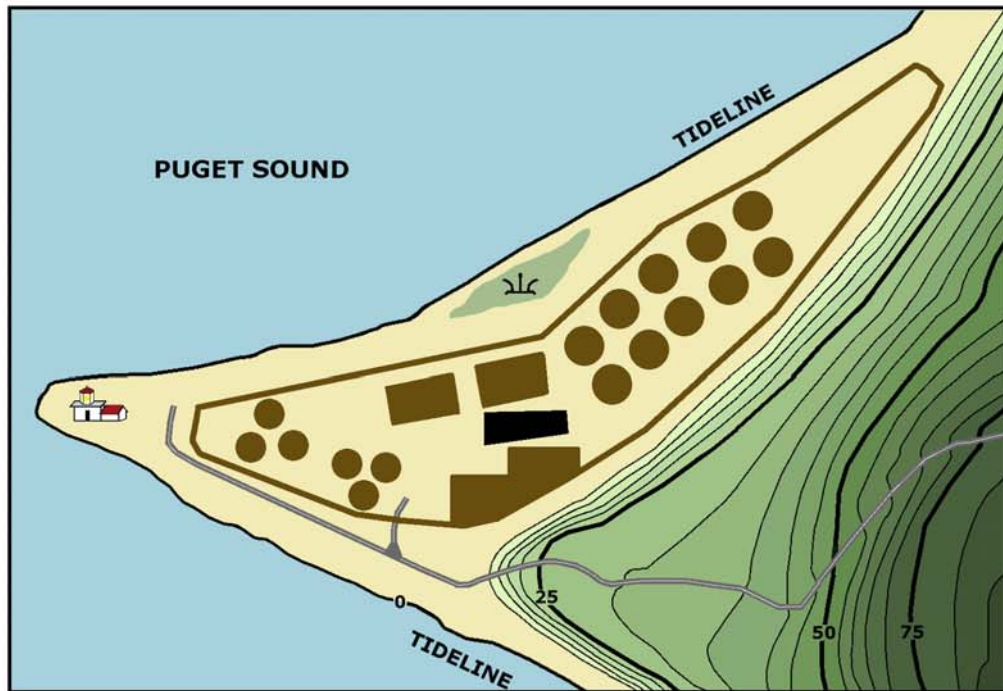


500 Years B.P.

KEY



CHANGES



PRESENT DAY

KEY

